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Throughout the Index the following abbreviations are used to indicate the nature of the reference:—
 (Pat.) Patent News. (Cor.) Correspondence. (Soc.) Societies' Meetings. (Rev.) Review or Trade Notice.
 (Hist.) "The Week in History." (Ans.) Answers.

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EX CATHEDRA.

Anniversaries. The series of notes on the history of photography which commence on another page disguise by their arrangement a fact which should aid the systematic student of past methods in photography, and that is, the connecting thread which runs all through the processes from first to last. Almost every worker has based his new process on that of his predecessors, often without a proper appreciation of the conditions under which that process was worked. This fact can be discovered in almost every advance, great and small, and it has the classical precedent of Fox Talbot, who borrowed the idea of development from Daguerre, and possibly also, as there is evidence to show, from the Rev. J. B. Reade.

Reviews of the Year.

Photography is classed with other chemical arts in the two leading German summaries of chemical progress. The "Technisch-Chemisches Jahrbuch" holds fairly closely to patents and scientific notes, and neither it nor Dr. Richard Meyer's "Jahrbuch der Chemie" attempts to review the whole literature of photography and photo-chemistry. Indeed, exigencies of space—their whole field is a very large one—prevent them from treating the subject in the detail which photographers would wish to see it done. Drs. Eder and Valenta, who are the abstractors for the second of the yearbooks, are extremely catholic in their citations of authorities, and we find them recording the general statement that properly stored dry-plates will keep in good condition for a long time—according to "W. D. Welfars." And on the next page they proceed to give an uncalled-for lightness to the present Treasurer of the Royal Photo-

graphic Society by crediting a paper of his to "J. Sherry." They ought to get their proofs corrected in England.

A Public Photographic Library.

The Patent Office Library, which has newly catalogued its photographic books, is the place where many a technical journalist is accustomed to verify his references. "Laissez faire" is the unwritten motto of its management, and probably no other library, English or foreign, offers equal facilities for research in the literature of technology. The Royal Photographic Society possesses a more complete collection of photographic books and periodicals, but, though it extends its courtesies to accredited students, it is not available to the public as is the Patent Office. In Southampton Buildings the signing of your name gives you the entrée to a library which must surely stand alone in the freedom granted to the readers in consulting the contents of the shelves. It is reported that photographic authors have been seen there extracting unwritten testimonials to their works from the dirtiness of their pages, and viewing, as a proof of popularity, the well-thumbed volume which bears their name.

More Cinematograph Accidents.

In another column we chronicled two more cinematograph accidents that occurred last week. It is noteworthy that at the large London houses where the cinematograph is in nightly use an accident very rarely, if ever, happens—the operators being all careful and experienced hands. In most instances nowadays when an accident occurs it is at a children's entertainment and at the hands of amateur lanternists or inexperienced operators, who do not fully realise the highly inflammable nature of the films they are dealing with. Lanterns and films are now to be had on hire, and very frequently the hirers are quite unaware of the combustible character of the films, and treat them very much the same as they would ordinary glass lantern slides, with the result that we sometimes hear of a scare amongst the audience, if nothing worse, and the operator suffering from burns. If the film be allowed to rest in the lantern, unless the light be previously shut off, a "blaze up" must be expected. A non-combustible film, as thin and flexible as celluloid, is still a desideratum, and a small fortune awaits the inventor of one. Various patents have, from time to time, been taken out for denitrating nitro-celulose, but they have turned out of no practical value so far as cinematograph films are concerned.

Photographic Fashion Plates.

Can the camera compete with the human draughtsman in the production of the ever-changing shapes which the eternal feminine assumes at the dictates of fashion? A writer in

the "Strand Magazine" takes a semi-hopeful view. But the photograph must show the fashion-plate woman as seven feet high, and with a ten-inch waist, if it is to compete with the creations of the artist. Large sums are paid to fashion-plate artists, and it is one of the branches of modern illustration which has attracted a large number of clever workers, whose "creations" are the weekly study of fashionable and would-be fashionable womankind. "Photography (says the "Strand") will never quite replace these, because the best photograph, charming as it is, still allows little folds and creases which mar the general effect. In photography you can idealise only up to a certain point. You can embellish, but you can't produce a line, or a fold, or a curve that is not there. If the photographer had the skill and knowledge of dress to pose his sitter to perfection. I've often thought that if such an atelier were established in London, I should like a hand in it. In fact, I can't help thinking photography on these lines will produce the fashion-plate of the future." This lay view under-rates the powers of the retoucher in photography, and, indeed, the optician, if it was worth his while, might provide for the alteration of the lady's figure to give it the present vogue. But according to one confession, the most faultlessly-dressed model never looks like a fashion-plate in the photograph, nor does any dress hang like a fashion-plate dress. "A photograph always makes a woman look dumpy, and dumpiness is out of fashion."

Explosive Flash Light Compositions.

One day last week some of the half-penny papers created a little sensation by announcing on their placards a mysterious explosion at the General Post Office, etc. The real facts appear to be these. A sorter in the Mount Pleasant depot, at one of the tables, came across a cardboard box bearing a penny stamp, and marked "Fragile," and tossed it lightly into a basket of correspondence going in the same direction, when it exploded, and a blue flame shot up, brightly illuminating the place. The flame was quickly put out, and no damage was done beyond that some of the letters in the basket were slightly scorched. The packet which had exploded, it is stated, was blown to atoms, but there was sufficient left in the fragments to enable the officials to trace the sender, who is a London photographic dealer. It appears that the packet contained a flash light composition which was sent to the order of a country customer. Now it is illegal to send any explosive through the post, and the sender is liable to prosecution. The explanation given by the dealer—that he had no idea that the substance would be exploded by a slight concussion—was considered by the postal authorities, and a prosecution will not be instituted. Many of the flash light compositions are highly dangerous unless they are handled with the greatest care, and this we have many times pointed out to our readers. Whenever we have been asked for formulæ for flash light powder we have always endeavoured to impress on the applicant the danger that may be incurred in compounding them, and advised the use of magnesium or aluminium powders by themselves, with one of other of the lamps now on the market. When this method of using the flash light is adopted there is no danger whatever to the operator, provided he stands clear of the flame, which usually extends to a considerable distance, particularly when a large quantity of the powder is employed.

The Nottingham Camera Club.—Sir Henry Cotton, K.C.S.I., has promised to open the photographic exhibition that is being arranged by the Nottingham Camera Club for early in April next.

UNCORRECTED LENSES.

THE article which we publish elsewhere on "Artistic Lenses," by Major Puyo, is interesting as letting a little light on to part of his method of obtaining those results which have been so much admired here.

The use of uncorrected lenses for obtaining softness of definition is no new idea. At the Camera Club Conference in 1893, Mr. Rowland Briant showed some extraordinary results obtained by the use of spherocylindrical lenses, though these were used in conjunction with slit diaphragms, which were placed parallel to or at varying angles with the axis of the cylinder. A year or two later a special set of uncorrected spectacle lenses, all fitting into one mount, were placed on the market by Dollond and Co., and these were plano-convex, or crossed lenses, ranging in focus from eight to twenty-four inches with an actual diameter of nearly two inches. One of these sets which came into our possession, we used with excellent results, and with varying effect, for although a table was issued showing the necessary correction for the actinic focus, yet varying degrees of softness of definition could be obtained by more or less disregard of the correction, and placing the plate practically at the visual focus.

In the exhibition of the R.P.S. in 1895 were some portraits by Mr. J. S. Bergheim which attracted a good deal of attention at the time, because of the very delicate softness of definition which just stopped short of actual fuzziness. These were produced by the Dallmeyer-Bergheim lens, which is practically a simple portrait lens, the front being an uncorrected positive meniscus and the back a single lens of negative focus, the distances between being variable, thus giving considerable latitude of focal length and what might be called great depth of focus. The full working aperture of this lens was practically $f\ 9$, and the spherical and chromatic observations were purposely uncorrected in any way, for Mr. Bergheim claimed that better results, that is to say, more painter-like effects were obtained by the use of this lens with its outstanding corrections than with a lens which was more perfectly corrected. This lens was free from distortion, and practically covered the plate with uniform definition or want of critical definition from edge to edge.

There is one point in Major Puyo's article about which we are not quite clear. He states that he uses lenses of from 80 to 100 c.m. focus, some of which work at an aperture of $f\ 5$, and that the cost of them is trifling. This means nothing more nor less than crown glass discs of from six to eight inches in diameter. These cannot, if optically worked at all, be of trifling cost, and unless he uses merely the half of a condenser made of St. Gobain plate, and one might almost imagine that he does, as he states that his lenses are plano-convex, one must wait for further information before accepting this in toto.

The use of uncorrected lenses of small aperture is by no means new, of course. Steinheil in 1865 introduced his periscopic lenses, which were composed of two crown meniscuses placed rather close together with a very small stop, $f\ 40$, placed midway. In the following year Zentmayer, of Philadelphia, U.S.A., improved on this by making the back lens of shorter focus, and placing the diaphragm nearer the back lens. Both these lenses were, however, wide-angle lenses, and embraced a fairly wide angle. For many years Rodenstock, of Munich, has placed on the market both landscape and doublet objectives, composed of uncorrected lenses and the Rathenower Optische Anstalt have a convenient casket set of such lenses.

Many of the lenses used in the cheaper form of hand cameras, particularly of Continental manufacture, and of the box type, are fitted with periscopic lenses, and with these the correction for the actinic focus is made once and

for all; but in every case they work at comparatively small apertures.

The use of uncorrected lenses of large aperture, particularly of the meniscus form, is quite permissible for those who wish to obtain softness of definition for the outstanding spherical and chromatic aberrations prevent anything like critical definition being obtained, and give that peculiar effect which is called "painter-like" by the pictorial photographer. That these lenses also possess so-called great depth of focus is another feature in their favour from the same point of view, and this is due to the fact that there being no plane of critical definition, the plate may be placed within a fairly wide range both before and behind the visual focus without much difference being seen. Personally, we believe that equally satisfactory results may be obtained by the judicious use of a corrected lens, and whilst the latter may be used for artistic work, and is at the same time always ready to give critical definition when so required to do, whereas the uncorrected lens will not help us in the latter case, it seems the more reasonable to choose the most perfect tool we can get rather than a makeshift.

PHOTOGRAPHIC LITERATURE.

THE re-issue of the list of photographic books and periodicals in the library of the Patent Office seems the occasion to draw attention to the collection brought together there primarily for the purposes of patentees and disputants of patents, but open to the public every week day from ten to ten. We are probably right in describing the collection as more completely representative of photographic literature than any other provided in the public interest. It may be that the British Museum is better off, but in the absence of a class list a comparison is practically impossible. Moreover, the labour of consulting any great number of works at the British Museum library would deter any one from devoting days there to a search which could be made in hours at the Patent Office. The new catalogue thus represents the most perfect means, at the disposal of British photographers of making any research into the history of the craft, of ascertaining the validity or invalidity of a patent or the anticipation of an invention. If conclusions can be drawn from articles and processes which are patented at the present time, there must be many inventors to whom the Patent Office library is a "terra incognita," and for this reason among others the widest publicity should be given to the opportunities granted under the Patent Laws. The system of granting protection by Royal Letters Patent to nearly anything, at the same time providing the means of proving the invalidity or otherwise of the patent, may not be a perfect one, but the Patent Office carries out the latter part of its contract with commendable efficiency. With the aid of the lists such as the one just issued the inventor or investigator is given every chance of acquainting himself with the results of workers in the same sphere as that in which he has been labouring, and that is an opportunity which may be impressed upon every one, occupied with original work in photography, who is within easy access of the library.

The arrangement of the present list* is one which will probably give the photographer a good deal of annoyance before he discovers his way about it. As explained in a preface, it consists of two parts. The first, which occupies nine-tenths of the volume, is an alphabetical list of subject-headings, with entries, in chronological order,

belonging to each. The second part consists of a series of keys, or summaries, of these headings in class order, that is, apparently on the plan according to which patent specifications are classified.

As the list includes works on printing and other graphic arts besides photography, all the references in the earlier and later parts of the list are brought together under P within the space of fifty pages. In the arrangement of these pages, the chief alphabetical headings are:—Photochemistry, Photo-enamels, Photographic, and Photography, and it is the sub-headings which describe or indicate the character of each section. Under this scheme printing processes is included under "Photographic," but "Development and Developers" fall under "Photography" thirty pages later. Doubtless there are good bibliographical reasons for this, but the arrangement seems to us puzzling, and the best thing the student can do is to begin with the key in Part II., which will direct him to the subject he is seeking.

In other instances the bibliographical instinct appears to have got the upper hand of the compiler, who might have sacrificed classification of the works as books to arrangement of them as bearing on photography. Because certain works on photographic chemistry are written under an alphabetical scheme, they go under "Dictionaries" on page 219, whereas, photographically speaking, they are more fitly placed under "Photographic Chemistry" on page 205. True, there is a reference under this latter heading to "Dictionaries," but the bibliographer has his way.

We mention these facts to show that it will be to the advantage of any one paying a visit to the library to familiarise himself with the ins and outs of the list beforehand. The compilers, too, who are now engaged on the long-expected list of the Royal Photographic Society's library are also urged to moderate any bias they may have towards conventions of the bibliographer. A scheme of subject classification which is based, say, on the natural history of a photograph from emulsion making to the finished and mounted print, will probably be more readily followed than an arbitrary arrangement which is without such obvious frame-work.

But we would not appear to underrate the labours of the Patent Office librarians, for the list bears many evidences of the care with which they have sought to provide a reference to their literature whenever the searcher would be aided thereby. To take an example, they include "The Art of Retouching," by J. Hubert, under "Portrait Photography," as well as under "Photographic Retouching," because it contains chapters on portraiture by day and flash light. And so in other cases they are at pains to bring out the miscellaneous contents of many of the older text-books.

Though they follow convention in contracting Christian names into initials, whereby one well-known writer becomes scarcely recognisable as "C. Jones," they are equally strict in printing in full such titles as the following of a work issued in 1840:—

"Electro-magneto-tipia ossia spiegazione teorico-practica di come succedano le naturali impronte degli oggettivi chiamanti Daguerreotype."

And they even mildly correct the vulgarity of a writer on "P.O.P." by turning it into "P(rinting) O(ut) P(aper)."

H.M. CONSUL at Boston, U.S.A. (Mr. W. Wyndham) reports that inquiries have been received at his Consulate for the names of manufacturers of magic lantern slides on agricultural subjects. Communications should be addressed to H.B.M. Consul, British Consulate, Boston, United States of America.

* Subject list of works on the fine and graphic arts (including photography) and art industries, in the library of the Patent Office. Published at the Patent Office, 28, Southampton-buildings, Chancery-lane, London, W.C. Price 6d.

THE WEEK IN HISTORY.

A Photographic Calendar.

THE historian's task in photography is not an easy one, nor is it one which brings a measure of return for the labour that is spent on it. The difficulty is the scattered literature of the craft. Few English writers have troubled to investigate the early records, and the most painstaking work of this kind must be ascribed to German authors, notably Dr. Eder and Dr. Schiendl. The thanklessness of the task lies in the common attitude, according to which history is dry and the story of the past without relation to the photography of the present day. However, the chips from history which will appear week by week under the heading on this page should convince any one of the incorrectness of that view. There is scarcely a photographic process or a piece of photographic apparatus which is not evolved from the work of the earliest photographers, and many of the "practical hints" which gain spasmodic currency as original appear in the early records of photography in almost the identical words in which they are offered to the present-day reader.

The First R.P.S. Exhibition.

The exhibition to be held next September in the New Gallery will be the fiftieth of a series which was inaugurated on January 4, 1854. The exhibition thus attains its jubilee two years after the fiftieth anniversary of the foundation of the society, for "The Photographic Society," as it was then called, held the first exhibition in the second year of its existence, and since then there has been one year in which no exhibition took place. Perhaps few of the guests at the conversazione, which ushers in the autumn exhibition are aware of the antiquity of the precedent which determines their presence. But the first exhibition was inaugurated in this manner "by a soiree at eight o'clock on the evening of Tuesday, January 3, when the members of the Photographic Society and their friends will assemble to advance and discuss the merits of the collection." Some of the regulations set forth on the announcements do not read so curiously as might be thought. Indeed, were the recommendations as to distinguishing process prints from virgin and untouched negatives to be revived, a visit to a modern exhibition would be robbed of its monotony. To quote from the society's Journal:—

"Negative Photographs on Paper and Glass; Positive Photographs on Paper and Glass, untouched or coloured; Daguerrotypes, plain and coloured; and Stereoscopic Pictures will be admitted for exhibition.

"Coloured photographs will be admitted only when accompanied by a pure and untouched copy of the same Picture.

"Positive Pictures printed from 'touched' or painted Negatives must be described accordingly."

Did the present stylist in mounting exist in those early days? His methods seem to be implied by the request "that, for the sake of economising space, the margin of mounted Photographs should be kept within moderate bounds."

The exhibition was visited by the late Queen and the Prince Albert prior to its public opening, and her Majesty and his Royal Highness expressed their satisfaction at the wonderful advances in photography. The exhibition remained open until the end of February.

It might be mentioned here that at the time this Exhibition was held, Sir Chas. Eastlake, then President of the Royal Academy, was the President of the Society, while Sir Wm. Newton, one of the then finest miniature painters, was one of its Vice-Presidents. From this it will be seen that photography was not then tabooed by artists as many at the present time might think it was. Fuzzygraphs are not quite such a modern idea as some appear to imagine, for about this time Sir William Newton suggested printing through tissue paper to subdue the excessive sharpness given by the lens.

Iron-silver Printing.

One of Sir John Herschel's early papers on the chemical alterations of substances in light dealt largely with iron salts, and the various processes which employ that metal at the present time are based upon his original observations. On January 1, 1862, Emerson J. Reynolds published, in *THE BRITISH JOURNAL OF PHOTOGRAPHY*, some notes on an iron-silver

printing process which are, very likely, unknown to many experimenters with methods of this kind. He coated paper with ferric oxalate, exposed it under a negative, and developed in a solution of ammonio-nitrate of silver. Though he obtained an intense black tone, he found that the picture was often wanting in detail, and this he traced to the solubility of the image (of ferrous oxalate) in ferric oxalate solution. "After a great number of experiments," he writes, "I found that the difficulty might be overcome in either of two ways, one being to substitute the combination of peroxalate of iron with oxalate of ammonia for the plain oxalate, the compound salt not having any action on the protoxalate. The second way was to wash the print immediately on coming out of the printing frame with a solution of acid oxalate of ammonia which immediately formed the double salt referred to."

The double salts of oxalate of iron and oxalates of the alkalis were not used by Reynolds for the first time, but he appears to have done what the previous experimenters did not do—viz., to have shown why the double salt is preferable to the simple ferric oxalate. Silver and iron, the latter as the sensitive salt, have been the subject of much experiment ever since, but until Nicol placed his so-called "Kallitype" paper on the market the method did not come prominently before photographers. Indeed, Kallitype had a short life, commercially, and the principle of obtaining a silver image by the reduction of an iron (ferric) salt is now chiefly applied in the one-solution sensitiser and sensitive materials by which a sepia print is produced on fixation in hypo.

Copyright in Germany.

Twenty-nine years ago, on January 10, Germany passed the Act granting protection to photographic works against unauthorised reproduction. The German authorities do not pay photographers the delicate compliment of officially recognising all photographs as works of art; they have one Act for "works of art" and another for photographs, and the poor photographer fares very badly at their hands compared with the painter or draughtsman. Copyright in "works of art" lasts for the life of the author and thirty years after his death. Copyright in photographs is granted for five years only. This period commences with the end of the year in which the first copies of the photograph appeared, or, if the negative has not been printed from, from the date on which the negative was made.

In conformity with German law every photographic or other mechanical reproduction of an original photograph must bear, either on the picture itself, or on the mounting, the name, or firm, of the photographer or publisher, his address, and the year in which such reproduction first appeared. The German law also holds that it is not piracy to make free use of a photograph to originate a new work, though presumably it leaves it to the Courts to decide whether any "originated" work is new or not.

Legalised Piracy.

But the most notable—perhaps scandalous would be a more appropriate word—enactment is that of Article 4, which rules that "it is not piracy to copy a photograph for use in a work of industry, handicraft, or manufacture." The manufacturer of an overmantel or a matchbox has at his free disposal any photographs whatsoever which he may choose to employ for the decoration of his goods, and the photographer has no redress. The worst form which this legalised piracy has taken is in the postcard industry. The status of the postcard as an "article of manufacture" was upheld in certain German Courts, and publishers began to think that they had "carte blanche" to select any photograph they liked without payment of reproduction fees. But as the picture on the back of the postcard became larger, and the space for the message reached a minimum of a half-inch strip, the card took the character of a reproduction rather than that of a decorated "article of manufacture," and it is questionable whether the law will protect the postcard publishers any longer. German photographers are still agitating against the injustice of the present state of things, and one strong argument in their case is that thousands of cards

* According to the translation of the German Act in "The Law of Copyright," by W. A. Copinger.

never go through the post at all, but are sold simply and purely as reproductions.

The Hand Camera.

In fixing the anniversary of hand-camera photography there is choice among a number of dates. Hand cameras were not unknown in collodion and early dry-plate days, and the name of Skaife is prominent in devising means for rapid exposures. But the era of the hand camera did not commence until a much later date. It began with the "detective" camera which Mr. Thomas Bolas showed towards the end of 1880, and on which he read a paper published in the "Photographic Journal" for January 21, 1881. The camera there described was of box form, with a full-size finder on the twin-lens principle, a focussing scale, and a pneumatic release for the shutter. The lenses employed by Mr. Bolas, if I mistake not, were a pair of stereo-lenses of the Petzval type, working at F. 4. The outside case measured one foot square and five inches deep, and carried inside it thirteen double dark slides.

"When the finder is used," writes Mr. Bolas, "it is generally quite easy to rest the apparatus against a wall, post, or some other firm object, but in many cases it is sufficient to hold the camera in the hands, especially if it be moved in the same direction as the shifting object which one wishes to delineate. In the majority of cases, however, it is altogether out of the question to use the finder, and, in such an instance, one must set the focus to certain fixed points previously determined by experiment and recorded by the simple expedient of driving tin-tacks into the box round the milled head. Thus, for example, when a mark on the milled head is opposite tin-tack number one, the camera is set for a distance of 25 ft. or ten paces of my walking, and in this case distant objects are as sharp as it is generally desirable to have them when a figure forms the leading point of a picture."

Hand-camera workers have no need now to attempt to syn-

chronise the movement of the camera with that of the subject, nor do they work under the condition which prompted Mr. Bolas to advise that "in most cases the camera must be placed on the ground when the picture is taken."

The Twin-Lens Camera.

The use of two lenses of the same focal length dates back to a period much earlier than that of Mr. Bolas's paper. In 1864, if not earlier, a stereoscopic twin-lens camera was used by Disderi a professional photographer in Paris. It was in use before 1864 probably, because a description of it appears in a German work by Disderi, "Die Photographie als bildende Kunst," which was issued in that year, and is described as prepared from a French book by the same author. Disderi employed a primitive form of shutter, consisting of a wooden board moving up and down behind the two pairs of lenses. It could cover either the upper or lower pair, and was attached to the base of the lower camera, in which was the wet collodion plate, by two rubber bands. On the image in the upper camera being judged suitable, this behind-lens board was pulled up by a string. It flew back again on the string being released.

Still Earlier Twin-Lens Cameras.

The above reference to Disderi is the earliest reference in the literature that I have found, but twin-lenses were really in vogue long anterior to any of the dates here mentioned. They were in common use for stereoscopic pictures in the middle "fifties," and, in the early days of the cabinet twin-lenses of the quarter-plate size, were very general for taking the pictures. In 1861 I had a camera so fitted for taking carte-de-visite portraits, in everyday use, and so had very many others. Silvy had his cameras fitted with two pairs of twin-lenses and a repeating back, taking eight negatives on a plate. Silvy was one of the first to take cabinet portraits.

HISTORICES.

ARTISTIC LENSES.

In "Photograms of the Year 1904," in the opening article by Robert Demachy, entitled "Pictorial Photography in France," there occurs the following passage:—"Major Puyo's private exhibition, which opened a few days after the close of the Salon, was meant to be a practical demonstration of the qualities of certain lenses for artistic portraiture, the curves and corrections of which had been calculated by M. de Pulligny and Major Puyo. The pictures taken with these lenses were printed straight on Ilford paper, so as to show clearly the various effects furnished by the new studio telephoto lens, the chromatic single and double meniscus combinations, etc., working at F/10, F/7, and F/5.

"The softness of Major Puyo's pictures is extremely pleasing. There is no actual blur, no disagreeable fuzziness; the accents are strong and well-defined, the depth of focus quite exceptional, and the indescribable mellowness of the image I have never seen equalled. But the cost is so ridiculously small that I suppose the Pulligny objectives will have but small success amongst amateurs. Several of the foremost Parisian opticians and a quantity of professional photographers visited Major Puyo's studio, and were very much struck with his successful results."

I was struck with this passage, because, although a somewhat diligent student of foreign literature, I could not recollect any previous reference to the Pulligny lenses, and M. Demachy's reference is delightfully vague. As luck would have it, however, in the "Deutscher Camera-Almanach" for 1905, the first issue of a new annual edited by Herr Fritz Loescher, and published by the well-known house of Gustav Schmitt, of Berlin, a copy of which has just reached me, I find an original article by Major Puyo on these very lenses, and the following somewhat liberal translation of that article explains the whole thing.—E. J. WALL.

1.—The Artistic Lenses Should Draw Synthetically.

When one hears certain statements and reads certain writings, one might believe that the photographic apparatus possesses the power of making pictures which can convey to our eyes the sensation of nature and life. The exact opposite is the truth; the lens is like the mind of a notary, who grapples with the facts of a case, and an inventory is not literary work.

The lens is in reality a tool for analysis, the photographic reproduction is analytical, whilst all true graphic arts make towards synthesis as their natural aim, because they suggest more than they describe. Advances in art thus succeed by the expression of a greater and greater synthetic reproduction. A commonplace truth, which is clearly evident when one pits a Velasquez against a Mantegna, a Corot against a Claude Gellée.

Therefore the lens, which copies a map so well, gives us no true picture of a tree or a face. No; the tree cut out of zinc, which the lens shows me, is not the same tree which I saw living and breathing in the light breeze; this legion of absolutely identical leaves, which appear to assiduously challenge me to note each one, is not so numerous as it there appears; the lens must have done something to it, in the same way as on this face it has drawn wrinkles, spots, and blemishes which my eye has never noticed, for it was employed in other ways, charmed with the play of lights and shadows in the deep and raised places. Because it is too exact and too impartial, the lens does not draw likenesses.

One must strive for simplification and exercise restraint. At all stages of the photographic work of art the ever-restless striving after a more and more synthetic and impartial form of expression makes itself felt, as soon as one will create pictures in which the documentary qualities shall be sacrificed to the esthetic. These qualities are opposed to one another, and to combine them in the same picture is assuredly to make futile labour. How far can one go in this way towards synthesis? This is another question. The future will teach us; meanwhile, it must suffice for us to prepare for the future.

The photographic work of art is completed in three stages,

by the action of the coloured circles, the details without importance being obliterated. Thus, for example, on a face the freckles disappear.

3. As the breadth of this diffusion circle is proportional to the absolute diameter of the diaphragm, the chromatic softness of the drawing with objectives of equal ratio aperture is in exact ratio to the focus. The result of this is that the synthesis will increase with the size of the picture.

All these peculiarities are of advantage.

IV.—Conclusions.

M. Pulligny, of the Photo Club of Paris, two years ago laid down the principle of the "anachromatic" lens. He will very soon publish a complete work on this subject.

As regards myself I have used for two years:—

1. A plano-convex lens of crown glass, which is specially suitable for studies of heads. It has a ratio aperture of F.5.
2. A simple meniscus, a concavo-convex positive lens for studies in rooms, with a ratio aperture of F.10.
3. A symmetrical objective of two identical meniscuses of

crown glass. The details of curvature of the image and lens distance I have empirically determined. This objective gives with ratio aperture of F.5 very homogeneous pictures.

4. A telephotographic lens, with this symmetrical lens as a positive and a plano concave lens, also made of crown glass as the negative element. With this lens one can obtain heads in life size at a distance of four metres.

M. Pulligny has constructed another series of lenses which he calls "semi-anachromatic," in which the chromatic aberration, is correspondingly reduced.

One of the principal advantages of all these lenses is that without great expense one can use lenses of very long focus; the price is in fact nominal. These lenses enable the amateur to observe the laws of perspective. He will soon discover that the foci of the anastigmats are ridiculously short, and will, following my example, and use foci of from 80 to 100 cm. Above all, with these lenses, actual portraits can be made, heads in half, three-quarter, even of full life size, heads of broad modelling—thanks to the chromatic aberration—and of true "painter-like" impression.

NOVELTIES AND SPECIALTIES.

OCCASIONALLY a revolution takes place in photography, as when the dry plate was introduced, or a successful rival appeared to defy albumen paper. But more change has been wrought in work by steady and gradual evolution than by the few epoch-making introductions. Let any photographer compare a dozen prints from a leading studio of to-day with the same number from a studio of 1870. The difference between the two selections is tremendous, but it has been arrived at by a slow and gradual—almost imperceptible—change of ideas and fashions. If a selection from each of the intervening years could be assembled there would be little difference between any one year and the one succeeding it; but the difference between the first and the last is great enough to be called a revolution—though arrived at by a very gradual evolution.

The evolution has been a broadening one. Thirty-five years ago a photographer, in ordering his mounts, merely wanted so many G.B.E. gold-blocked carte-de-visite mounts, and so many ditto ditto cabinets. About twenty years ago—more or less—Christmas mounts were put on the market. They were still gold-blocked G.B.E., but printed with an appropriate motto. To-day the unity in mount design has vanished; and as for Christmas mount designs, their number is legion. Some workers, perhaps, sigh for the old days when one photograph in all respects resembled another, but most photographers accept the present condition, and use the large variety offered them as a means to increasing their business.

This is an age of

Severe Competition.

and the photographer who quietly sits down and waits for business to come to him is likely to find that his trade is dwindling, and to think that photography is played out. The man who is always to the fore with good work and new ideas earns the reputation of being alert and up-to-date, and he finds this a very valuable asset in his business. Being alert does not necessarily mean squandering money. Many a photographer pays for circulars or newspaper advertisements when he might just as well give the money to a benevolent institution for any good it does him. When the alert man spends money for anything he gets his money back with interest. He may pay an extra three shillings a hundred for some special mounts, but he gets an extra shilling a dozen for the pictures sold on them. It is not so much a matter of spending money as of using brains. Any one (who has it) can get rid of money, but there are comparatively few men who know how to make the most of things without paying for it. It is not always necessary to seek for some new idea to attract customers. New ideas are not numerous, but there are many ideas which are as old as the hills, but which may be new to those who are not professionally connected with photography.

The Art of Being Different.

is a simple one, but if properly cultivated it brings in money. The man who first announced "all pictures by the instantaneous

process" was not, possibly, strictly truthful, but he struck a good idea at a time when there was some slight truth in the venerable joke associating the photographer with the dentist. The words are still often seen, though they have lost their point as the public have become more and more familiar with the ease of modern photography. They did not cost a farthing to the man who first wrote them up against his studio.

In a certain road in suburban London there are four photographers, and in each case their display, so far as it affects the passer-by, is limited to a showcase. The showcases are as mundane and expressionless as four peas. In three of them the work has not been changed for at least six months (in one of them the prints have been carelessly made and are discoloured). In the fourth some new prints were put in just before Christmas. In each instance the work is just the ordinary work of the studio, arranged with a view to showing as many pictures as possible. Here is a chance missed. If one of these men could in some way make his display distinctive it would at once catch the eye of the people for which it angles. Suppose, for instance, that one of the cases was swept and garnished—the glass polished and the red plush well brushed. Then, instead of the sixteen crowded cabinets there is placed in it a single platinotype print of an effective, pretty sitter, the print neatly framed. The change from the ordinary display would be sufficient to catch the eye of hundreds who passed, unseeing, every day. And this is what the showcase is for, and it would be achieved without the outlay of a single extra penny. This one photographer would reap a benefit which to a certain extent would be at the expense of the others. Suppose that all four of them simultaneously woke up, and each woke to an equal degree, would they not do just the same amount of business as when they were all in the rut? Not necessarily so. Enterprise does not merely seize a share of existing business, it

Creates New Business.

is a good business bringer. This need not be a new thing, if it taste of tea. And the tea growers and tea merchants are contemplating a campaign against France, not to scramble for the present tea trade, but to create new trade. So it is in photography, or in any other line of work. It is safe to assume that if those four showcases all attracted attention, some people would be drawn into the studios who had not previously thought of being photographed. There was an old notion that being photographed was a duty one owed to posterity, and the notion does not seem quite dead yet, especially among men. Women are better in this respect, and they may come to the studio because they have got a new ball dress, or a new set of furs. It is time that the posterity notion was utterly exploded, and it will be done by photographers keeping abreast of the times—or a little ahead.

A Good Specialty.

is a good business bringer. This need not be a new thing, if it is a good thing. Some of the commonest special lines are en-

largements, or a cabinet print included with half a dozen cartes. What the specialty should be depends upon the class of trade done, and upon other things. The introduction of platinum prints was at one time a good move. Now they are a regular part of the work of almost every photographer. One of the most effective of specialties I ever knew was offered by a photographer doing a very cheap class of work. In every dozen prints he included one opaline. The glass was a spoilt negative, carefully cleaned, and he bound the edges in passe-partout fashion with gilt paper. A backing card and a tape to hang it completed the work. Not a particularly brilliant idea, perhaps, but, beyond the slight added work, the extra cost of each opaline was less than a farthing. He had nothing to lose, and a few shillings to gain, by his specialty. One of the daintiest of specialties is a miniature portrait. Frames for miniatures may cost a few pence or they may run through shillings to almost any price. A cheap "miniature" may be made by trimming down one of the prints of an order for cabinets, but such a print is in no true sense a miniature. It may, however, prove a small business bringer. The man who poses his sitter ostensibly for a miniature, and can obtain pleasing composition and delicate detail in a small oval space, should make a leading line of this class of work at remunerative prices.

This article is

Merely Suggestive.

There are many special lines, many little novelties, which will occur to any photographer who gives a few minutes' thought to the subject. He need not seek for any great thing—there is no panacea needed for photographers at large. What he requires is something that the people have not seen, or not seen lately, something that will attract attention to the studio. It may be a novelty costing money, or it may be one entailing only a little extra work. In either case, judiciously handled, it should achieve the desired end of drawing custom to the studio.

ALEXANDER BRADFORD.

Photo-Mechanical Notes.

Advances in Photo-Lithography.

Two new processes are at present attracting attention in London, and both are photo-lithographic.

One, that of Messrs. Frey and Son, of Zurich, consists in taking an ordinary photographic negative and then printing on to a lithographic stone or zinc or aluminium plate, which has first been coated with a special bitumen solution. After exposure, which has to be rather considerable—15 minutes—the plate is developed, and the image now shows a reticulation due to the nature of the bitumen solution. The stone or plate is then slightly etched, washed out, and printed as usual in lithography. The printing on the machine from plates so prepared has recently been demonstrated in the workshops of Messrs. Hazell, Watson, and Viney, of Kirby Street, Hatton Garden, and a good selection of work of all classes done in this way has been on view.

The other method is that of Mr. F. W. Sears, of Clerkenwell Green, who relies upon the ordinary crossline screen for obtaining the necessary grain. By some method not yet disclosed, but for which he has applied for a patent (No. 10,855 of 1904), and which he states is extremely simple, he entirely joins up the dots in the extreme high-lights of the screen negative and so gets no image there when printing on to stone, zinc, or aluminium sensitised with bichromated albumen as usual in making direct photo-lithographic prints.

The great claim of both these processes is the accuracy of reproduction obtained by photography and the saving in cost by the elimination to a large extent, if not entirely, of the lithographic draughtsman! Both methods have been applied to colour work; Mr. Sears specially endeavours to produce results entirely mechanically in three-colour. Messrs. Frey, however, are not limiting themselves to three colours, but show some results in as many as 10 to 15 printings. Both processes are interesting as showing the steady progress of photography into the domain of illustration; soon, apparently, all and every kind of reproduction will utilise photography to a greater or less extent; it

certainly looks as though in future even lithography will have to be described as photo-mechanical work.

Regarding opaque high-lights, many methods have been indicated for making the high-lights in a crossline screen negative perfectly opaque so that no dots print there. Mr. Austin, in an article in the "Process Year-Book" of 1903-4, described a method he had invented for sensitising the plate and giving a second short exposure in perfect register on the same negative without the screen in position. Others have suggested racking the screen out after a portion of the exposure has been given. The simplest method, and one entirely successful so far as negatives for photo-lithography are concerned, is to use a rather small stop for the shadows, say, one having a diameter of only one-ninetieth of the camera extension, and then use for not more than one-twentieth of the former exposure a very large stop, say, of a diameter somewhere between one-twentieth to one-thirtieth of the camera extension. If this does not join up the lights sufficiently, then an even larger stop must be used. The point to note is that only a very brief exposure must be given with such a stop, otherwise some effect will be shown on the middle and lower tones, which is undesirable. If, at first sight, after developing, the negative does appear correct, nevertheless until considerable experience has been gained, it should be intensified with copper-bromide and silver, or, better, lead ferricyanide, followed by ammonium sulphide or sodium sulphide before judgment is passed, as it is very surprising sometimes how much the dots will join up on intensification, particularly with the lead intensifier.

The First Photo-Engraver.

Process workers in America look—and not in vain—to the department, "Process Engraving," conducted in the "Inland Printer," by S. H. Horgan. Mr. Horgan has been "in" the illustration movements in the States, and has led one or two of them, so that in matters of practice he is able to dispense monthly counsel to his anxious inquirers. In the current issue of the "Inland Printer" he probes the historical depths of his craft, and reproduces the portrait of the Cardinal d'Amboise, of which Niepce made an engraved plate about the year 1828. He says that the original of this first engraving made by photography was in the museum at Chalon, in France, but "to-day it cannot be found." The present writer is not aware how recent a date is implied by "to-day," but he can vouch for the fact that in July, 1903, not only the plate, but the original engraving, still translucent from the oiling to which Niepce subjected it, as well as several proofs from the plate, were in the public *musée* of Chalon, in which the Niepce relics are collected. And, so far as the writer is concerned, they are there now.

Students' Work at Bolt Court.

An exhibition of the work of the students in the art and process classes of the London County Council's School of Photo-engraving and Lithography, was opened for a few days last week on the premises of the school in Bolt Court, Fleet Street. The work consisted largely of studies and designs from the art classes and the Sketch Club, notable among which was a large poster design, by E. A. Cox, which Mr. Tree ought to have when he bills "The Tempest" through the provinces. The process work includes some very good half-tone in monochrome and three-colour, and some excellent photogravure. But collotype makes a poor show, suggesting that Bolt Court is not training the men who will help to bring the collotype industry into this country. One piece of half-tone is deserving of special note for the way in which two inks, roughly complementary in colour, are used to give the effect of a third printing in black.

Among the process exhibits is a series of photographic charts, showing the absorptions of various dyes employed in making filters for the tri-colour process. These embody the results of a series of unpublished experiments made to ascertain the character of the dyes and the effect of dilution on the absorption. The tests were made by producing an almost normal spectrum of the arc light on an orthochromatic plate, the plate in most cases being the "Lumière C."

The dyes were used in a glass cell of 1 c.m. internal thickness, and the concentration of the solution in milligrammes per cubic centimetre is stated in each instance. The most interesting example is the case of potassium bichromate used to cut off ultra-violet. The most suitable dilution for this purpose is found to be 1 m.g.m. per c.c., and the bichromate, we are told, was preferable to quinine sulphate in being applicable to a dry gelatine filter, in which state quinine was found to be wanting in its absorption of ultra-violet. But it may be strongly queried whether such a filter of bichromated gelatine would keep unaltered for any considerable time, even in the dark.

Cleaning Half-Tones.

Do not use an acid or strong alkali in an endeavour to clean hardened ink out of old half-tone plates (writes "C. H." in the "Inland Printer"). Either will corrode the zinc. The solvent for the ink must be something that will not affect the metal. Such a solvent is benzene (sold as benzole by the druggist). If the metal is warmed and then turned face down in a flat tray, containing just enough benzene to keep the face of the cut covered, it will soften the ink, so that it can be afterwards cleaned out with fresh benzene and a stiff brush.

Printing Plates Direct from Drawings and Tracings.

A process which promises to find a place for itself among those requiring a fairly large number of copies from some drawing, tracing, or line sketch, has been patented by Klimsch and Co., of Frankfurt-on-Main (English patent, 3,608, 1904). It is capable of multiplying such originals as these much more rapidly than the various "blue" or iron processes, while at the same time demanding no high degree of skill, so far as can be gathered from the description in the patent specification. The process is photographic, the sensitive material consisting of bichromate of potash, combined with gelatine, or other similar body. An aluminium plate coated with the mixture is printed from the drawing and developed in the usual way, the unexposed portions washing away. At this stage the plate is prepared so that an ink will adhere to the unexposed parts, the lines of the drawing. The treatment for aluminium plates is with dilute nitric acid, for zinc, bisulphite. This preparation of the plate is the first item, for which protection is claimed. The second is for the use of a yellow screen when exposing. "When the original design is coloured, screens of different colours are placed in front of it when exposing, such colour or colours being selected according to the colour which it is desired to print; the sensitiveness of the plate to one or all of the colours can be enhanced by the addition of suitable dyes." "By placing a screen in front of the design or between the design and the plate, or by using a grained plate, gradations of shade may be reproduced."

We have seen a number of proofs taken from these plates in the lithographic press, which speak well for the ability of the process to deal with originals in very fine lines.

A series of handbooks (in French) on photo-mechanical and allied subjects is issued from the office of "Le Procédé," Boulevard du Montparnasse, Paris. The third of the series (which numbers twelve in all) is reviewed this week under "New Books." The other handbooks treat of the preparation of the original, collodion emulsion, printing, etching, photo-litho, collotype, photogravure, and tri-colour.

"Process Workers' Pocket Book and Diary for 1905." Published by A. W. Penrose and Co.

In addition to a diary, with a space for entries for every day in the year, this strongly and neatly-bound volume contains the chief "facts, figures, and formulæ" of photo-engraving, conveniently classified for

rapid reference. These include rules for copying and enlarging, exposure notes, screens, distances, and exposures with screens and standard formulæ for developers, colour-sensitisers, and etching preparations. As no price is stated, we assume that Messrs. Penrose will send the diary to any process man who applies to 109, Farringdon Road, for it. It is a volume worth possessing, and the editor, Mr. William Gamble, will probably gain the thanks of those in the photo-mechanical crafts for his careful labour of compilation.

Applications for Patent.

Photomechanical Screens.—No. 27,694. "Improvements in screens for photomechanical reproduction processes." Ignatz Bernard Herbst, 1, Great James Street, Bedford Row, London.

Reproduction of Engraved Printing Plates.—No. 27,758. "Improvements in the reproduction of engraved printing plates." John William Mackenzie, 40, Chancery Lane, London (Arthur Leslie, United States).

Half-tone Screen.—No. 27,759. "Half-tone screen with marked off tone fields." Theodor Dittmann, 40, Chancery Lane, London.

Patent News.

The following applications for patents were made between December 19-24, 1904:—

Enlarging Easels.—No. 27,671. "Improvements in photographic enlarging easels." Walter Chas. Grubb and Albert Nixon, trading as The Camera Construction Company, Eagle Works, Durham Grove, Hackney.

Printing and Developing Apparatus.—No. 27,719. "Improvements in or relating to apparatus for use in printing or printing and developing photographic papers and plates." Alf. Julius Beul, 111, Hatton Garden, E.C. (Alfred Brückner, Germany).

Photographic Cameras.—No. 27,740. "Improvements in and relating to photographic cameras." Ferdinand Nusch, 81, Holborn, London (Messrs. Plaubel and Company, Germany).

Lenses.—No. 27,743. "An improvement in lenses." John Edward Evans-Jackson, 19, Holborn Viaduct, London (The Scientific Lens Company, United States).

Reflector Hoods.—No. 27,768. "An improved hood for reflector hand cameras." Arthur James Gray and Samuel Dunseith McKellan, 32, Robert Street, Upper Brook Street, Manchester.

Photographic Cameras.—No. 27,867. "Improvements relating to photographic cameras." John Stratton Wright, 7, Southampton Buildings, Chancery Lane, London.

Photographic Cameras.—No. 27,903. "Improvements relating to photographic cameras." John Stratton Wright, 7, Southampton Buildings, Chancery Lane, London.

Washing Plates.—No. 28,100. "Device for washing photographic plates." Moritz Schlüter, 65, Chancery Lane, London.

Projection Lanterns.—No. 28,227. "Improvements in lanterns for projecting and enlarging purposes." Leo Kamm, 27, Powell Street, Goswell Road, London.

View Finder.—No. 28,237. "View-finder for photographic cameras." Wilhelm Trappiel, 65, Chancery Lane, London.

Photographic Cameras.—No. 28,249. "Improvements in and relating to photographic cameras." La Vége Société Anonyme de Photographie et d'Optique, 52, Chancery Lane, London. [Date applied for under Patents Act, 1901, December 24, 1903, being date of application in Germany.]

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

Magnesium Light for Photographic Printing.—No. 2,693, 1904. J.

Hewitt and E. B. Mills claim protection for a rod tipped with a magnesium composition, either with or without the addition of an igniting mixture. As suitable illuminating mixture they mention magnesium powder, mixed to a cream with an alcoholic solution of gum shellac in the proportion of, say, three ounces of shellac to a pint of spirits of wine. This light is suggested as convenient for the printing of lantern slides and bromide prints.

Panoramic Cameras.—No. 21,830, 1904. (The Multiscope and Film Company, Burlington, Wis., U.S.A.)

Relates to improvements in panoramic cameras and refers more specifically, first to a shield or screen for cutting off more or less of the film to the exposure of light passing through the lens and thereby regulating the length of the negative; second, to a mechanism for controlling the swing of the lens-holder in a manner to provide for time or instantaneous exposure, and, third, to an improved mounting for the lens-holder whereby it may be raised or lowered with respect to the film support and to other features of the holder and its light cone. Among the objects of the invention is to provide an improved device for limiting or determining the length of exposure of the film and thereby the length of the negative produced, and a further object of the invention is to improve the construction and operation of the other parts of the camera mentioned.

Triple Plate Holder for Colour Photography.—No. 22,077, 1904. A

special form of frame to contain three plates which serve successively for colour photography, each plate being arranged in its plate-holder with its special colour-filter, and the plate-holders being arranged so that they can turn and be successively lowered into the chamber of the photographic apparatus when the plates which they carry have been successively exposed. The first of the six claims is for "a negative frame for colour photography the arrangement of three plate-holders in a case and mounted so as to be able to turn upon a horizontal spindle which, in the case of the first plate is a fixed spindle, and in the case of the two other plates, trunnions adapted to be displaced in order that the sensitised plates may also come into the required position at the proper moment, springs arranged behind the last plate-holder tending to push them all forward."

Sensitised Plates for Colour Photography.—No. 22,986, 1904. (A.

Lumière et ses Fils, Lyons, France.) The process recently described by MM. Lumière in these pages, in which a layer of coloured grains is interposed between the sensitive coating and the glass. The coloured grains are grains of starch, ferments, leavens, bacilles, pulverised enamels or other pulverulent and transparent materials, they are coloured by means of colours also transparent, in red, yellow, and blue. The grains of these different colours are mixed in the state of dry powder, as intimately as possible and in such proportion that being applied on the glass as is about to be described, they do not communicate to the entire surface of the plate any appreciable coloration. On one of the faces of the glass is spread a coating of pitchy matter on which is projected the mixture of coloured grains which is brushed in such a manner that the grains which remain fixed thereon touch each other without being superposed and form a layer as uniform as possible. A second coating of pitchy material is then spread, upon which is projected, in the same conditions as the first, a second coating of coloured grains; the whole is finally covered with a varnish. This varnish, as well as the pitchy matter in which the grains are contained, should have an

index of refraction as near as possible to that of the coloured particles, in order that the light may pass through the screen coating without being diffused. The screen coating thus obtained is composed of an infinity of small elements the colour of which depends on the chance of the superposition of coloured grains in the two coatings, these elements will be red, yellow or blue everywhere where two grains of the same colour shall be found superposed, they will be orange, violet or green, everywhere where the two superposed grains shall be of different colour. There will therefore be formed on the entire surface, a quantity of small elementary surfaces possessing one of the six colours stated above. Above this screen coating, is spread by known means the sensitive coating, and the plate thus obtained can be preserved as an ordinary plate until the moment of use. When one of these plates is exposed, the back turned to the object glass, the luminous rays must traverse the screen coating to reach the sensitive coating; it will be understood that a red ray for example will be able to traverse the screen coating only in the parts which are red or which contain red, and that it will be completely stopped by the complementary colours of red. It will be the same for all lengths of undulations and the sensitive coating will be affected at each point of its surface with an intensity which depends on the constitution of the luminous pencil concurring in the formation of the picture at this point, and of the colour of the particles which this pencil must traverse to reach the sensitive coating. After development, the silver reduced in the sensitive coating will mask the different coloured elements of the screen coating, in degrees corresponding to the colour of the light at each point, and the plate seen by transparency will show a picture the colours of which will be complementary to that which it has received on the exposure to light. To restore the normal order it will suffice to invert the negative by any of the known methods.

Triped Stands.—No. 23,814, 1904. (Alphonse-Marc Phalempin, Paris.)

Improvements in telescopic camera stands to dispense with springs and to provide for the release of all parts, by the release of one of the parts of an extended leg. The claim is for "means for securing and releasing each leg section comprising one or more curved locking bolts mounted in a plug in the upper end of each of the sections, bolt engaging grooves or recesses in the lower ends of said sections operating the locking bolt of the lowest leg section by hand and projections on the plugs of the other sections for operating the locking bolts of the said other sections successively as the parts are pushed one in the other substantially as described."

THE interment of the remains of the late Rev. John Mackenzie Bacon, balloonist, scientist, and lecturer, took place on the 29th ult. in the presence of a large gathering, at Swallowfield, near Reading, the body having been conveyed by road from Mr. Bacon's residence, Coldash, near Newbury, about twenty miles distant. In addition to the immediate relatives, who included the widow and grown-up son and daughter, there were also among the mourners many scientific friends, and a deputation from the Guildhall Club, of which Princess Christian is chief patron, and the deceased clergyman was president. The coffin was carried into the church on the shoulders of six gentlemen who had been associated with Mr. Bacon in his experiments. The service was conducted by the Rev. M. J. Bacon, vicar of Swallowfield, who in the last fortnight has had the mournful duty of officiating at the burial of two of his brothers. Among those who sent floral tributes were Lady Russell, the Swallowfield Royal Astronomical Society, the brothers Spencer (the aeronauts), and the Guildhall Club.

A NEW PRINTING PROCESS.*

In bringing forward a new photographic printing process, based on an entirely new method of working, I think it best to first explain clearly what I have been trying for. If we compare a photograph with a fine engraving, is there not something about the latter that the ordinary negative will not give us in our photograph?

True, the optician can point out the wonderful depth of focus and covering power given by the lens. The plate-maker will try to convince us of the beautiful quality of his film, without any markings or faults. The man who develops the film will prove that he has brought out the utmost on his negative that was given by the light action. We used to think that there was some skill in developing a negative, but now we are told that all that is necessary is to put the exposed films in a sort of mangle and get a little child to turn the handle for a few minutes. Then the orthochromatic expert will tell us that he has given us the true representation of colour by tone. Even with all these advantages, do we not have to acknowledge that there is still something wanting, especially in relation to the pictorial side of photography.

Engraving Effects.

Of course, for small microscopic work, or very small portraiture, the P.O.P. print squeezeed on to glass is unequalled for fine detail, but with architectural and landscape work, or for larger prints, this excessive detail is a positive drawback, for this reason: The flat, even stain of the chemical deposit of the photographic print looks like a beautiful piece of enlarging, whereas the broken tones of the engraving give the effect of atmosphere and breadth.

I know that this defect in the photograph has been recognised for years, and manufacturers, by the use of rough-surfaced papers, or by printing through bolting cloth and by other means, have tried to overcome it. But the false shadows caused by the little projections and cavities on the surface of the rough paper, often do not come in the right places, and the even tones of the print done through bolting cloth are quite different to the beautiful broken tones done by the hand work of the engraver.

So the first thing I am trying to obtain is the same broken grain in the image of my print as that got by the engraver. This I do by using material of different textures in the development of the print.

Tonal Control.

The next thing that I have been wanting to get is the power of being able to alter the tones of a print after it is dry (when we can see better the effect we are getting), such as taking out a high light, altering the depth of a light half tone so as to get a proper balance of light and shade, and especially to get better values in the representation of foreground and distance. We often find that a half tone in the foreground is of exactly the same depth as something in the background behind it, and we cannot see where one begins and the other ends, and there is consequently no effect of distance.

Then, again, when we are printing from a rather flat negative, if we print our shadows to the right depth, the high lights, such as the sky, are printed too deeply. In a case of this kind, with our present printing processes, we are almost powerless. We cannot print in clouds because the sky is already too dark, the only thing to do is to paint out the whole of the sky on the negative first. My experience is that I make a satisfactory job of it about once in fifty times.

I am glad to say that with this process I think I have got over this difficulty, because my film is not like the thick gelatine film of the usual printing processes, but is hard, and short in the grain

(so to speak), like a resin-sized paper, and with a piece of ink eraser I can take out a high light or put in light cloud forms in the sky as I require to suit the balance of lines in the picture. In other words, I can finish my development of the print after it is dry and hard, and can do in a few minutes what would take hours to do if I had to retouch the negative. To show what I mean, I have here a print from a negative in which the sky was so thin that I had never troubled to print from it. These clouds were done in a few minutes after the print was dry and mounted.

My experience is that it is very seldom that we can obtain a landscape negative with the clouds of proper form and depth of tone to suit the balance of lines of the picture. We do not require the cloud forms so assertive as to draw the interest from the landscape, we only want a few light tones in the proper places to complete and give a proper scale of light and shade in the picture.

Handwork on the Finished Print.

I think you will agree with me that to be able to reduce the light tones in a print rapidly and easily, with a certain knowledge of what we are doing, and to be able to lighten the half tones of a background immediately surrounding a foreground object, and thus obtain the effect of distance, will be a most valuable aid to pictorial photography. Perhaps some one will say that it is not legitimate photography. I contend that it is as legitimate as pencilling black-lead on the negative to get the same effect, or of pouring hotter water on certain places while developing a carbon print. All that it amounts to is this, that, due to the negative, certain parts of the print have printed slightly darker half tones than we require. What difference does it make how we reduce this surplus amount of pigment? Whether we rub it away on the dry print with ink eraser, or whether we wash or brush it away while the film is wet and fragile during development. Whether we dissolve it away by chemical reduction, or obtain the same result by retouching the negative, or by local intensification of the negative.

The next difficulty we have to contend with in our existing printing processes is this: In getting a print from an ordinary negative, how often do we find that we get just the right depth of tone in the shadows at the same moment that the lightest tints in the high lights are just visible?

The Negative and Local Treatment.

From a thin negative, when the light tints are obtained, we know that the deepest shadows will not be nearly dark enough. If we attempt to intensify the negative the half tones are intensified at the same time, and that is, as a rule, what we do not want. Practically speaking, the only thing to be done is what photographers call "working it up in black and white." Now, to "work up" or paint the shadows to the proper depth with water colour is painting on a metallic basis of silver or platinum, and even if we do manage to get just the right tint of the print, when first produced, the chemical action going on in the film from the sulphur-etting action of the atmosphere will soon change the colour of the print in patches, especially if the water colour has an aniline or metallic basis. Then, again, a thick film of gelatine is about the worst thing one can have to paint upon to obtain satisfactory results, by any one but an artist with a great deal of experience in this class of work. And there is no doubt that to have to work up a silver or platinum print with water colour, or to have to paint on a film (like gelatine) which will absorb water from the paint brush, can only be looked upon as a makeshift, and is why many have had hopes of the gum bichromate process, because they saw that they would be able to work on a pigment base. Indeed, I am very strongly of the opinion that it is in the direction of some pigment process that

* Paper read before London and Provincial Photographic Association, December 29, 1904.

the photographic print of the future is slowly but surely turning, for everything but the very smallest work requiring the finest detail possible.

Some months ago I was watching two artists at work, the one (working in water colours) to obtain depth and transparency in his picture had to have recourse to the terribly tedious expedient of cross-hatching or stippling the colours separately. The artist in oils was able to put in his subject in light and shade first, and trust to adding glazing colours after, to get the effect required; but he could not get the drawing right, and had to keep altering it. Meanwhile time was going on, the sun was altering the lights and shadows of the trees they were painting from every minute, and when I left them they were trusting entirely to their memories for what they were doing. It struck me that with my process I could get a print, with the drawing, lights, and shadows put in in insoluble water colour that could not be rubbed up when being painted upon. That the broken tones I obtained from the texture of the material used for development would instantly give me the same effect as the laborious work of cross-hatching gave the water colour artist, and by using thin glazing water colours over the shadows, to modify their tone as required, and more opaque colours for the half tones and high lights, I could quickly get a water-colour painting with little trouble.

There are hundreds of people who have a good sense of colour, but cannot draw, and even if they could, they have not the opportunity to spend an hour or so day after day to do a water-colour painting from Nature. But here we have a correct outline, light, and shade to start with, and as to the colours to use, there are hundreds of art postcards to get hints from.

Development in Colour Washes.

This is something quite different from tinting an ordinary photograph. There we have a flat, even metallic deposit or carbon and gelatine film, and the colours have to be cross-hatched over it; but I can get the same effect with my method of development with flat washes of colour.

As I was going to read a paper here, and as I happened to have a print of the Father of this Society, our old friend Mr. Henderson, I thought I could not do better than colour it, and shew you what my idea is.

To get it coloured by an experienced artist would not have been a fair test, so, although I have not done any water-colour painting since I was a boy at school, I decided to do it myself. This is my first attempt with only a few washes of colour, and was very quickly done. It was from a paper negative by our friend Mr. Wilkinson.

I have also here a couple of landscapes, and of one of them a well-known black-and-white artist said that the only thing that led him to think that it was not an ordinary water-colour painting was that the foreshortening and drawing were so perfect. Of course, he did not mean for a moment that the colouring was anything equal to what an artist would do, only that he could not tell it from water-colours put on by hand. And after all, these are nothing but water-colour paintings, the photographic part consisting of water-colour pigment embedded in insoluble gums, which form the ground colour of the picture.

It seems to me that in this process there is the germ of quite a new departure in photographic work, which might be of benefit to the business of the professional photographer, as well as to many friends of the photographic amateur who are fond of painting.

My father used to tell me when I was a boy that if I aimed at the sun I would hit somewhere in between, and perhaps you will think that I am doing a lot of aiming and not saying much of where I have hit.

The Defects of "Gum"

When "Pouncy's" gum bichromate process was revived some years back, I thought at first that we had a most simple and useful process, because we could use permanent colours, and that without any of the trouble of the double transfer of the carbon process. But after I had worked at it for some time, I at last came to the conclusion that to get any certainty of result from gum bichromate, or any similar process—such as "Artigue"—was, practically speaking, hopeless for this reason: The action of light on the bichromate—on the parts of the print where the lightest tints are—is so weak that only the surface of the film is rendered insoluble, underneath which the gum is still soluble. In consequence, there is nothing to hold the few particles of pigment forming these light tints on to the surface of the paper; and the sawdust, brushing, or other means of development removes and washes away these fragile light tints off the paper. I tried everything I could think of to get over this difficulty, and get more stability in the film during development, but without success, and after hundreds of experiments extending over several years, I came to the conclusion that I must start on a fresh basis entirely, and begin all over again.

I saw that the sawdust, brushing, or other methods of development as used for gum bichromate work, must be theoretically wrong. Also that I must get the pigment and soluble gum out from under the portions acted upon by light on the surface of the film in the lightest tints, and get the insoluble parts forming the image pressed down on to the paper by direct pressure on the surface.

The New Process.

From these two deductions as starting points, I have gradually worked out my new printing process.

I found that I must have a film consisting of pigment contained in a vehicle having two totally distinct characteristics, one having the most extreme solubility, the other relatively insoluble, but tacky, adhesive. For the latter I use the gum resins as a type of what is required. But to get something sufficiently soluble has taken me about two years. Of course, I wanted it soluble in cold water, and thought that gum arabic would be just the thing. Well, emulsion makers think they have trouble with gelatine, but that is not in it with gum. There is not only adulteration to contend with through the Arabs adding other gums, but there is also differences of solubility in gum arabic itself. If it comes from the tree on the south side it sets differently to what it does on the north side, due to the heat of the sun, then I understand that differences may be met with when it comes from different parts of the same tree. There is also a very strange thing I have sometimes met with. One gets a piece of gum in with the rest that is rendered insoluble by the bichromates without any action of light, and the first light action is to render it soluble, and then it is rendered again insoluble by further exposure. Possibly this may be due to the tree growing in an iron district, or the gum gets contaminated with some metallic compound. I find that the only way out of these difficulties is to get large quantities of gum, and then most carefully test and sort until I get something sufficiently soluble.

Working Methods.

Now for my method of working. I coat a piece of paper with a mixture of the two gums, the pigment and a bichromate. Dry it, and then expose it under a negative. I then proceed to develop in the following manner. I soak the print in water for two or three minutes, the water softens the soluble gum where the light has not acted and loosens the pigment; then by pressing a dry absorbent material, such as blotting paper, down on the surface of the film, the pressure causes the adhesive resin and the loosened pigment to clog together and adhere to the face of the blotting paper. This is instantly pulled away, leaving the insoluble image pressed down on

to the surface of the paper. The print has then a solution of alum poured over it, to remove the remaining bichromate, and to clear and harden the image, and is then rinsed in water and dried.

To my mind, this is the most simple and interesting process I have ever worked at. We have a permanent image in any colour. No toning; no prolonged fixing or washing; no double transfer; no damp platinum paper; and the greatest gain of all is that by the pressure of absorbent material of various textures we can modify the grain of our image, ranging almost from the fine deposit of a bromide print to the coarse effect of a crayon drawing or water-colour sketch. For instance, the smooth surface of the face of a piece of blotting paper will give one kind of grain, and the rough back surface of the same blotting paper would give more broken tones.

Texture at Will.

I do not think that we can have anything much more simple. All we require is a piece of blotting paper and a solution of alum. The exposed print is soaked in water; pressed on to the blotting paper, which removes the pigment not required to form the image, which image is at the same time pressed down on the surface of the paper of the print. The print is then cleared of the remaining bichromate, and can be dried at the fire.

I am very pleased to have been able to make my new process public at a meeting of this Society. At our old, happy meetings of fifteen to twenty years ago, photography was looked at in quite a different aspect to what it is now. If one published a formula then one knew that it would only benefit others, who prepared their own material.

Now, unfortunately for many reasons, hardly any one troubles to make their own material, so that the only people who would really benefit would be a gang of grasping money-making company promoters, whose only interest in photography is what they can make out of it. I need hardly say that I have met many manufacturers both in England and abroad, who act most honourably and in a straightforward manner, but I have met the reverse.

All one can do now to protect oneself, even while experimenting is to patent one's ideas. This I have done in this case. I have not yet made arrangements for the commercial preparation of this paper, but meanwhile, if any one would like to try the process, if they will write to me at "Avenue Corner," Bexley Heath, Kent, I will be pleased to get some paper coated for them, and they can try it.

HERBERT S. STARNES.

ORTHOCHROMATIC AND THREE-COLOUR MATTERS.*

THE INFLUENCE OF GRADATION ON COLOUR REPRODUCTION.

IN all photography from half-tone subjects, gradation is one of the primary matters for consideration. The gradation, or "values," as its separate items are sometimes called, in an ordinary print is rarely correct, for the negative and the printing process both independently tend to falsification, especially at the ends of the scale, and this doubtless is one reason why low-toned subjects with a small range of lights are often preferred by critical workers, the narrower range giving less possibilities of error. But whatever difficulties of this nature present themselves in ordinary photography, they are much increased in colour reproduction. In this case it is not merely a matter of approximately true values, but also of an equal gradation in the three colours. The effect of colour on gradation becomes, therefore, a question of primary importance.

Wave-Length and Gradation.

A considerable number of experiments that I made in the endeavour to answer this question indicate that an increase of wave length generally results in a greater steepness of gradation, other circumstances remaining the same. That is, that green light gives a steeper gradation than blue, and red steeper than green. This was the general result, but some plates appeared to behave exceptionally. Sir Wm. Abney investigated the same matter independently, and arrived at the conclusion that the least steep gradation is given by the colour to which the plate is most sensitive. My experiments do not allow of this interpretation being placed upon them, but for all practical purposes Sir Wm. Abney's results and mine point in the same direction, namely, that the plate taken through the red screen may be expected to show a steeper gradation than that taken through the green screen, and this steeper than that taken through the blue screen. (The difference between our results is that while Sir Wm. Abney found violet and ultra-violet to give a steeper gradation than the blue, I found it generally to give a less steep gradation.)

Gradation and Three-Colour.

It is, perhaps, hardly necessary to point out the effect of such differences in three-colour work. A steeper gradation means a more

sudden change. If, therefore, the three colours give a good black or grey in the darker tints, the lighter tints will be found to lack the colour represented by the steeper gradation. In ordinary work this would result in a preponderance of yellow or reddish yellow in the lighter tints. Or if the lighter tints are balanced to give a good neutral grey, in the darker tints there will be an excess of blue. Doubtless it is possible to argue that such errors, if not excessive, are not very important, the yellow being covered more or less by the other two printings, and the blue used being so nearly black to the ordinary eye that a little excess is hardly perceptible.

A Desideratum in Plates.

If the plate makers could furnish plates that would give equal gradation irrespective of colour (and this could easily be tested by giving similarly graduated exposures behind suitably coloured screens), then this difficulty would be surmounted. It would remain then to make the three exposures on the same plates, and to develop them together, to get equal gradation in all. The period of exposure of each would then be the only factor in determining its density with relation to the other two.

This would be a step towards the realisation of the automatic reproduction of colour. But there would remain so many imperfections that would need compromises that more exactness in this detail might not result in any very obvious and practical improvement in the print. But, however this may be, it is only by working at each problem separately and eliminating the uncertainties one by one that real progress can be made and perfection approached.

CHAPMAN JONES, F.C.S., F.I.C., F.R.P.S.

PLATES, FILTERS, AND INKS. THEIR RELATIVE IMPORTANCE IN THREE-COLOUR WORK.

AT the invitation of the Editor, who is doubtless influenced by the saying that "in a multitude of counsellors there is wisdom," the statement of the writer's views upon this subject has been written. Without being dogmatic, the writer herein gives his orthodox and heterodox views in the hope that they may perhaps initiate a train of thought in some more capable brain, and thus lead to progress.

The photographic plates, light filters, and trichromatic inks are all of equal importance in making a successful three-colour print, but as

* Two Papers from Penrose's "Process Year-Book," 1904-5.

most attention has so far been directed to perfecting the accuracy of adjustment of the light filters to the plates, it may perhaps be stated that a complete study of the requirements of an ideal set of tri-chromatic inks calls for most attention to-day.

Probably the best way to approach the problem is to consider it as a question of obtaining correct colour negatives or records and reproductions or positives.

Plates and Light Filters.

As the plates and filters are used together in obtaining the negatives, they may be considered under one head, for the filters are only employed as an artifice used to correct the imperfect colour sensitiveness of the plates. If it were possible to make photographic plates sensitive to such particular portions of the spectrum as occasion demanded, then they would be colour sensitised so as to give colour records direct, without requiring the assistance of compensating filters; that is to say, the plates would be manufactured in such a manner that one kind of plate would record the red, another kind the green, whilst the blue record would be obtained on a third plate.

It might be expected that every three-colour photographer would understand the reason for using light filters and the necessity for accurately adjusting them to the plates in use, but experience and literature show that knowledge of this description is far from being common. With this in mind, I venture to explain that the light filters are spectacles used to correct the "sight" of the plate, and therefore it is necessary, in order to get the best results, that they be adjusted to the plates with which they are to be used. This explains why colour sensitive plates, when tested with light filters which have been adjusted to different brands of plates, give unsatisfactory results. The fault really lies with the light filters, which, though they may give good results with those plates to which they are adjusted, cannot be expected to give equally good results on plates possessing different curves of sensitiveness to the spectrum.

It is as reasonable to expect that one person's spectacles will suitably correct another's eyesight as to expect to obtain true colour records upon any kind of plates when they are used with light filters which have not been adjusted to them, but possibly are intended for use with an altogether different brand of plate.

Negatives and Inks.

Considering the problem when thus narrowed down to be one of negatives (plates) and positives (inks), it is my opinion that ultimately the present conception of theoretical perfect inks will be abandoned as incorrect, for the reason that the inks as at present advocated are not actually complementary to the colour records, as is supposed to be the case, for the positive is not a perfect (colour) transcript of the negative; there is an overlap of colour and consequently degradation. The fact is apparent in the absorption curves given in proof of the accuracy of the theory.

The writer attempted to prove the truth of this assertion in a lengthy paper published in "Photography," May 22, 1902, page 354, entitled "The Ideal Inks for Three-colour Photography," which may be consulted by those who are interested in the subject, for the writer still considers his views as stated therein to be correct, and they have not as yet been proved wrong.

Suggestions for Practice.

Though it is always desirable to know the theoretical requirements of any process, difficulties arise in practice which prevent the realisation of ideal conditions, and, bearing this in mind, I think it would be advisable for the process worker to supply the printer with the most suitable inks for use with his blocks. If this were the custom it ought then to be easy to adjust a set of plates, filters, and inks which would give reasonably perfect results with less wastage than at present obtainable.

In adjusting such a set of materials I venture to suggest that the usual procedure be reversed and the following method adopted:—

A set of standard three-colour inks would first be selected possessing as near as was practicable the ideal conditions as laid down in the article previously mentioned. From these inks a colour sensitometer would have to be devised or adapted from one of the methods described by Sir W. Abney, by the use of which it should be possible to adjust a set of light filters to suitable plates, the use of which would enable reproductions in colour to be obtained more accurately and with greater certainty than by the methods at present in vogue. But it is essential that the inks be supplied to the printer together with the process blocks.

ARTHUR PAYNE, F.C.S., F.R.P.S.

Exhibitions.

WISHAW PHOTOGRAPHIC ASSOCIATION.

At this exhibition, which was opened on the 29th ult., Mr. Archibald Cochrane, the judge, made the following awards:—

OPEN CLASSES.

Portraiture and Figure Studies.—Silver medals, A. W. Hill, Shotts, and A. H. Allan, Edinburgh; bronze, George Cleland, Edinburgh; diplomas, John R. Harper, Edinburgh, and N. S. M'Murtrie, Wishaw.

Landscape or Seascape.—Silver medal, Fred. Judge, Hastings; bronze, A. H. Avery, Brighton, and J. Addie, Craignek; diplomas, T. Jackson, Leeds, and J. A. Angus, Edinburgh.

Flowers, Fruit, and Still Life.—Silver medal, E. Seymour, Hatford; bronze, J. Fallow, Wishaw; diploma, J. S. Andrew, Swansea.

Architecture.—Silver medal, W. A. Clark, Birmingham; bronze, Dan. Dunlop, Motherwell; diplomas, S. G. Kimber, Southampton, and A. W. Walburn, West Hartlepool.

Lantern Slides.—Silver medal, H. Wormleighton, Leicester; bronze, W. H. Goy, London, and John Stabb, Torquay; diploma, G. Cleland, Edinburgh.

Any Subject (confined to Federation Associates).—Bronze medals, A. W. Hill, Shotts, and M. Warnock, Paisley; diplomas, James Dunlop, Dan. Dunlop, Motherwell, and W. A. Frame, Glasgow.

MEMBERS' CLASSES.

Portraiture or Figure Studies.—1st, N. S. M'Murtrie; 2nd, R. Telfer; 3rd, T. Peat.

Landscape or Seascape.—1st, A. W. Hill, Shotts; 2nd, J. Addie, Craignek; 3rd, J. Lawson; 4th, T. Peat.

Flowers, Fruit, and Still Life.—1st, R. C. Macdonald; 2nd, A. Ramsay; 3rd, T. Ritchie.

Animals.—1st, T. Ritchie; 2nd, R. Sneddon; 3rd, T. Peat.

Snapshots.—1st, J. Addie; 2nd, N. S. M'Murtrie; 3rd, A. Russell.

Lantern Slides.—1st, J. Fallow; 2nd, N. S. M'Murtrie; 3rd, A. Symon.

Ramble Picture.—J. Lawson.

Illustrating Humour.—T. Ritchie.

EXHIBITION AT SCARBOROUGH.

The Scarborough and District Photographic Society provided an attraction at the School of Art, Vernon Place, during Christmas, in the shape of an exhibition of pictorial and other photographs taken by the members of the society. The pictures, which were framed and hung around the walls, included some exceedingly high-class works by local amateurs, many of which have been exhibited at the Royal and other exhibitions. The exhibition commenced at ten o'clock on Monday morning and was open till December 31, music and an exhibition of lantern slides taking place each evening. The

president of the society, Mr. T. F. Brogden (reports the "Scarborough Mercury"), exhibits a series of Dutch pictures, the most prominent of which is "The Three Graces," a large toned bromide. Two other pictures, one a study of sunlight effects and the other of a lady on the cliffs, are capital exhibits, the latter having received favourable mention at the Royal Exhibition. He also has several little views of old Scarborough, three of which are of portions which have since been demolished. His two gums, "School Time," a picture of Dutch schoolboys, and "The Two Drovers," are also worthy of mention.

Mr. Harry Wanless pays particular attention to pictorial effect rather than minute details, and shows some interesting studies in his light-toned bromide enlargements. Foremost in this group is a snow scene taken within half a mile of Scarborough, depicting a large expanse of country knee-deep in snow, a contrast being provided by some trees and hedges and a stream. It is entitled "Winter." A study of the quaint Staithes Creek shows the pretty effect of sunlight on the water, and is of an artistic character. "A Winter Flood" is another very prominent picture, showing as it does Throxenby Mere when in flood, the reflection of the snowy trees in the water producing a very artistic effect. A sepia toned bromide of a herring-boat and a pretty silver print of a stream at Ayton are both excellent exhibits, whilst a somewhat remarkable composition is shown in a picture of Sandside houses, which have since been removed.

Mr. Chas. E. Wanless shows ten large toned bromide enlargements, five of which are 17 x 23 pictures. One of these "Bempton Cliff," is a very fine specimen, and recently obtained the bronze plaque at Sheffield. It brings out in a remarkable manner the steepness and height of these cliffs, and the effect is considerably enhanced by its being framed in a broad white frame. "A Tide Race in Calf Sound, Isle of Man," is another splendid view, showing the effect of the sun glittering on the broken waves. This exhibitor has several other Manx pictures, and some fine sky pictures, a picture of Scotch salmon fishers at the mouth of the Tweed, taken at 3 a.m., being very effective. Mr. J. Pickering has twelve pictures, the best of which are "The Skipper and his Boy" and "Chrysanthemums." His series of portraits are interesting studies and excellent pieces of work. Mr. A. E. King's chief exhibits are one showing a Scarborough ferry boatman waiting for a fare, and another—a delicate bromide enlargement—showing sunrise on the sands. In this one the sun's rays on the wet sands and water are very pretty. Another very effective picture is one depicting Hanover Road, from Victoria Road, during a snow-storm. The flakes show remarkably well, and the effect is added to by a cab being driven along at the time. This exhibitor shows some which have been shown at the Royal.

Mr. A. H. Robinson contributes four carbon enlargements of panorama shots, size 40 x 12, one of these, "Holy Island Sands," being a beauty. It gives a very pretty view of sky and sands. He also has some matte views which show excellent work. Mr. W. Foster Brigham has a large number of pictures, dealing principally with portraiture. He also shows four light bromides, which include a snow scene, a sunrise, and a mist. Mr. Frank Foster, the secretary, exhibits three bromide enlargements, two of which depict sheep grazing along hedges, the third being a capital study of Lowestoft fishermen painting their boat. Mr. J. E. Clay's chief works are "On the Glisters of the Sun," "A Corner of the Market" (Lucerne), and "A Grey Morning."

Mr. C. H. Collings shows a number of 17 x 23 bromides, including two wave studies, and a study of "A Lighted Gas Lamp in the Valley." The latter is a really good piece of work.

Mr. C. E. Brummell shows five pretty Continental pictures; Miss Folding two carbon prints, the tones of which are very artistic; Mr. H. P. Hopkins two studies of boys, one of which is sure to be

popular. Mr. A. Pulford exhibits five small studies, the principal of which is one of herring girls at work. Mr. E. L. Davis shows eight capital pictures, Mr. J. H. Hargreaves one very nice one, Miss Hanks two Continental ones, Mr. G. Bell five bromide enlargements, Mr. J. G. Megginson four local scenes, Mr. W. Brown one of the tramlines being laid at night, Miss Fox a delightful little picture in a warm, red tone, and Mr. Elgar Chapman, Mr. J. H. Rowntree, and Miss Edith Bolton some pretty ones.

BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.

THE tenth annual exhibition of the Borough Polytechnic Photographic Society was held at the Borough Polytechnic Institute, London, S.E., from the 27th to the 31st ult. The judges (Messrs. H. W. Bennett and W. Thomas) made the following awards:—Class A.—Landscape: Silver medal, "Early Morn on the Sussex Downs," W. Page; silver medal, "When the evening sun is low," F. W. Gregg; bronze medal, "In Glary Woods," W. C. Gurney; commended, "Solitude," S. Smith, and "Springtime in the Meadows," C. W. Burch. Class B.—Architecture: Silver medal, "The Crypt, Winchester," T. R. Somerford; bronze medal, "The Crypt, Hereford," J. N. Sparr; bronze medal, "Banqueting Hall, Haddon," W. A. Geale. Class C.—Any Other Subject: Silver medal, "Confidences," G. W. Francis; bronze medal, "Still Life," E. W. Burch; commended, "A Morning Prayer," E. R. Bull. Class D.—Lantern Slides: Silver medal, "Gateway, Bodiman Castle," T. R. Somerford; bronze medal, "Into the Sacristy," T. R. Somerford; bronze medal, "The Crypt, Gloucester," E. R. Bull; commended, "The Smith," F. W. Gregg.

FORTHCOMING EXHIBITIONS.

January 12-14, 1905.—Boston Camera Club. Hon. Secretary, H. M. Hames, 65, West Street, Boston.

January 14-28, 1905.—The Scottish National Salon. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

January 20-21, 1905.—South Essex Camera Club. Hon. Secretary, T. Mitchell, 180, Browning Road, Manor Road, E.

January 23-28, 1905.—Lancaster Photographic Society. Hon. Secretary, R. T. Simpson, 21, Cheapside, Lancaster.

January 28-February 12, 1905.—Photographic Society of Marseilles. Secretary, M. Astier, 11, Rue de la Grand-Armée, à Marseille.

January 31-February 4, 1905.—Cardiff Windsor Amateur Photographic Society. Hon. Secretary, Mr. G. Gallon, 37, Hamilton Street, Cardiff.

February 6-11, 1905.—Blairgowrie and District Photographic Association. Hon. Secretary, Wm. D. M. Falconer, James Street Cottage, Blairgowrie.

February 16-18, 1905.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earlham Road, Norwich.

February 17-25, Northampton Photographic Exhibition. Hon. Secretaries, E. J. Felce, 83, Adams Avenue, and W. J. Lewis, Harlestone Road, Northampton.

February 21-March 7, 1905.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 25-March 4, 1905.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

March 4-11, 1905.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-14, 1905.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 20-25, 1905.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1, 1905.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

April, 1905.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marce 18, Genoa.

April 3-15, 1905.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8, 1905.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maasenstrasse 32, Berlin, W.

June, 1905.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

New Apparatus, &c.

The "Uno Mano" Lantern-Slide Carrier. Made by Sharp and Hitchmough, 101 and 103, Dale Street, Liverpool. Price 5s.

The manipulation of the lantern entirely from one side is a point of convenience which the user of the modern small projection apparatus will appreciate no less than the possessor of an old "three-



decker," who has much greater difficulty in reaching the opposite side of his apparatus. Messrs. Sharp and Hitchmough's carrier introduces the new slide and removes its predecessor from one and the same side, and is very little larger than other apparatus of this kind which are much less convenient in use. The slide, when it is in the position for projection is pressed closely into register, and save for the different thicknesses of lantern plates, the carrier will give no trouble in the matter of bad focus. The general convenience and rapidity of the carrier should make it popular among lanternists,

A New Exposure Meter—the Photomètre-Normal. Made by E. Degen, 3, Rue de la Perle, Paris. Price 13s. (16 fr.).

M. Degen does not adopt the sensitive paper method of measuring the light as do the well-known inventors of exposure meters in this country, but he bases his instrument on a principle of extinction after the manner of another French exposure meter—that of Decoudin. In this, however, the light from the subject was cut down in stages by a series of diaphragms, and no provision was made for the coincidence of the actinic effect of the light and the visual effect



on which the photometer was based. M. Degen replaces the diaphragms by a violet screen composed of two prisms sliding over each other, so that their exterior surfaces are always parallel, and they cut down the light to a greater or lesser extent. The subject is inspected through this screen "until it disappears from view and has the appearance of a dark mass in which nothing but the 'high lights' are perceptible. In a landscape this does not refer to a very bright sky or to a white wall in sunlight, etc. When working against the light or in getting a cloud effect, however, the sky must be looked for. In portraiture one must just be able to make out the features." This observation having been taken, the exposure is

read off on a scale for "ultra-rapid," "slow," and "very slow" plates, and for a diaphragm for which the apparatus is set in the first instance. The meter is neatly made, and is supplied in a limp leather case.

KODAK Changes.—Intimation is made of the withdrawal of Mr. Harold Senior from the management of the Harrow works of Kodak, Limited, a position which he has filled for the past eleven years. Mr. A. H. Starnes, head of the emulsion department, is also leaving Harrow, whilst the duties of advertisement manager of the Kodak Co., until lately discharged by Mr. Bernard Alfieri, are being undertaken by Mr. A. W. W. Bartlett, resigned from the secretariat of the Royal Photographic Society.

CINEMATOGRAH Accidents.—At about ten o'clock on Thursday night last week a panic was narrowly averted during a limelight entertainment in St. Andrew's Parish Church Hall, Glasgow. The lantern exploded, and the film at once burst into flame. The hall was crowded by three hundred children and teachers. The latter shouted to the children to remain seated, and the fire brigade drove up as the hall was being emptied, but their services were not required. Fortunately the hall was almost level with the street, and none of the children were injured, although they were greatly frightened.—Another case is reported from Belfast. According to a newspaper report:—An alarming incident, resulting in serious panic, occurred on Monday night last week shortly after ten o'clock, at the close of a cinematograph performance in Ulster Hall, Belfast. The building was crowded with children, and while the last few pictures were being shown the cinematograph apparatus burst into flame. The hall was in darkness, and cries of "Fire" caused the audience to make a wild rush for the doors. Seats were overturned and chairs smashed as the people fought and struggled towards the exits. After the hall had emptied the floor was littered with hats, cloaks, and overcoats cast off in the crush. On the stairs the congestion was very alarming, but eventually these were cleared. Only three persons, one of whom was the operator, whose hands were scorched by the burning films, were injured. Up to a late hour the hall was besieged by people clamouring for friends.

THE Latest Colour Photography.—The time-honoured descriptions of processes of colour photography continue to find their way into the press, and even into technical journals, such as "Work," from which we quote the description of the last newcomer. The "process," like its many predecessors, seems destined for the briefest notoriety:—"Simple colour photography is reported to be the discovery of Rudolph Isenmann, of Newark, N.J., who is said to have produced some most promising effects by purely chemical manipulation in the simplest manner possible. With ordinary printing-out paper, either gelatine, albumen, or collodion surfaced, he claims to have made prints containing blue, yellow, green, and brown, by merely soaking the prints as taken from the printing frames in two successive baths, with a washing between the chemical immersions. He says that the colours find their places with wonderful accuracy. The blue arranges itself in the sky, with white cloud effect, and in the sunlit parts of the water in the foreground, while the water in the shade of the green trees takes up a greenish cast, and the browns and autumnal yellows appear on the leaves, and are reflected in the water in some of the pictures. The arrangement of the colours seems to be natural selection influenced entirely by the density of parts of the negatives from which the prints are made. Mr. Isenmann says that he allows the colours to work out their own progress, and never uses any effort to direct them by hand manipulation. Gold is not used in toning the pictures, neither is hyposulphite of soda in fixing them. What becomes of the free silver he does not say; but he has examples of his colour work which have been made and exposed for six months, and he cannot see any change in the colours."

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
9.....	South London Photo Society...	{ <i>Photographic Papers, Toning, &c.</i> Mr. Maurice Howell.
10.....	Sheffield Photo. Society.....	{ <i>Hand Camera Work.</i> Mr. T. F. Brogden.
10.....	Brentford Photo. Society	{ <i>Marine Photography.</i> Mr. F. J. Mortimer.
11.....	Photographic Club	{ <i>A Big Aperture and the Verant.</i> F. C. Wardall.
11.....	North Middlesex Photo. Society	{ Annual General Meeting and Election of Officers and Council for 1905.
12.....	Hull Photographic Society	{ Exhibition—Members' Slides: Royal Institution.
12.....	Watford Camera Club.....	{ Annual Meeting and Election of Officers.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

MEETING held December 29, 1904, Mr. Teape in the chair.—A member called attention to the difficulty he had found with the Geka Light fillers for the dark room, which, whilst admirable as to their safety and comfort in working, very soon deteriorated on account of the heat of the illuminant in lantern. Mr. Haddon pointed out that if the lantern be properly ventilated all such difficulty would cease. The products of combustion of the illuminant must be carried away and not allowed to circulate in the lantern.

Mr. H. Starnes read a paper on a new printing process (see page 11), and illustrated the paper with a number of prints by the process in monochrome and in colour, one of the best being a portrait of A. L. Henderson. Prints of architectural subjects gave abundant detail, and, as a test, some bromide prints were mounted alongside prints by Mr. Starnes's method, all the prints bearing out the claims put forward by Mr. Starnes in his paper.

The process is a rapid one, twenty minutes being the time from commencement of operations to the dried print. Full range of tones are obtained, and all methods of control are adaptable. Mr. Mackie was certain that the process was much more practical than gum bichromate, if only on the evidence of the large number of admirable prints shown.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

"ARCHITECTURAL DETAILS" was the title of the lantern lecture given at the first meeting of the South London Photographic Society in their new hall, the lecturer being the Hon. Secretary, H. Creighton-Beckett. Close upon two hundred slides were shown, the plan being to take up a definite section, such as fonts, crosses, doorways, &c., and devote a number of slides to each, giving as far as possible specimens of work from Early Saxon down to Perpendicular times. The lecturer urged members to take up this branch on the ground that it gave a definite aim to their photography, each negative being taken for a reason. At the same time they would have the consciousness they were building up a set of negatives which would always be of interest and possibly of value. The subject could not be touched without adding to our knowledge of our country's history and of the manners and customs of our ancestors.

SOUTHAMPTON CAMERA CLUB.

THE ninth annual general meeting of this club was held on Monday evening, the 2nd inst., at the Clubroom, Mr. G. T. Vivian, in the unavoidable absence of the President, presiding over an attendance which, in spite of the inclemency of the weather, was of creditable proportions. After some twenty new names had been added to the membership roll, the Hon. Secretary, Mr. S. G. Kimber, moved the adoption of the committee's report, the keynote of which was one of progress all round. Among other matters therein, mention was

again made of the extreme generosity of the President, Mr. W. Burrough Hill, in all his connections with the Club, of the many influential lecturers who had appeared before the members, and of the increase of membership during the year from 140 to 161. The social success of the past session was recounted, as was also that of the Club members in the various exhibitions all over the country; while the congratulatory remarks of the judges at the recent exhibition of the Club were referred to with gratification. The report concluded with a hearty expression of thanks to the photographic and local Press, and was enthusiastically adopted by the members. The financial statement, which showed a cash balance in favour of the Club of £51 10s. 9d., together with assets valued at £20, against liabilities nil, was considered extremely satisfactory; and the members then proceeded to the election of officers for the ensuing year. This resulted as follows:—President: Mr. W. Burrough Hill (re-elected); vice-presidents: Messrs. A. Horsley Hinton, G. T. Vivian, Dr. Weston (re-elected), and G. T. Vials; hon. secretary: S. G. Kimber (re-elected, ninth time); hon. treasurer, W. H. Trigg (re-elected); hon. lanternist: G. T. Vivian (re-elected); hon. reporter: F. G. Ryder; and committee: A. E. Henley, T. M. Weaver, W. R. Kay, C. E. Cook, W. R. Williams, H. W. Miles (re-elected), W. J. Goatcher, C. M. Cooper, C. Daw, and C. D. Kay. Votes of thanks to retiring officers and the chairman concluded a most satisfactory meeting.

HACKNEY PHOTOGRAPHIC SOCIETY.

MR. H. W. BENNETT, F.R.P.S., on Architectural Photography, was the attraction at the last meeting of this society. He succeeded in condensing into the short time at his disposal precise information on apparatus, materials, and methods, as applied to this class of work. The following note on testing the capability of a lens for architectural work is characteristic of the thoroughly practical nature and utility of the whole lecture.

Before using a lens in a dark interior the photographer would do well to find out exactly what his lens will do. This can be done out of doors in the following manner:—

Some object, such as a leafless twig, is sharply focussed in the centre of the screen. The camera is then rotated until the twig is near an edge of the screen. If it is not now in sharp focus, the amount of racking in or out necessary to secure sharpness should be ascertained. The size of stop necessary to give sharp focus at the centre and edge of the plate should also be found.

The front of the camera should next be raised so that the twig appears in a corner of the ground glass, and again the stop needed to bring it into sharpness should be noted.

The photographer should also see how far the front can be raised without causing dark corners on the screen.

PHOTOGRAPHY and Forgery.—In connection with the recent forgeries in the City, of Bank of England notes, the "Daily Mail" reports the views of an expert, who says:—"The camera has completely conquered the secrets of the English banknotes. There is no forgery easier in the world than that of the £5 Bank of England note, and yet the authorities still retain the original black and white note, and will not make any innovation. True, there are special water-marks which are not known to the general public, but by photographic processes these are brought out very clearly, thus enabling the engraver to carry on the work of forgery most successfully. In the case of United States notes, the engraving is so minute that it would not print if an attempt were made to reproduce it by photography on steel, and it cannot be printed on stone. The Russian Government has also now established a system of colour printing which is calculated to put an end to forgeries of this class.

News and Notes.

MR. F. O. BYNOE, who until recently occupied the position of manager of the Brookes-Watson Daylight Camera Co., has joined Messrs. W. Butcher and Sons as representative chiefly in London.

At the Holmfirth Photographic Society's Exhibition last week, the premier awards went to J. E. Latham, Manchester, for landscape; J. R. Hogley, Holmfirth, for portrait; and A. Lunn, Huddersfield, for architecture.

THE Northampton Photographic Exhibition, which is to be held from February 17 to 25, has secured the transfer of the English and French Loan Exhibit recently shown at the Cartwright Exhibition, Bradford.

DUTY-FREE Alcohol for Industrial Purposes.—The Committee which is now examining into the use of duty-free alcohol for industrial purposes, this week received evidence from Mr. T. Macwalter, of Messrs. Elliott and Sons, Limited, of Earnet.

In reply to a querist in our issue for 23rd ult., we stated that the half-tone process by Julius Verfassers is published by Messrs. Penrose and Co. In this we were in error, for it is published by Messrs. Hiffe and Sons, Ltd., of 20, Tudor Street, E.C.

UNDER the auspices of the Hastings and St. Leonards Photographic Society a pictorial photographic exhibition will be held at the Public Hall, Hastings, on 11th, 12th, and 13th inst. The borough member will open the exhibition on the first day, while Mr. Harvey Du Cros will present the prizes on the last day.

New Mounts.—From Messrs. H. and W. Green, the "Crown" Photographic Factory, Rotherham, we have received samples of their new "Ebora" mounts of black board, which they issue in cabinet size and for circular prints of various sizes. Another new line of the firm is an 18 by 15 granulated plate-sunk mount with oval paste-down centre for 12 by 10 prints. An oval cutting shape is given free with the first order of these mounts.

MORE than 10,000 prints were sent in to the recent "Graphic" Photographic Competition. These were weeded out by skilled members of the Art Department till 5,000 were left. A second examination reduced the number to 500, and these were submitted to Sir H. Trueman Wood, Mr. Luke Fildes, R.A., and Mr. Carmichael Thomas, who made the following final awards:—First prize: Pierre Dubreuil, Lille. Second prize: W. Northwood, Northwood. Third prize: Wm. McLean, Belfast. Fourth prize: T. Suscher, Geneva.

THE offer of a prize of £50 recently made by the editor of "The World and His Wife" for the best photograph of an interior brought an overwhelming response. The examiners have now completed the consideration of the thousands of photographs sent in, and have awarded the first prize of £50 to Mr. R. F. Tyler, Surbiton, Surrey. Five prizes of £1 each have been awarded to Miss E. Swinburn, Bexhill-on-Sea; Mr. J. U. Young, Sheffield; Miss Ethel G. Lowe, East Ilsley, Berks; Miss J. E. Corrie, Alresford; and Mr. H. Bird, Avonmouth, near Bristol. A portfolio of fine coloured prints has been forwarded to the fifty persons whose photographs came next in order of merit.

ALLEGED Explosion of Flashlight Powder.—Several of the papers last week reported an incident at the Post-office in the nature of an explosion said to have been caused by a package of flashlight powder sent through the post. The explosion occurred in the North-Western Department of the Mount Pleasant Branch of the General Post Office recently. Work was in full swing in the sorting-room, when one of the sorters took up a brown paper parcel labelled for the Midlands. The parcel was about 9 in. long by 4 in. high and wide, and was addressed to a clergyman by a London dealer. The sorter threw

it into the proper basket, and immediately there was an explosion. Windows were smartly shaken and flames shot up from where the parcel fell. General confusion reigned, but some of the officials rushed for the fire buckets, and the flames were put out. An examination of the basket showed that the mysterious parcel had been destroyed, but the remains were gathered up, and from these the officials have come to the conclusion that the parcel contained photographic chemicals. It is thought from the preliminary chemical examination that the preparation was for producing a photographic flashlight. Only two other packets in the basket were slightly damaged.

Correspondence.

* * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * * We do not undertake responsibility for the opinions expressed by our correspondents.

THE EMPLOYEES' UNION.

To the Editors.

Gentlemen,—There is no doubt that there is a silly season in photographic journalism, as in the outside world. The big gooseberry and sea serpent are still in evidence. To me the perennial talk of an Employees' Union is like one or both of the above-mentioned subjects; and I should have thought that all the previous attempts and the verbiage that has been wasted on this subject would have taught some of us, at least, that the whole thing is moonshine.

Personally, I believe that those who are continually crying out for a union are the incompetents. If, instead of bewailing his fate and cursing his employers, the average assistant were to employ his time in more perfectly learning his business, it would be better for him and his employer.

I have been an assistant for a good many years, and, so far as I can see, am likely to continue in that position for many more, but I do not sit down and wail or grumble at my employer, but continually strive to learn new things and new methods. The result is that I am now more useful to my employer than I was five years ago. He knows it, and shows his appreciation by a better salary and leaving more and more to me. I am not content merely to do what is required of me, but try and introduce new ideas and new things, and I find that pays me better than trying to get up unions, the ultimate benefit of which I am doubtful. —Yours faithfully, A TEN YEARS' ASSISTANT.

London, January 2, 1905.

THE NEW NAMES FOR METRIC MEASURES.

To the Editors.

Gentlemen,—Seeing your apothecary quotations of French weight and measures in your issue of December 30, 1904, brings me to the conclusion that the apothecaries try their level best to turn the whole and simple metric system to ridicule and to just such a silly and idiotic state of efficiency as the present English system.

On the Continent your quotations are by kilo and gramme, by litre and cubic grammes, and nothing else. One kilo is written 1 Ko., one quarter of a kilo, also called half-pound in some places, is given as 250 gr. The same with the smaller units; say half a gramme is given as 0.5, and no Frenchman would know what your chemists means by mils., millilitre and centimils, but would ask for 1 or 0.01 grammes respectively, all will go smilingly. If you go to a Continental chemist giving the equivalent of one minim by asking 5.9192 centimils, he would feel himself justified to give you into safe keeping; but if you asked for 0.059192 cc. he would feel at home and try to give you 0.06 gr., if that quantity can be measured out. All medical quotations are simply given as 1.0 or 0.05, as the case may be. The standard being gramme, all other nominations are looked upon as foreign.

STANDARDGRAMME.

[We publish our correspondent's letter *literatim* and *verbatim*, though we are afraid that the advocates of metric measures will not extract much satisfaction from it.—Ers. B.J.]

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

T. S. Robinson, 185 and 187, High Street, Homerton, London. *Photograph of Winter Bathers, Victoria Park.*

J. Jarrett, High Street, Keynsham, Somersetshire. *Photograph of the Meet of the Bath and County Harriers.*

Leo Legge & Co., 117, High Street, Walsend. *Two Photographs of the Rev. Father E. Walsh.*

JUDRAUS HANNA. 1. Penrose and Co., Farringdon Road, E.C., could supply the outfit. Fritz's "Photolithography," translated by E. J. Wall, is a standard work. 2. No. The apparatus cannot possibly help you in any way, and certainly will not save retouching.

HALF-TONE SCREENS.—I shall be glad if you can tell me where I can obtain information on the various kinds of half-tone screens used by process workers.—A. F. L.

"The Half-Tone Process," by Julius Verfasser, published by Messrs. Iliffe and Co., of 20, Tudor Street, E.C.

SELF-TONING PAPERS.—Are self-toning papers and postcards, carefully worked, as permanent as C.C. matt. toned with gold and platinum?—OLD CROW.

There is no reason why papers of this kind should not be just as permanent as those in which the toning substances are applied from a separate solution. And in our experience the results are equally lasting.

INSTRUCTION IN RETOUCHING.—I am writing to ask if you will be kind enough to inform me of a good place to learn finishing in black and white, also in oil and water colours. I might state I have been operating and retouching for some time, and as wages are so bad I want to improve myself. I like the work and feel I should get on, but I want to learn the work thoroughly. I thought you would be kind enough to inform me the best place, through the medium of your paper. —ENQUIRER.

If you will examine the "Miscellaneous" advertisements in the present number you will find mentioned several gentlemen who undertake instruction of the kind.

STAMP PHOTOS WITH ORDINARY CAMERA. I have a half-plate camera with rapid rectilinear lens. I should like to take stamp photos or miniatures, or both. Can I get any additional fittings to my camera to enable me to do that, and what is the cost of same? Thanking you for any information you may be able to give me through your most useful paper.—BRIDLINGTON.

Several repeating backs are sold which might possibly be fitted to the back of your camera. Messrs. Marion, of Soho Square, are the makers of one which we believe would answer your purpose. Also, if the size of the camera front permits of it, you might have fitted a battery of small lenses, such as are used in the usual stamp-photo cameras.

BLACK TONES ON COLLODIO-CHLORIDE PAPER.—I have lately seen some collodio-chloride prints, which were a pure black colour. How are these obtained, and can any paper be used?—F. IZARD.

We cannot, of course, state definitely how the tones of the particular prints were obtained, nor whether all papers are suitable, but we believe so. Any good matt surface paper can be used, and printing should be carried rather further than usual; the prints should be well washed and toned in a borax or acetate gold bath to a purple stage, then thoroughly well washed and toned in a chloro-platinite of potash and phosphoric acid bath, as given in B. J. ALMANAC, 1905, p. 1031, where also another bath will be found.

COPYRIGHT ABROAD.—I have a number of prints copyrighted, some of which I propose offering to a German firm in Berlin. Before doing so I should like to know whether I can safely do so. Does the copyright extend to Germany, or must I get them separately copyrighted there?—TOURIST.

Under the Berne Convention of International Copyright registration in Great Britain and the Colonies entitles the photographer to protection in almost all countries. Germany is one of these. The most notable exception is the United States. Under the Berne Convention you obtain the same protection in each country as the natives of the country, and the copyright law varies in each.

ERECTOR OF STUDIO.—Being twenty-five years in the photographic business, and as I am just starting in business for myself, will you be kind enough to give me full particulars as regards to portable studio. I have a portable studio, size 12 by 8; it can be bolted together. What I require to know is: Can I put it up in my garden, which is over 30ft. long, without applying to the Borough Council? Any further particulars will greatly oblige.—W. JACKSON.

We believe that if the studio is erected direct on the ground it will be classed as a permanent erection, but if mounted on small wheels, or possibly other supports, raising it from the ground, the regulations of a local authority as to buildings cannot be legitimately applied to it.

DEVELOPER.—Although an amateur, I shall be glad if you will let me know what developer I can use instead of metol, one of somewhat similar character, as metol seems to irritate my fingers.—SCOTCHMAN.

This column is open to all and any of our readers, whether amateur or professional. There is a very large choice in developers, but probably adurol would be found quite satisfactory, and a simple formula is: Sodium sulphite, 4 ounces; carbonate of potash, 3 ounces; distilled water, 10 ounces. When dissolved add: Adurol, $\frac{1}{2}$ ounce. For ordinary negative work mix one part of above with five parts of water; and for bromide paper use one to seven, and add a few drops of 10 per cent. potassium bromide to each ounce.

SILVER STAINS.—I find on looking up some old negatives, from which fresh prints are now wanted, that they are smothered with silver stains, although the negatives are varnished. What can I do in the matter?—T. P.

Some of the stains may be only in the film of varnish; anyhow, the first thing to do is to entirely remove the varnish by soaking the negatives in methylated spirit, to which some ammonia has been added. Rub the film, after it has been soaking for some little time, with a tuft of cotton wool, remove to a fresh bath of spirit. Sometimes two or three baths are required to remove the whole of the varnish. Then just rub the stains with pumice powder, and then wash the plate well under the tap, and immerse in a strong and freshly made hypo bath, and leave them therein till the stains disappear. Sometimes this takes hours.

How to VIGNETTE.—Having commenced some enlarging, I wish to know how to vignette an enlarged picture—i.e., where is the vignette placed? Also, will the same sort of vignetting cards used for P.O.P. be suitable for use with the lantern? Also, does the vignette have to be kept moving, etc.—H. B.

Our querist is using a lantern, and, presuming that the space between the lens and sensitive paper is open, there is no difficulty in vignetting. A small aperture of the required shape should be cut very much smaller than the required vignette; in fact, it should be not much larger than the actual diameter of the lens. If this is then placed in the path of the rays of light close to the lens, and kept moving backwards and forwards, a soft delicate vignette will be obtained. The nearer the lens the vignette shape is placed the less it vignettes; and of course, the nearer the sensitive paper the smaller the actual image shown. Care must be taken to use a fairly large card, so as to throw a shadow over the margins of the paper.

PHOTOGRAPHS FOR THE PRESS.—I sent a certain number of photographs to a Press Agency, after their guaranteeing safe return when asked. Some time after I wrote for them, receiving all but a certain number, which they said were out on approval. After waiting, wrote, and finally sent account. I still receive no answer. What is best course to pursue? Can I charge for use, 10s. 6d. each, or can I only charge for value of prints? In any case, how can I obtain compensation, seeing they ignore my letters?—PROFESSIONAL.

The explanation given by the Agency is probably quite correct. Photographs are not always returned punctually by editors. If you do not hear shortly you had better write claiming the value of the prints, which is all you can do yourself, or through your solicitor, unless reproductions of the photographs appear of which you are not notified by the Agency.

NITRATED SUGAR PROCESS.—Respecting your article on page 689 of "Almanac" for 1904, on Monckhoven's "Nitrated Sugar" printing process:—(1) I should be very glad if you would kindly inform me whether, and where, the finished solution ready for applying to the paper can be bought. (2) I have been trying to make "Nitrated Sugar" by using pure sulphuric acid and the ordinary pure nitric acid, and can't succeed. Will you please tell me what is meant by "Monohydrated" nitric acid. Any word of guidance in this matter will be much valued.—CHAS. BURTOFT.

(1) 20 per cent. solution, in alcohol, of nitro-glucose is listed by Merck at 6s. 9d. per litre, though we cannot say whether it is identical with the substance directed by Monckhoven. Indeed it can scarcely be so, as nitro-glucose is a mixture and will vary in composition according to the mode of preparation. (2) Probably an acid corresponding in strength to one molecule of nitric acid and one molecule of water. This means a percentage of real nitric acid of about 80 per cent., and a specific gravity of about 1.46. We should think it unlikely that you will obtain any useful results from the process, as it is one which calls for considerable chemical knowledge.

RETOUCHING.—Please find enclosed four prints, showing before and after retouching. I shall be glad if you will kindly give me your opinion of my retouching and the price I ought to charge for same (say trade work).—J. D.

(1) We consider your work of second-class quality, but extra care and attention to the gradation of light and shade, and the respecting of character and better balance of the shadows, should do much to advance you. Do not so radically remove the indentations between the brows, but retain them sufficiently to give

due force to the likeness. Your modelling is defective; you fill up too much. (2) The usual price to charge for ordinary sized cabinet vig. is from 1s. to 1s. 6d., but a considerable number of trade retouchers, very unwisely, try to demolish one another by quoting most absurd and cutting prices. Some of the old established firms keep up fair and reasonable rates—and justly considering the great importance of good and artistic retouching to the photographer—but many strive for cheapness rather than quality, and so the bulk of the retouching one sees about the country will not bear close examination and analysis. Keep to a fair price, give good finish, and there should be plenty of scope for a smart, well-taught retoucher.

SEPIA PAPER.—In your reply to a reader in last week's "B. J.," you advise the use of a "sepia," or "brown-line" paper, for the copying of drawings and tracings. Can you inform me whether this paper, which you state to be as simple in manipulation as "blue" paper, can be prepared at home with satisfactory results? And if so, what are the necessary solutions?—DRAUGHTSMAN.

A formula which can be worked quite easily is as follows: Make stock solutions of (a) green ferric ammonium citrate, 110 grains in one ounce of water; (b) tartaric acid, 20 grains; water, 1 ounce; and (c) silver nitrate, 45 grains; water, 1 ounce. Swill also 30 grains of gelatine in 1 ounce of water, and keep the mixture fluid by standing the containing vessel in hot water. The sensitiser consists of equal parts of these four solutions. The gelatine is first measured out and A and B solutions added to it, the silver being afterwards dropped in. The mixture is kept warm and applied to the paper with a flat camel's-hair brush. The brush should be held loosely—i.e., just dragged to and fro by the fingers. After drying by artificial light the paper is ready. A faint image is visible on printing, and the remaining operations consist in fixing the print for about two minutes in a weak solution of hypo and in washing in clean water for half an hour.

LUMIERE Plates, Papers, and Films are now marketed at new and reduced prices. Plates are priced at the "popular" figure of one shilling per dozen quarter plates, and the other well-known manufactures of the Lumière N.A. Co. are brought into line with this new tariff. The revised price lists are obtainable from the Company at 4, Bloomsbury Street, London, W.C.

NOTICE.

THE INDEX to the 1904 Volume of THE BRITISH JOURNAL OF PHOTOGRAPHY will be published with next week's issue.

* * NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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PRICE TWOPENCE.

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EX CATHEDRA.

"No Cameras." South African society has to be taken severely in hand, if we may judge from the letter of a lady in Johannesburg to the "Daily Mail." On the invitations to Princess Christian's garden-party it was thought advisable to say, "No cameras allowed," with the object of preserving the dignity of the occasion. The incident is said to have given rise to an amusing sequel, for a week later the wife of a retired shopkeeper, true to the imitative instincts of the Colonial, deemed it the fashionable thing to taboo photography, and after "R.S.V.P." on her invitation cards were the words: "White gloves to be worn. No cameras!"

Contravened Heroics. Mr. Kearton and others of his kind must look to their laurels. If a Glasgow photographer obtains his opportunities they will not be alone for long in scaling dizzy heights or hanging by their eyebrows from sea-washed cliffs. Their competitor is unknown to us save through a newspaper report that he has applied to the Glasgow Corporation for permission to ascend by ladder the Scott monument in George Square to obtain a bird's-eye view of the city. The Scott Monument is 80 feet high. The Corporation said "No," and there is thus one photographer in Glasgow who is baulked in his desire to secure public recognition of photography as an exponent of art *in excelsis*.

The Royal Photographic Society. The current number of the Society's "Journal" contains the announcement of a notable change to be made in the regulations of the autumn exhibition. No medals are to

be offered in the pictorial section. In the scientific and technical sections, however, medals will be offered as before, and seven judges will be elected by the members as has been the custom hitherto. The judges so elected will form the selecting and hanging committee in these sections, but a specially constituted committee will perform the same duties in the pictorial section. The step is one with which the President of the R.P.S. is entirely in accord, for, as he pleasantly expresses it, "the substitution of the honour of being hung would change the present lottery to one of all prizes and no blanks." Even if one is not disposed to sum up the difference between the inducements which were and are to be in these terms, it is without a doubt that the withdrawal of medals will not deprive the Society of a single exhibitor, and if it makes possible a more rigorous selection of fewer pictures the step will be proven a wise one.

Errors in Star Photography.

In our issue of December 23, we drew attention to the paper of Professor H. H. Turner, discussing minute errors in photographic star maps. The variations there were in the positions of the stars as recorded in the negative. Now an abstract of a paper by Max Wolf, of the Heidelberg Observatory represents that authority as casting doubt on the photographic records of the brightness of stars. If the original memoir in the "Astronomische Nachrichten" is correctly reported, Herr Wolf finds that the order of brightness of a series of stars may be different in photographs taken at the same instant with a number of lenses of different types. The variations arise from the colour of the light emitted by the star, the constitution of its spectrum, and from the dimensions and construction of the photographic objective. The total effect may be sufficient to make the visual order of brightness of a series of stars different from the photographic order, and Herr Wolf holds that conclusions from photographic evidence of this kind should be withheld until the measurements can be verified by visual tests.

Bromide Prints in Colours.

A few weeks ago mention was made of Herr Gros' recent methods in catatype printing in the way of working from an image of peroxide of manganese, instead of from that of the original silver. This process Herr Gros now proceeds to apply to the production of coloured bromides, without reference to catatype. His directions as set forth in a French patent ought to satisfy the most strenuous advocates of chemical gymnastics in the after-treatment of bromide prints. He treats the print in a solution containing potassium bromide, citric acid, and potassium ferricyanide, as well as potassium permanganate, manganous sulphate, and carbonate of soda, or, rather, the

product obtained on mixing these three compounds. This formidable preparation decolourises the print, which is then immersed in an alkaline solution of potassium ferricyanide. The end is not yet. At this stage the print has been provided with a brown image of manganese peroxide. This is then coloured by any known process—e.g., by aniline hydro-chloride. All of which, it seems to us, is a very long-winded way of producing prints of very problematical permanency.

* * *

Photography in the Russo-Japanese War.

A Tokio correspondent of our contemporary, "La Photographie Française" sends to that journal some interesting notes on the use of photography by the Japanese. For some years the headquarters staff of the Japanese Army have been studying the subject, and have founded an Army Photographic Service Corps. Folding film cameras are used, and the films are developed at the rear of the advanced line, and positive films quickly sent to the front. Light bamboo stands are used, and most of the cameras are fitted with telephoto lens, which, however, only give a magnification of eight diameters. Cameras are attached to captive and free balloons, and special orders have been given to the aeronauts to destroy the films and cameras in case of capture. Photography is also used to duplicate the orders and reports of the day and microphotographs of these are carried, it is stated, by the Chunchuses and Chinese under their nails, between their toes, up their nostrils, and even in their stomachs. In the latter case, it is stated that the document is hidden in a small ivory tube, which the porter swallows if he thinks there is a chance of his being captured, the ivory resisting the gastric juices, and thus preserving the document. When the microscopic document arrives at its destination, it is enlarged by projection, and copied, as was done in the Franco-German War of 1870.

* * *

The Changing Times.

Photography, like everything else, moves with the times. As old sources of income fail, new ones take their place. The stereoscopic craze, which began at the time of the great exhibition of 1851, has been so long dead that it is a mere tradition to all but the oldest photographers. Not that stereoscopy itself is dead, however, by any means. The great trade in portraits of celebrities is still with us, but its halcyon days are gone, so far as the stationers' shop windows are concerned. The illustrated magazines have hit it hard, though they are themselves a great source of income to photographers. Time was—and but recently—when American visitors brought much revenue to a few West-End firms; but nowadays these visitors do their posing on their own side of the water. Among the many new fields open to photographers the application of the camera to commercial work for illustrating catalogues may be cited, and the much-smiled-at picture-postcard has turned thousands of pounds into photographic pockets. One of the pleasantest features of these modern innovations is that they bring a little grist to many pockets. The much-lauded fashions of the past were usually for the benefit of a few well-known leading firms. To-day hundreds of photographers share in supplying the widespread demand for new things. To some men it means but a stray guinea now and then, to others it is a small, perhaps, but steady, addition to revenue; while there are dozens of men whose work is almost entirely devoted to meeting these new demands. Probably the photographer to-day makes more money outside portraiture than ever he did.

THE SHOP HOURS ACT AND PHOTOGRAPHERS.

THE new "Shop Hours" Act, 1904, came into force on January 2, and it will be well to consider how it will affect photographers when it is applied, for it is really a question of local option. By it the local authorities can regulate, within certain limits, the time for closing shops or carrying on of any retail trade, except those enumerated in the Schedule—Section 2. The hour to be fixed by the closing order is not to be earlier than seven in the evening on any day of the week, except that on one specified day in the week it may be an hour not earlier than one o'clock in the afternoon. So far as the early closing in the evening is concerned, we imagine that it will make but little difference to photographers generally, except, perhaps, in some few cases it will enable the employees to get off a little earlier than hitherto. It is in the one day a week, the half holiday, that will mostly concern many. It is customary in most districts for shops now to close at two o'clock one day a week—usually Wednesday or Thursday—but that is quite voluntary on the part of the shopkeepers, and many do not close at all. As a rule photographers have not adopted this, and some of them do a fair amount of business with those who are liberated by the early closing. When the new Act is put in force, they will now be compelled to close like their neighbours, or they will be subjected to a penalty of, for the first offence, a fine not exceeding twenty shillings; for the second, one not exceeding five pounds; and for the third and subsequent offences, twenty pounds.

It may possibly be surmised by some that photography does not come within the term "Any retail trade," but we are inclined to the opinion that it does under the Act, inasmuch as under Clause 8, Sub-section 3, the following occurs: "The expression 'shop' includes any premises or place where retail trade (including the business of a barber) is carried on." If it is made illegal for a barber to carry on his business during the prohibited hours, so it would be, we imagine, for a photographer to do so. It seems from the wording of the Act and the circular on it issued by the Home Office, that the local authorities have some discretionary powers in administering it, and possibly some trades may by them be exempted from it, for Clause 4 says: "The central authority may at any time on the application of the local authority, revoke a closing order either absolutely, or so far as it affects any particular class of shops, and, if at any time it is made to appear to the satisfaction of the local authority that the occupiers of a majority of any class of shops to which a closing order applies are opposed to the continuance of the order, the local authority shall apply to the central authority to revoke the order in so far as it affects that class of shops." From this it would seem that the local authority have the power of exempting certain businesses where a majority of those who carry them on are opposed to the early closing of them.

It may be interesting to give the businesses exempted from the Act in the Schedule. They are as follows:—Post office business, sale of medicines and surgical appliances, sale by retail of intoxicating liquors, sale of refreshments for consumption on the premises, the sale of tobacco and other smokers' requisites, the sale of newspapers, the business carried on at a railway bookstall or at a railway refreshment-room. These are the only exemptions scheduled. The Act is a short one, and its price is but a penny. It, and also the Home Office circular relating to it (price 2d.), may be had from Messrs. Eyre and Spottiswoode, the King's printers, and we advise all interested to obtain a copy of each.

MECHANICAL AIDS TO COPYING TRACINGS.

In almost any German manufacturing town can be seen displayed the sign, "Lichtpausenanstalt," denoting the business of copying the drawings, tracings, and plans used by engineers. In this country the business has never obtained this decentralisation, but is largely in the hands of a few firms who either manufacture the sensitive papers or are agents for other manufacturers' products. Many large engineering firms also have a "blue-print" or "photo-copy" department of their own, and the work of multiplying working drawings required for the workshops is done on the spot. Daylight printing was the rule for making these blue-line, black-line, and other copies, until about five years ago, when arc-light printing came into use. The common type of printer is a glass cylinder, round which the tracing is laid and the sensitive paper strapped into contact with it by an apron of stout cloth. The arc-lamp moves automatically up and down in the cylinder, and, within five minutes, fully exposes a white-line, or ferro-prussiate, copy from a tracing.

The next stage in the rapid printing of the copies is just now being reached. The cylinder printer appears to be in process of supersession by a rotary apparatus in which the longest tracing can be printed with no greater difficulty than a double elephant in the cylinder apparatus. In the first form of the machine, the tracing and sensitive paper were fed together round a large wooden drum, the sensitive paper backed against the drum, then the tracing, and then a transparent apron. On the drum rotating, the apron is wound from one roller to another, and the tracing and copy collected in a box at the base of the printer. This machine, which was patented in America by Spaulding, is said to have been used there considerably, though we have not heard of its being employed in this country.

An improved form of it, however, appears to have been worked out by Mr. J. E. Gould, the manager of the large photographic department in the Elswick works of Sir W. G. Armstrong and Co., Newcastle-on-Tyne. The "Process Year-Book," in describing the apparatus speaks of it as a "cylinder formed of glass segments, which is slowly revolved in a horizontal direction, whilst a web of the sensitive paper is fed on it, and at the same time the

tracing to be copied is fed in in contact. Powerful arc-lamps are directed on it, and the prints are fully exposed by the time the print has passed them. In this manner cyanotype prints forty inches wide can be made at the rate of 200 feet per hour, ferro-prussiate prints at the rate of 100 feet per hour, and ferro-gallic at 60 feet per hour. It would be possible to feed in large celluloid film negatives or even pieces of lace with the advantage that the whole length of a lace curtain could be printed on the paper." The machine is said to have been in use at Elswick for the past eighteen months with very satisfactory results.

A machine printer of quite a different type appears among the published patent specifications this week. In this design the tracing and sensitive paper are moved over a flat glass plate by a closely-placed series of parallel rollers, each of which, by its rotatory movement, passes the tracing and paper across the plate. The plate may be fixed in a horizontal or vertical position, and the apparatus is thus intended to serve for use by day or artificial light.

The rapidity with which any of these machines can be worked is limited by the sensitiveness of the paper. The print must be fully exposed in the time during which the paper moves across the field, illuminated whether by daylight or by arc-lamps. The various papers, ferro-prussiate, Pellet, ferro-gallic, and "sepia," vary considerably among themselves, but none of them are rapid enough to utilise the exposing capacity of a machine. At present there is no probability of more sensitive iron or chromium paper being manufactured, and, therefore, if these very rapid methods are to gain ground in copying establishments, recourse must next be had to bromide or gas-light paper. But these, we are afraid, will be too costly to make the greater rapidity of printing advisable on economical grounds. Possibly a solution of the problem might be found in the plain development papers such as were in use for solar enlarging in the days immediately before the introduction of bromide paper. Such papers are very slightly used now by enlargers, and are, of course, not commercial articles. But they possess a degree of rapidity which exceeds that of any of the iron papers, and it should be possible to coat them in roll.

THE BARNET COMPETITION, we are informed by Messrs. Elliott, was simultaneously closed in England and the Colonies on December 31, and will be adjudicated at the earliest moment. A few weeks must elapse, however, to allow time for the arrival of the Colonial portion.

In our issue for December 2 we reprinted the industrial agreement entered into by Messrs. Kerry and Co., of N.S.W., and the photographic employees. We now learn from the "Australian Photographic Review" that a meeting was held in Sydney to oppose the general adoption of the agreement, and it was resolved that a "Professional Photographers' Association" be formed and registered as an "industrial union of employers." It was stated by one of the speakers that competent employees refused to join the employees' union as they could always command good wages, and that the agreement just concluded with Messrs. Kerry and Co. would force a number of large employers into establishing workrooms in an adjacent State. As an example of the unworkableness of the conditions, he contended 15 by 12 enlargements were to cost 5s. each for artist work, when, as a matter of fact, some difficult copy enlargements could not be profitably produced under double that amount, while an enlargement from an original could be more profitably worked for 6d. It was resolved to make an appeal to all photographers in the State to join the Association, and so present a solid front to oppose this unreasonable attempt to reduce the profession to so low a level. The annual subscription was fixed at 10s. 6d. per annum.

A GREAT competition for Kodak users is announced in "The Photographer" (American), in which an invitation is made in the shape of a large "novice" class for amateurs who have never won a prize in a photographic contest. To quote the preliminary notification of the Kodak Company: "Those who have made a study of the prize lists of the various photographic competitions have been impressed with the fact that the greater proportion of the good prizes are regularly carried off by the same people. This has, of course, proved a discouragement to those of less experience. There are many amateurs who are capable of making really excellent work, yet they fall just a trifle short of that artistic excellence which has been so long cultivated in some of their co-workers. We believe that these younger enthusiasts in the photographic field are nevertheless entitled to an opportunity to carry off some of the good things in the way of prizes, and we have therefore divided this competition into two general classes, the "Open" and the "Novice," these in turn being properly subdivided. The "Open" class may be entered by any photographer (not in our employ) who complies with the conditions specified. The "Novice" class is open only to amateurs who have never won a prize in a photographic contest. While the novice classes are only open to those who have never been prize winners, the ambitious beginners may, if he is attracted by the valuable prizes and high honours offered in the open class, enter against the somewhat keener competition he will be sure to meet there. We trust that both the beginners in photography and those who have often had their names upon the honour rolls will be pleased with this eminently just and fair arrangement of the prize list. Prizes to the amount of about £400 will be offered in the competition, which will close in London on October 1, 1905.

THE RAPID RETOUCHING OF BROMIDE ENLARGEMENTS.

THE rapid and effective working-up of a bromide enlargement is an operation of considerable commercial importance. If a picture is to please, it may be artistic, but it must be effective, and not lacking in style of finish. To attain this end we may work it up entirely with the brush or air-brush. But the former is slow, and therefore not sufficiently competitive, while the latter all do not possess. Finishing in pastel or crayon has, however, the advantage of being cheap and expeditious, giving the artist great latitude and scope for display of talent, without being so laborious as brush work. Above all, it is effective, and to the public eye possesses a degree of "finish" equal to either of the other methods.

But there are different ways of doing it, and we suggest the following one as answering the usual requirements of speed and efficiency, coupled with a facility to make any alteration which may subsequently be needed.

The enlargement should be upon rough paper, mounted, and perfectly dry. If it has not been handled carelessly with the fingers, the usual preparatory rub with pumice powder is unnecessary, otherwise it may be so treated over the background and any other parts where needed except the flesh. When pumice is applied over the latter it is much more difficult to model and clean up unobtrusively.

If it is applied, well clean it off afterwards with a duster or pad of cotton wool, so that the subsequent pastel work may more readily fix itself upon the surface.

Should the subject be a vignettéd one, some powdered black pastel (Série C. Noir. No. 27," procurable from the dealers, is just the very thing) is first applied on a tuft of cotton wool over the background and more lightly over the flesh, also on parts of the accessories, as draperies, which need subduing.

A stick of soft paste should next be used, and with it the heavier shadows can be worked up bodily, softening away with stump or cotton wool as necessary, which must be accomplished so that the work does not appear to be put on, but to be an integral part of the original photograph. Bearing this latter fact in mind, and with the original before the artist for constant consultation and inspection (to ensure a perfect retention of character and likeness), a soft stump, previously charged with pastel on the pastel-pad, should then be used for modelling the hair, draperies, accessories, and, later, the features—i.e., the brows, and half tones and shadows of the flesh. Do not be afraid to work somewhat boldly, as errors can be quickly rectified by erasure, and, when the above are attended to, put in the highest lights (except the smallest and finest ones) by

applying soft velvet rubber, having, of course, regard to their correct position and nature. If the edges of these appear too harshly, soften away with a piece of cotton wool very sparsely impregnated with cuttle-fish powder. The draperies, accessories, etc., may be finished in like manner, and detail introduced where necessary.

Of course the background may be finished in any of the usual styles, as "cloud," "cloud-break," "electric," etc., the edges being softened away as described above.

"Cleaning-up" should follow, and it is surprising how little of it remains to be done, as the previous work, whilst accomplishing a different purpose, has also obliterated so many of the inequalities and imperfections. It may be done with gentle touches of an "H. H.," or No. 5 pencil (the little faint shine of the pencil marks will disappear when the picture is glazed), or with the slower brush. If the latter, then use a mixture of Indian ink and Payne's grey as the spotting medium, or Winsor and Newton's process black; Indian ink alone does not match the bromide black. Finely-pointed and extra hard black crayon in pencil form may be also used for this stage, but is far less delicate in effect.

The touch is precisely the same as when retouching a negative, only broader, and remember that when retouching bromides it is essential to sit well back from the easel in order that uneven and insignificant work may be avoided and breadth obtained.

Lastly, when everything else has been attended to (even any dirty marks in the background and elsewhere should have been previously removed with pumice and cotton wool), take a retoucher's scalpel, and, holding it at almost right angles with the surface of the paper, but really inclining a little to the left, put in the finest high-lights—on the eyes, the bridge of the nose, lace, linen, draperies, etc., using a most delicate touch so as not to abrade the gelatine film, which should not be done except in order to remove superfluous specks or copy, which work is done at the same time.

It will be seen that Chinese white, or white crayons, are not required, an advantage, as they invariably give a spoiled bluish white appearance to the parts on which they are employed.

A clever artist can easily do forty 15 by 12's in a week by the above method, providing the reproductions are from average negatives. The special features are:—(1) The work is totally devoid of hatching, which, to give an equal effect of finish, requires a much longer time for its execution, and (2) the wholesale tinting at the commencement, thus saving an immense amount of touching out of imperfections.

ARTHUR WHITING.

HALF-TONE Postcards are a special line with the London Studio Co., Limited, 20-22, St. Bride Street, E.C., who, in sending us one or two excellent specimens, state that they guarantee dispatch within four days of order.

URBANORA at the Alhambra.—A series of matinees in which the "piece de resistance" is the cinematographic display by Mr. Chas. Urban, commenced at the Alhambra on January 9. The subjects include a voyage of the Kaiser Wilhelm II. to New York and back and a series of wild beasts, birds, and reptiles from the remarkable photographs of Mr. Martin Duncan, Mr. H. M. Lomas, Mr. J. Rosenthal, and Mr. J. G. Avery. That the programme succeeds in entertaining was shown by the hearty applause with which many of the incidents were received. Mr. Urban and his colleagues deserve thanks for putting before the public an entertainment which is instructive without being dull, and is not wanting in humour.

THE Camera and Natural History.—A great many children, and

almost as many adults, spent a very pleasant time at the Alexandra Hall, Cambridge, recently, when Mr. William Farren gave a delightfully interesting lecture on "Pictures of Bird and Insect Life." The object of the lecture seemed to be to demonstrate the use of photography as an aid to natural history, and, judging from the results obtained by the lecturer, the camera triumphed. Mr. Farren was always simple and explicit, but during an hour and a half he taught his audience more than days of text books would. Birds, caterpillars, and butterflies were his chief subjects, and in each section he proved his pre-eminence as an observer and photographer. Some of his slides of herons' and owls' nests must have been secured at imminent hazard of life and limb, whilst the patience of Job must have been exercised in securing half a dozen different plates of a caterpillar changing its skin. Mr. Farren acknowledged the fascination of making collections, but thoroughly proved the superiority of the photographic methods, which were attended with no animal destruction, and could not be deprecated by any society.

THE WEEK IN HISTORY.

The British Journal in 1854.

TO-MORROW (January 14) is the fifty-first anniversary of the first issue of the "Liverpool Photographic Journal," which organ of the Liverpool Photographic Society changed its name six years later to its present title of THE BRITISH JOURNAL OF PHOTOGRAPHY. The history of the B. J. has been written, in abler language than I can command, in the special issue which celebrated its jubilee last year. Since that number was issued, one of the last links with the past has been broken by the death of Mr. James Alexander Forrest, who was one of the editing committee of the "Liverpool Photographic Journal" during the years 1854-56.

Washed Emulsion.

One of the steps towards the modern dry plate was made thirty-one years ago by W. B. Bolton, who, in THE BRITISH JOURNAL OF PHOTOGRAPHY of January 16, 1874, published the first method for preparing an emulsion with the superfluous salts washed out. An idea of the same kind had been caricatured some years before in the description of a process by which everything, from the plate-cleaning chemicals to the hyposulphite of soda, was contained in the one mixture with which the plate was coated.

In describing the making of an emulsion of pure silver bromide and "organifier," or preservative (to fill the pores with soluble matter and permit the developer more readily to permeate the film) Bolton writes:—"In the first place the emulsion is to be sensitised in the ordinary way, no particular method or formula being recommended as better than another. In this method each person may employ his own pet formula. It matters but little whether the bromide or silver be in excess—whether nitric acid or uranium be used, or both; the only requirement is an emulsion that will work. Such an emulsion having been made, it is poured on to a glass plate edged with paper so as to form a dish, and allowed to 'set,' after which it is washed thoroughly and then dried. The dried product will consist of pure silver bromide and pyroxyline (the latter having probably taken into combination a portion of the silver used in sensitising), and when redissolved in equal parts of absolute alcohol, and ether of s.g. .725 to .730, forms an emulsion containing only pure bromide of silver. In this state it may be used wet or may be washed and 'organified' in the usual way. The addition of a suitable substance, however, renders it quite independent of any 'outside' assistance, and completes what may, I think, fairly be called a 'perfect' emulsion. The preservatives I have used with success are soap and tannin, both singly and combined, the former being the more sensitive and the latter conferring greater vigour on the picture."

Collodion-Emulsion Dry Plates.

Until gelatine early in the seventies diverted experiment into another channel, the hopes of photographers were turned towards collodion emulsion for a rapid dry plate. There have been those to take a pessimistic view of that turn in the stream of progress. But it cannot be gainsaid that under the regime of collodion, photography would have remained an occupation for the adept and innocent of the great industrial developments which have followed in the track of gelatine emulsion. But there may yet be opportunities for collodion, in process work, for instance, wherefore the description of his

process communicated by Carey Lea to THE BRITISH JOURNAL OF PHOTOGRAPHY of January 17, 1868, may be included in this week's "History." "A collodion was prepared according to the formula:—

Ether	...	...	...	...	...	9 oz.
Alcohol	...	...	...	...	...	8 oz.
Bromide of calcium	...	...	...	...	...	128 grains.
Bromide of ammonium	...	...	...	...	...	32 grains.
Pyroxyline	...	...	...	...	...	96 grains.

This collodion should stand a month before use in order to ripen properly. It is sensitised by addition of sixteen grains of nitrate of silver per ounce. When the sensitised collodion has reposed sufficiently I decant a portion and add to it a sixty-grain solution of gallic acid in the proportion of twenty-five drops to each ounce of collodion, stirring well up. Coat the plate, previously edged with solution of india-rubber (one or two grains to the ounce of benzole), and as soon as it has set place it under the tap and wash for four or five minutes. Dry, and the plate is ready for use.

It is very sensitive, greatly more so than the ordinary run of dry processes. The negatives are clean, and the development very manageable. The process is intended either for alkaline or pyrogallic development; of course with a longer exposure in the latter case."

B. J. Sayce and Collodion Dry Plates.

It will be noticed that Carey Lea's emulsion was a bromide one, and in this it bears a strong resemblance to a formula put forward four years previously by B. J. Sayce in a letter to THE BRITISH JOURNAL OF PHOTOGRAPHY (September 23, 1864), on "Dry Plates without Washing." Sayce used tannin and wrote in reference to the addition of silver nitrate to the collodion that the idea was "very old, almost as old as collodion itself; but although the principle was in existence, to the best of my knowledge no one had ever published a method by which the idea could be resolved into a process for general use. Again, most of the experiments in this direction have been with iodised or bromo-iodised collodion, and to this do I chiefly ascribe the previous failures, for I have found by experiment that the iodide of silver will not remain suspended in the collodion sufficiently long to be of much service, and that it is not sensitive in this condition to its maximum degree, owing to the absence of free nitrate of silver."

Who Invented the Finder?

"Cherchez la France!" for the early record of accessories to the camera. The earliest record I can find of the use of a finder is a note communicated to the French Photographic Society on January 18, 1856. The author, M. Taupenot, then christened the appliance "chercheur," so that he is probably entitled to the credit of introducing a word which Germany has literally translated "sucher," but which England has turned from "seeker" into "finder." But M. Taupenot himself, if he were here, would not wish to celebrate next Wednesday as the forty-ninth anniversary of the finder. He confessed at the time that an iconometer had been designed by M. Ziegler, but I have been unable to trace the original description of the fore-runner. M. Taupenot's "chercheur" was a very simple affair, in point of fact a direct-vision finder without a lens, and he explains how it is made from an aperture or eye-hole and a frame which has its sides in the same proportion as those of the focussing screen. And he directs the mounting of eye-hole and frame so that the distance between the two can be adjusted to reproduce the view given by lenses of different focal lengths.

HISTORICUS.

THE PROGRESS MEDAL OF THE ROYAL PHOTOGRAPHIC SOCIETY.

Award to Dr. Paul Rudolph.

THE Council of the Royal Photographic Society have awarded the "Progress" medal for the year 1905 to Dr. Paul Rudolph, of Jena, "for his researches in photographic optics."

The "Progress" medal was instituted in the year 1878, and of the fifteen awards which have been made since that time one only has been granted in the domain of photographic optics, viz., that in 1896 to Mr. T. R. Dallmeyer for the tele-photographic lens. The work of Dr. Rudolph has been spread over a number of years, and has been applied to the perfection of the anastigmat lens. To appreciate its extent and continuity, we must recall to our minds the state of photographic optics at the end of the eighties.



DR. PAUL RUDOLPH, the recipient of the Royal Photographic Society's Progress Medal, 1905.

The lenses for universal use were at that time the portrait objectives proper, the landscape lenses, and the rectilinears or symmetricals. Common to all these principal systems was one great drawback. If they were spherically corrected and showed a sharp image in the centre, then there was either astigmatism or curvature of field at the margins. It was a case of Scylla and Charybdis. The optician had to put up with curvature of field if he succeeded in removing astigmatism, and he had to introduce this defect if he wanted to flatten the field. In every case where a considerable angle of view was required the flat photographic plate could not be covered with anything like even sharpness except by means of a small stop. As regards the construction of these systems, they consisted of collective crown lenses (of low refraction) and dispersive flint lenses (of high refraction), and they had as few air spaces as possible. We know now that in a

spherically-corrected objective astigmatism and curvature of field cannot be removed with these restrictions. It became possible to evade them when, in 1886, Professor Abbe and Dr. Schott, of Jena, succeeded in placing crown glasses with high refraction on the market.

The first lens to employ the new Jena glass was the Concentric of Dr. Schroeder, which, however, did not come on to the market until 1892. The Concentric was anastigmatic over a considerable angle, but its small aperture, $f/16$ to $f/32$, did not fit it for general work. The work of Dr. Rudolph has been to produce flat field anastigmatic lenses working at larger and larger apertures.

It was about this time that the proprietors of the firm Carl Zeiss, in Jena, intended to extend their manufactures, which up to this time had been almost exclusively confined to microscopes. The first step in this direction was made with photographic lenses, because Dr. Rudolph, a member of their scientific staff, had finished the computation of a new lens, for which he claimed spherical correction as well as an anastigmatically flattened field. The lens, a doublet, consisted of two collective components, formed in such a way that the positive lens in the front combination was made of ordinary crown (of low refraction), whereas in the back combination the positive lens or lenses consisted of new, highly refracting baryta crown. From 1890-1 the objectives were introduced under the designation of Anastigmat, which in 1900 was changed to Protar. As the claims were justified this type became very popular, and it has ever since been manufactured, not only by Carl Zeiss, but also by his English, French, American, and Italian licensees. The apertures of these lenses varied—as far as the most popular series were concerned—between $f/6.3$ and $f/8$, and they served as universal and wide-angle lenses.

Dr. Rudolph next directed his efforts to the astigmatic correction of the single landscape lens. He obtained freedom of spherical aberration for an aperture of $f/12.5$. These systems served as combination or casket lenses, and have been introduced as convertible anastigmats. They have become very popular, as either component of a superior doublet working at $f/7.2$ could be used as a special long focus landscape lens of high rapidity and perfect stigmatic correction.

Although great progress was realised in the new types, there was no extremely rapid objective among their number until this gap was filled by Dr. Rudolph's Planar, a system computed in 1896. This lens was essentially symmetrical, and the corrections were brought about principally by the action of eight air-surfaces. The small lenses of this series had the large aperture of $f/3.6$, and the image of a flat object was, even with this unusual aperture, flat and very sharp. These lenses have found much favour, especially for low-power micro-photographic work (up to 80 diam.).

In 1900 Dr. Rudolph brought forward the Unar, a doublet with two open components. Each combination consisted of two single lenses, including an air-space, the character of which was dispersive in the front and collective in the back component. The lens had an aperture of $f/4.5$, and it has been extensively used for hand-cameras and as a portrait lens. In 1902 the Tessar followed, a doublet with only one open component, containing an air-space of dispersive character. It has been principally used as a hand-camera lens with an aperture of $f/6.3$; but this type as well as the Planar has been further developed with the object of forming superior objectives for reproduction work. In the Apochromatic Planars and Tessars special glasses have been used in order to

remove the secondary spectrum. The achromatism of these objectives is, therefore, of a higher order, and they are specially suited for three-colour work.

Dr. Rudolph, who was born forty-four years ago at Kahla, in Thüringen, received his scientific training at the Universities of

Münich, Leipsic, and Jena. For a short time he held a tutorial position in Lauterberg, a post which he vacated in 1885 to join the staff of the Carl Zeiss at Jena. The full account of his optical work since that time would fill several issues of this journal, and we must be content with the above brief outline.

THE NEW PATENT LAW.

THE New Year saw the commencement of the operations of the Patent Act, 1902, and the following notes may make quite clear what changes are thus involved.

Investigation of Prior Patents.

The time for depositing a complete specification following the provisional application is now reduced to six months instead of nine, as it was under the old Act. When a complete specification has been deposited it is now referred to an Examiner, who, in addition to reporting whether the complete specification is substantially the same as that in the provisional, has now to institute an investigation for the purposes of ascertaining whether the invention claimed has been wholly or in part claimed or described in the complete specification of any prior English application deposited within fifty years next before the application under examination and published before the date of the latter. If the invention has been wholly or in part claimed or described in the complete specification of any prior English application the applicant is to be informed of the fact, and he may, within a given time, amend his specification, and the amended specification is investigated in like manner. The Examiner has to report the result of his investigation to the Comptroller of Patents, but it is not to be published nor be open to public inspection.

References to Previous Specifications.

If the Comptroller is satisfied that no objection exists to the specification on the ground that the invention claimed has been wholly or in part claimed or described in a previous specification, then, in accordance with Sub-section 5, he is, in the absence of any other lawful ground of objection, to accept the specification. The Act then states that "If the Comptroller is not so satisfied, he shall, after hearing the applicant, and unless the objection be removed by amending the specification to the satisfaction of the Comptroller, determine whether a reference to any, and, if so, what, prior specifications ought to be made in the specification by way of notice to the public."

If the Examiner finds that the invention claimed in the specification under examination has been wholly claimed or described in one or more specifications within the meaning of Sub-section 1 of Section 1 of the Act, he is to make to the Comptroller a provisional report to that effect, and if it be not revised or altered, this report will be deemed a final report, and the application will be dealt with as provided above.

Amendments.

Two months is the time allowed for an applicant to amend his specification. When the time allowed for amendment has expired, if the Comptroller still thinks the specification is open to objection on the ground that the invention claimed has been wholly or in part claimed or described in a previous specification, he is to inform the applicant accordingly, and appoint a time for hearing him. The applicant must notify the Comptroller whether or not he desires to be heard. After hearing the applicant, or without a hearing, if the applicant has not attended or has notified that he does not desire to be heard, the Comptroller is to determine whether reference ought to be made in the applicant's specification to any, and if so, what, prior specification or specifications, by way of notice to the public.

According to Rule 10: "When, under Sub-section 6, the Comptroller determines that a reference to a prior specification ought to be made by way of notice to the public, the form of reference shall be as follows. "and shall be inserted after the claims:—'Reference has been directed, in pursuance of Section 1, Sub-section 6, of the Patent Act, 1902, to the following specification of Letters Patent No. granted to.....' Where the reference is inserted as the result of a provisional report under Rule 7, a statement to that effect shall be added to the reference."

Contradictions.

The result of this rule will be that unless the applicant accepts the ruling of the Examiner and the Comptroller, the insertion of the above-mentioned clauses will most seriously affect the value of the patent. And in respect to this it may be pointed out that the difficulty of deciding so nice a question as to what is and what is not prior discovery is an extremely delicate task, and the insertion of such a notice seems contradictory to Section 1, Sub-section 6, which expressly provides only for a reference to prior specifications, not for a condemnatory official notification, much less one which will practically publish to the world the pith and marrow of a report, publication of which is expressly prohibited by Sub-section 4.

An applicant's specification may contain reference to prior specifications, particularly when they are very close; without necessarily casting suspicion on its validity, but the value of a patent that contains an official notification that the patent is invalid is nil.

The Examiners and the Comptrollers are not infallible, and an appeal may lie against their decision to the Law Officer, but unless he has had special training and experience in patent law, he will be no more immune from mistakes than any other judge.

A further rule provides that the statement of claim, with which a complete specification must end, shall be clear and concise, and separate and distinct from the body of the specification, and it is intimated that unnecessary multiplicity of claims or prolixity of language should be avoided.

Multiplying Patents.

Another rule which promises to press hard on the inventor is to the effect that when a specification comprises several distinct matters, although they may be applicable to or form part of an existing machine, apparatus, or process, they shall not be deemed to constitute one invention, so that the result may be that an inventor may have to take out several patents for the same thing.

Where more than one invention is included in a specification, the applicant may be allowed to amend so as to make it applicable to one invention only, and apply for separate patents for the other inventions, but it is not clear whether the original date of application would be appended to the subsidiary applications, nor whether if there is official publication of the first and amended specification, the inventor can protect the subsidiary inventions.

The Provisional Specification.

Another important point is that not only must the invention in the complete specification be the same as that in the provisional, but it is not made clear whether any amendment will be considered allow-

able that would make an amended specification claim an invention substantially different from the invention claimed in the specification as originally deposited. Thus it will be seen that many pitfalls will lie in the inventor's path, for, assuming his provisional specification, or his claims, or both, to be inadequate, he may find himself precluded from securing protection for something actually embodied in his complete specification and not anticipated by the earlier patents discovered by the Examiner.

A sealing fee of £1 must be paid on or before the last day on which a patent can be lawfully sealed.

It is further enacted that the investigations and reports shall not be held in any way to guarantee the validity of any patent.

Whilst on the whole the new Act may be considered to be an improvement on the old, there is one grave omission, and which is not an easy matter to overcome. We refer particularly to the patenting of a fact or principle, which is well known and common property; take, for example, the use of a colour filter or screen, in contact with or near the sensitive surface. This was described by Ducos du Hauron in 1867 and 1874; yet not having been patented by him it could be patented under the new Act, which would be a manifest absurdity. As a matter of fact, there is nothing to prevent any one patenting the use of the haloid salts of silver suspended in gelatine or any other colloid. The actual remedy we are not prepared to suggest, but there is an obvious danger on this point.

FOREIGN NOTES AND NEWS.

Diamidophenol Soda as a Developer.

PROFESSOR VALENTA points out in the current number of the "Photographische Korrespondenz" that Loebel's experiments on developing with the phenolates of diamidophenol and diamidoresorcine are misleading. Loebel pointed out that three molecules of caustic soda (NaOH) were required to convert the chlorhydrate of diamidophenol $C_6H_3O(NH_2HCl)_2$ into the phenolate, two molecules being required to saturate the HCl groups, and the third for the formation of the phenolate. Loebel found that such a developer gave negatives as free from fog as the ordinary sulphite and amidol developer, and that it acted three or four times as fast and gave softer results, and the following formula was given:—

Water	...	...	...	...	1,000 cc.
Anhydrous sodium sulphite...	...	...	...	...	3 grammes.
Amidol	...	...	...	...	5 grammes.
Caustic soda (1 per cent. sol.)	...	...	...	...	30 cc.

Valeuta points out that this does not form a phenolate, and that practically 300 ccs. of the soda solution must be used.

A series of experiments were carried out and plates were exposed under identical conditions in Scheiner's sensitometer, and developed at a given temperature. Loebel's corrected formula was used, and instead of a good rapid developer a deep dark blue solution resulted, which immediately fogged the plate, and precisely the same results were obtained with chemically pure preparations, thus disposing of the possibility of error through impurities. Comparative experiments proved: (1) that with the increase in the proportion of caustic soda there was within certain limits an increase in the rapidity of the developer; (2) the best result was obtained when the developer contained just enough caustic soda to saturate the HCl groups, and therefore liberated the free base. Such a developer will not keep, however, and it becomes very dark after once using; (3) the addition of as much NaOH as is requisite to saturate the two HCl groups and form the phenolate at once produces a deep blue coloration, and makes the developer unuseable.

The experiments proved that the best practical effect was obtained with an amidol developer to which only enough NaOH was added to saturate one HCl group, and such a developer is given by the following formula:—

Water	...	...	...	...	900 ccs.
Sodium sulphite crystal	...	...	...	...	10 grammes.
Amidol	...	...	...	...	5 grammes.
Caustic soda (1 per cent. sol.)	...	...	...	...	100 ccs.

This works rapidly, remains clear, and gives softer and more delicate negatives than the ordinary amidol developer.

The Setting and Swelling of Gelatine.

The work of Prof. Schroeder is briefly summarised in a recent number of "Science Abstracts," where it is stated that the viscosity, measured at 25 deg., of a gelatine solution heated at 100 deg. gradually diminishes to a constant minimum. This change is attributed to a hydrolytic process which follows a logarithmic law. Further, if after heating at 100 deg. the gelatine solution is kept at 25 deg., its viscosity increases at a rate closely related to the ability of the solution to set. With the exception only of potassium and ammonium nitrates, all the sulphates, nitrates, and chlorides of sodium, potassium, and ammonium, as well as the chlorides and sulphates of lithium and magnesium, increase the viscosity of gelatine solutions, the greatest effect being produced by magnesium salts. The order of the ions with respect to their influence on the viscosity is the same for gelatine solutions as for water. The process of hydrolysis referred to above is accelerated by both hydrogen (hydrochloric acid) and hydroxyl ions (sodium hydroxide), the final values of the viscosity thus arrived at being lower than that reached in pure or salt-containing gelatine solutions.

The Thiocarbamide Toning Bath.

Since 1902 the thiocarbamide toning bath first suggested by Hélaïn has been tested at the K. K. Lehr und Versuchsanstalt at Vienna by Herr Kessler, and he states that prints toned with it are equally as permanent as those toned by any other method, and that the consumption of gold is relatively small, and the bath is economical, as it can be completely exhausted. The bath is made up as follows:—1 g. of thiocarbamide is dissolved in 50 cm. of water, and enough of this solution is added to 25 cm. of a 1 per cent. solution of chloride of gold to dissolve the precipitate first formed, 14 or 15 cm. being necessary for this; 0.5 g. of citric acid should then be added, and the bulk made up to 1,000 cc. with water. Tartaric acid may be used instead of citric acid, and browner tones are obtained; the citric gives bluish tones. The use of nitric acid as suggested by Blake Smith gave no appreciable difference in results. The following rules should be observed in the use of this bath, which can be used for matt and glossy collodio-chloride or gelatino-chloride papers; the prints must be well washed before toning, at least three changes of water being used. Toning takes place so rapidly in a fresh bath that the prints should be immersed one by one, or at most two at a time. A bath that has been once used or is made more dilute works more slowly. Difference in temperature of the bath makes but little difference in the rate of toning. Brownish red to blue-violet tones can be obtained, and prints rich in contrasts, which frequently give double tones in the ordinary bath, do not show this trouble in this bath. Further, the bath is not poisonous.

Red Tones on Collodio-Chloride Matt Papers.

Herr Kessler points out that red and reddish brown tones on matt collodio-chloride paper are now fashionable, and states that the following bath is excellent for obtaining these:—

Prepared chalk	...	...	...	25 grammes.
Water...	...	...	...	...1,000 ccs.

Shake well and allow to settle, and two hours before use add to the clear supernatant liquid

Chloride of gold (1 per cent. sol.)	10 ccs.
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The bath tones slowly, and gives after two or three minutes a beautiful red-brown. The same effect can be obtained by Valenta's lead combined toning and fixing bath, but a supplementary fixing is required. The thiocarbamide bath, if diluted with an equal quantity of water, may also be used. It should be noted that after fixing, the tones with all these baths appear slightly warmer, which must not be forgotten in toning.

Stand Development with Edinol.

Dr. Englisch gives the following formula for a stand developer with edinol:—

Edinol	...	...	1 gramme.
Sodium sulphite	1 gramme.
Water	1,000 cc.

and add

Carbonate of soda or potash	...	2 grammes.
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for over-exposure, whilst for under-exposure the alkali should be increased to 5 grammes.

Exhibition.

LEWES JUNIOR PHOTOGRAPHIC SOCIETY.

THE Lewes Junior Photographic Society opened their second annual exhibition at Lewes, the Y.M.C.A. rooms being utilised for the purpose. There was a large array of pictures, especially in the classes for members only, and these showed much promise on the part of the exhibitors. The competitors had 224 pictures on view, while there were many others not for competition. Mr. A. H. Avery, of Brighton, won the first prize in the open classes with a figure study entitled "Childhood Dreams," Mr. F. Judge, of Hastings, the second, with a picture representing "A Day in August." The last-named carried off first prize for lantern slides, and Mr. A. G. Turner, of Lewes, the second. In the enlargement classes, Mr. Avery secured the first prize and Mr. A. H. C. Corder, of Brighton, the second. In the classes for members only, Mr. R. Sandals was awarded the first prize and Mr. S. Sandals the second. The judges were: Alderman G. J. Wightman (President of the Lewes Photographic Society), Mr. F. Newington, and Mr. W. E. Nicholson.

FORTHCOMING EXHIBITIONS.

January 12-14, 1905.—Boston Camera Club. Hon. Secretary, H. M. Hames, 65, West Street, Boston.

January 14-28, 1905.—The Scottish National Salon. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

January 20-21, 1905.—South Essex Camera Club. Hon. Secretary, T. Mitchell, 180, Browning Road, Manor Road, E.

January 23-28, 1905.—Lancaster Photographic Society. Hon. Secretary, R. T. Simpson, 21, Cheapside, Lancaster.

January 28-February 12, 1905.—Photographic Society of Marseilles. Secretary, M. Astier, 11, Rue de la Grand-Armée, à Marseille.

January 31-February 4, 1905.—Cardiff Windsor Amateur Photo-

graphic Society. Hon. Secretary, Mr. G. Gallon, 37, Hamilton Street, Cardiff.

February 6-11, 1905.—Blairgowrie and District Photographic Association. Hon. Secretary, Wm. D. M. Falconer, James Street Cottage, Blairgowrie.

February 16-18, 1905.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earlham Road, Norwich.

February 21-March 7, 1905.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 7; for pictures, February 17. Hon. Secretary, E. J. Felce, 83, Adam's Avenue, Northampton.

February 25-March 4, 1905.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

March 4-11, 1905.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-14, 1905.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 20-25, 1905.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1, 1905.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

April, 1905.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15, 1905.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8, 1905.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

June, 1905.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITION.

March 31, 1905.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

THE London Etching Co., 3, Holborn Place, High Holborn, London, W.C., send us some specimens of their recent work in half-tone engraving, including some striking effects in fashion drawings, done against a tint in two printings, and some high-class photo-engraved plates of portrait and architectural subjects.

PROTECTION for the hands with a film of rubber is mentioned in the following note, and should be of interest to carbon workers and others using bichromate:—"A 4, 6 or 8 per cent. solution of gutta percha in benzene or acetone when applied to the hands of the surgeon or the skin of the patient, will seal the surfaces with an insoluble impervious and practically imperceptible pellicle, which will not allow the secretions of the skin to escape, and will not admit blood, pus, or secretions into the crevices of the skin. This application has the great advantage over rubber gloves that it does not impair the sense of touch nor the pliability of the skin. After sterilising the hands and thoroughly drying them, the gutta percha solution is applied over the hands and forearms, care being taken to fill in around and beneath the nails. The hands are then kept exposed to the air, with the fingers separated, until thoroughly dry. The acetone solution dries quicker but that in benzene is said to wear longer.—Murphy, "National Druggist," abstracted in the "Pharmaceutical Journal."

New Materials.

Barnet "Tiger Tongue" Bromide Paper. Sold by Elliott and Sons, Barnet.

A new issue of this paper has appeared from Messrs. Elliott's factory with a cream instead of the white surface of the brand which we were able to review favourably some weeks ago. The two varieties are equal in price.

The "Figaro" Combination Book-Post Wrapper and Frame-Stand. Sold by Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

By providing a slip-in mount with suitable flaps at each end, the photograph is protected during transmission through the post and the flaps are afterwards turned back to serve as a support for the mount. The wrapper thus forms both a frame and a stand, and no more simple and pleasing method of presenting a single print by post can well be imagined. The mounts are in assorted designs and shapes, and are supplied for both "landscapes" and "portraits." At present they are made in postcard, quarter-plate, 5 by 4, and



certain smaller sizes, to which might be added, we would suggest, another for cabinets, which professional photographers would be glad to use as something out of the common for proofs. The wrappers are supplied in packets of eight or ten at 9d. or 1s. per packet.

Messrs. Kodak, Limited, are also issuing a lantern-slide printing-frame accommodating any size of negative from quarter to whole plate, and permitting of any portion being selected for the lantern picture. Strongly made, and with rubber-bound brass springs, the frame is sold at 1s. 9d.

ELECTROLYTIC Barium Platino-Cyanide.—A new method of preparing this salt is described in the "Zeitschrift für Electro-chemie," by A. Brochet and J. Petit, who obtain a solution of platinum in barium cyanide under the influence of alternating current. A satisfactory result is stated to be obtained from an electrolyte of 270 grammes barium cyanide, per litre, with a current of .4 ampère per square centimetre, and a P.D. of 5 volts. The product requires re-crystallising from a solution containing barium cyanide before it is fitted for fluorescent purposes in the X-ray screen.

New Books.

"Les Procédés au Collodion Bromide." By H. Calmels and L. P. Clerc. Published from the office of "Le Procédé," Paris. Price 1 fr. 50 c.

Wet collodion for the process worker is the subject of this text-book, and in its forty pages the authors manage to put the practical facts of the process as the photo-engraver has need to apply them. This they do with regard to the recent French regulation forbidding the transmission of nitrated cotton. The volume illustrates by sketches the manipulation of a plate during collodionising and sensitising. In the absence of personal instruction by a teacher, the sketches showing how to hold the plate may be commended to the student, but the knack of handling the plate is not easily acquired, and we have heard it said that no one can expect to become perfect in wet collodion who has not mastered it before he is twenty-five. MM. Calmels and Clerc also deal, as their reader would wish them to do, with the intensification of the collodion negative by lead and mercury, and the transference of it to glass supports, and to the wood engraver's block, and they append a note on the orthochromatising of the wet collodion plate.

"Deutscher Camera-Almanach." Edited by Fritz Loescher. Published by Gustav Schmidt, Berlin.

This is the first issue of a new year-book, which promises well. It contains numerous interesting and instructive articles on artistic and practical photography by well-known writers, but its chief feature is the large number of half-tone illustrations by the leading workers on the Continent.

A BURGLARY was committed during the night of Monday, January 2nd, on the premises of the Photographic Supply Stores, a lock-up shop at 24, Widmore Road, Bromley.

THE death took place on Saturday, at his residence near Wrexham, of Mr. Edward Evans, for many years head of the great firm of manufacturing chemists in Liverpool. Mr. Evans, who was in his eighty-eighth year, retired from active business only two years ago, after which the firm was amalgamated with the London house of Evans, Leecher, and Webb. Mr. Evans was one of the original members of the Pharmaceutical Society.

RECENT Lantern Slides.—The latest list of Messrs. Newton and Co., 3, Fleet Street, London, E.C., describes the 158 subjects of the Russo-Japanese war, which are now ready as lantern-slides. There are also further series of slides showing the Trans-Siberian Railway (from direct negatives), Japan, as photographed by Dr. Vaughan Cornish, and the Evolution of an Ironclad. Messrs. Newton issue slides from the copyright pictures in the illustrated weeklies, and the list of these subjects, which deal only with current events, now numbers 245. The list is sent free.

DR. DOYEN, the famous Parisian surgeon, has brought an action against the firm which has for years kinematographed his more important surgical operations. Dr. Doyen's idea was to leave a record of his particular system of operating, and to utilise the films for lecture purposes. The firm in question, however, have distributed positives all over Europe and America, and even shown them at country fairs, and it is even stated that a Parisian hostess, anxious to provide her guests with a novel entertainment arranged an exhibition of some of the films after a dinner party. The sale and exhibition of these films have been against Dr. Doyen's wish, but being unable to stop the same he has now claimed 200,000 francs as damages. Judgment in the case has been reserved.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
14.....	Glasgow Southern Photo. Assn.	{ Opening dat ^s of Salon, which remains open until January 14.
16.....	South London Photo. Society..	<i>Photography</i> 1901 Prize Slides.
16.....	Southampton Camera Club	<i>Practical Gum-Bichrome's Printing.</i>
18.....	Bowes Pk. and Dis. Ph. Soc.	{ Demonstrated. Mr. G. H. Hewitt.
16.....	Luton Camera Club	<i>Annual General Meeting.</i>
16.....	G.E.R. Mechanics' Institution	<i>Platynotype Process upon Paper and</i>
17.....	Royal Photographic Society ..	<i>Lubric.</i> Demonstrated. The Platyno-
17.....	Birmingham Photo. Society	<i>type Copying.</i>
17.....	Blaigowrie and D. s. Ph. Assn.	<i>Visit to the Walthamstow Photographic</i>
17.....	Bor'der City Camera Club	<i>society with Slides.</i>
17.....	Nelson Photographic Society ..	<i>Waves in Water, Sand, and Snow.</i> Mr.
17.....	North Middlesex Photo. Society ..	{ <i>Vaughan Cornish, D.Sc.</i>
18.....	Photographic Club	<i>Architectural Photography.</i> Mr. H. W.
18.....	Boro' Poly. Photo. Society	<i>Bennett, F.R.P.S.</i>
19.....	Gateshead Camera Club	<i>A Tour in Scotland.</i> Mr. Alexander
19.....	Richmond Camera Club	<i>Hinselwood L. Wishaw.</i>
19.....	Rodley and District Ph. Soc.	<i>Platynotype Printing and Development.</i>
19.....	Hull Photographic Society	<i>Mr. R. H. Bevan.</i>
19.....	Southport Photo. Society	<i>Suggestions for Pictorial Photo-</i>
19.....	Batley and Dis. Photo. Soc.	<i>graphers.</i> Mr. A. A. Bellingham.
19.....	Liverpool Amateur Ph. Assn.	<i>Gaslight and Similar Papers.</i> Mr. M.
20.....	Watford Camera Club	{ <i>Fraser Black.</i>
20.....	West London Photo. Soc	<i>Photographic News Competition</i>
20.....	Watford Photographic Society	<i>Lantern Slides.</i>
20.....	Wakefield Photo. Society	<i>Lantern Night.</i>
20.....	Aberdeen Photographic Assn..	<i>Lens Testing with a Small and Simple</i>
20.....	Boro' Poly. Photo. Society	<i>Optical Bench.</i> Mr. A. Payne.
		<i>Optical Demonstration.</i> Mr. Wardall.
		<i>Mounts and Mounting.</i> Mr. L.
		<i>Dickinson.</i>
		<i>The Search for the Picturesque.</i> Mr.
		<i>W. H. Willatt.</i>
		<i>Lantern Slide Making in the Camera.</i>
		<i>Mr. J. S. Dickin, L.D.S.</i>
		<i>Photography Prize Slides.</i>
		<i>Annual Meeting.</i>
		<i>The Principles of Composition.</i>
		<i>Random Rambles.</i> Mr. G. Lam'ey.
		<i>A Chat on Photographic Optics.</i> Dr.
		<i>A. E. Cox.</i>
		<i>Nature Poets and Nature Pictures.</i>
		<i>Mr. Percy Lutd.</i>
		<i>Retouching.</i> Demonstrated. W. L.
		<i>Dunn, Jun.</i>
		<i>Matt F.O.P. and Platinum Toning.</i>
		<i>Mr. G. W. Francis.</i>

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

MEETING held January 5, 1905; Mr. Brigginsshaw presiding.—Mr. Freshwater announced that Mr. Phiup Everitt, formerly Honorary Secretary, was lying ill at Guy's Hospital suffering from tumour on the brain, which it was hoped could be dispersed. The Chairman was sorry, and voiced the hope of the members that Mr. Everitt would speedily recover.

Mr. Wardell exhibited a new focal-plane camera by Zeiss, which had many excellent points of novelty. Mr. Wardell's lecture on "A Large Aperture," resolved itself into a talk on the optical properties of the new Jena glass, as contrasted with the old crown and flint. This was very ably given, and was listened to with great attention, but it occupied the time allowance, and left no opportunity of informing the members how lenses of large aperture should be used. Mr. Thomas, as a user of lenses of large apertures, would have been glad of some hints as to the use of lenses working at $f4$ with a focussing scale, as, unless it was known that that scale was accurate, and the judgment of distance correct, the results were disappointing, and he had no doubt but what such lenses were best used in a reflecting camera, enabling the operator to focus up to moment of exposure.

ROYAL PHOTOGRAPHIC SOCIETY.

JANUARY 9.—Major-General Waterhouse in the chair.—Scrutineers of the ballot for the election of officers were elected, and the award of the Progress Medal to Dr. Paul Rudolph, of Jena, "for his researches in photographic optics," was announced. Mr. T. Thorne Baker read a paper on "Spectroscopic Photography in Colours," in the

course of which he spoke in favour of the diffraction spectrum as the most suitable means of adjusting plates and filters, and said it was convenient to make five exposures on a quarter-plate; two to the entire spectrum and the remaining three separately through the three filters. In considering sensitive materials, he divided panchromatic plates into two classes, those with three maxima and those with an even band of sensitiveness. Bathed plates were superior to colour sensitised emulsions, and the most perfect sensitiser in his experience was Homocol, which gave sensibility into the infra red. The absorptions of the filters should not end abruptly, but diminish gradually, so that rays of adjacent parts of the spectrum were passed in diminishing proportion. If these conditions were satisfied, proper exposure of the three plates would give a perfect set of negatives, but it often happened that the negative of the yellow printer was under-exposed, and green and red negatives over-exposed. A three-colour reproduction of the spectrum of incandescent gaslight was shown from blocks prepared with only the treatment that any ordinary half-tone block would receive; no re-etching was given for false colour rendering.

The following are, in round numbers, the constituents of the filters:—

Blue.	
Methyl blue	10 parts.
Naphthol green	1 part.
Green.	
Patent blue	25 parts.
Naphthol green	26 parts.
Tartrazin	31 parts.
Red.	
Tartrazin	70 parts.
Titan scarlet	22 parts.

The gas was placed about one foot away from the slit of the spectroscopic camera, and the exposures, 1-1 plate, were found to be for the blue record one minute, for the green record three minutes, and for the red record seven minutes.

The annual meeting of the Royal Photographic Society will take place on February 14, when the election of Council officers and judges will be announced, and the balance-sheet presented. Nomination papers are now in the hands of members, and must reach the Secretary not later than January 20. The members of the present Council and their attendances at meetings are as follows (the figures in parentheses after each name gives the number of possible attendances):—Sir W. de W. Abney (12), 5; The Earl of Crawford (12), —; Thomas R. Dallmeyer (12), 3; Major-General J. Waterhouse (12), 11; Sir H. Trueman Wood (12), 1; John Sterry (12), 9; Francis Ince (12), —; T. Bedding (9), 2; H. W. Bennett (9), 7; James Cadett (12), 2; St. Lawrence Carson (12), 3; Leslie E. Clift (11), 10; Douglas English (12), 6; T. E. Freshwater (12), 9; C. F. Grindrod (9), —; A. Haddon (12), 7; John A. Hodges (9), 6; G. Lindsay Johnson (12), 6; Rev. F. C. Lambert, M.A. (9), 5; J. C. S. Mummery (12), 10; C. H. Oakden (12), 10; E. Sanger Shepherd (12), 7; Sir Joseph W. Swan (12), —; John Spiller (9), 7; Prof. W. C. Unwin (12), —; H. Snowden Ward (9), 8; B. Gay Wilkinson (12), 8.

SOUTHAMPTON CAMERA CLUB.

THE members of the above club assembled in goodly numbers on Monday evening, the 9th inst., at the club rooms, for the lecture by Mr. A. J. Kay, M.I.N.A., of Glasgow, on "Strathearn," and although Mr. Kay was unable to make the journey owing to press of business engagements, his brother, Mr. W. R. Kay, of the Southampton Club, was able to do full justice to the very excellent description by his brother of their home neighbourhood. The lecture proved to

be a summary of the delights of a two days' walking tour through the "strath" or plain through which the river Earn flows, and the lecturer demonstrated that within easy reach of murky and commercial Glasgow could be found such a wealth of beauty in river, wood, and hill as might satisfy the most exacting tourist. The slides were, technically, of the finest quality. A very hearty vote of thanks to the lecturer and the reader was accorded at the instance of Mr. G. Vials, who, on presiding for the first time after his election as vice president of the club, was given a most cordial reception.

CROYDON CAMERA CLUB.

JANUARY 4.—"The Face and Figure of Woman," considered respectively from the painters' and photographers' point of view, formed the somewhat startling title of an unconventional and carefully thought out lecture by Mr. P. R. Salmon, the Editor of the "Photographic News," an ever-welcome visitor at Croydon. In less skilful hands the subject—illustrated, as it was, by copious illustrations of the nude—might readily have become offensive, and Mr. Salmon is to be congratulated in having presented it in such a way that no objection, even from the most straight-laced, could reasonably have been taken. The lecture, of which little more than an epitome can be given, aimed at, and very convincingly succeeded in, drawing a sharp comparison between the idealisation of the artist and the realism of the camera, strive its operator ever so hard and so cleverly to make the best of things as he finds them.

First came slides representing well-known paintings, followed by the lecturer's own studies of the living model, these frequently being favourite professional sitters to the painters, whose idealistic interpretations were also shown. Occasionally the models were posed in exact imitation of the original picture. Judged purely as examples of technical excellence, happiness in lighting and pose, Mr. Salmon's studies left little to be desired. But considering them as competing with the artist's work, then the camera broke down so completely that even its most enthusiastic pictorial exponent must have been compelled to recognise so patent a fact. To the artist, or art student, Mr. Salmon merely emphasised a settled conviction, whether right or wrong. To others, there can be but little doubt, he taught a valuable lesson, albeit the familiar cheerful prattle of "leading in lines," "pyramidal," and other forms of composition, "concentration of interest," and so forth, were never even touched upon.

Dealing with the first part of his subject, Mr. Salmon discussed, and controverted, the popular impression that actresses, as a rule, were better looking than the average girl. Personally, he much preferred to photograph a natural face than a made-up one, however alluring the latter might be behind the glitter of the footlights. Notwithstanding this, prominent actresses demanded, and succeeded in obtaining, enormous fees for sittings, the much-maligned retoucher making good all deficiencies. As a matter of fact, pretty photographic sitters, drawn from any source, were extremely difficult to get, and the regular models were expensive—as he knew to his cost. There was one thing, he said, a photographer, unlike a painter, could not do, namely, idealise a type and popularise it. Thus, for instance, in the fifteenth century in Italy there was the "Botticelli girl," just as in the present day there exists in America the "Gibson girl." Greuze, Reynolds, Gainsborough, Rossetti, Burne-Jones, Tenniel, Du Maurier, and many others also created types, and no doubt the artist's preference for one living woman was mainly responsible for this. Mr. Salmon was evidently not lost in admiration of the buxom types of Venus, Diana, and the like, evolved by Rubens; but in justice to this master he might have pointed out the magnificent flesh rendering his paintings always show. Beauty, he went on to say, no doubt was the caprice of fashion, but,

in any case, it might be classified under four headings:—Colour, form and expression, grace. The first two being, as it were, the "body," and the two last the "soul."

Turning to the photographic attempts to portray the nude, these, he said, were many, but the successes few. It was, in fact, one of those subjects in which photography signally failed because of its truthfulness. On the other hand, the foremost painters disregarded the canons of science, as a careful measurement of their pictures would show; but "science was not art." The human figure in the nude very rarely lent itself to photography owing to its imperfections. One model might have a perfect throat, another exquisite arms, a third glorious shoulders or a "Tribby" foot, but seldom, if ever, was such a combination found in one figure. An artist, taking the best points of each model, could obtain a combination of perfections almost impossible of attainment by the photographer. There was, as he very truly said, a wide gulf between the naked and the nude. It was the naked, and not the nude, which the camera generally gave. There was, in fact, too much realism. The nude belonged to the poetic art, and was the divine ideal; it had no excuse for existence if not beautiful, and the modern nude was not beautiful.

From the foregoing abbreviated utterances of Mr. Salmon it might be thought he despaired of any photographic representation—considered as a work of art—of the modern woman, unadorned, or unencumbered with the complex trappings of civilisation; but this was not altogether the case, and if his concluding remarks appeared slightly at variance with what had gone before, this doubtless was due to a not unnatural desire to regard the matter free from prejudice, and with hope for what the future might bring forth. Speaking of the semi-nude, or partially-draped studies, he said he had seen photographs "which were as artistic as any painting could possibly be." He had also an idea that photographs of the nude, properly treated and properly painted, might be made into pictures "real pictures," which no one need be ashamed of hanging up in a drawing-room. In this connection we are regretfully bound to record that beyond a recommendation that such photographs should be printed on rough paper, Mr. Salmon gave no further indications how they would be made into "real pictures," a term, which with the word "artistic" previously used, involves a certain amount of ambiguity, and claiming much or little according to the varying interpretations which might reasonably be put upon them; but, be this as it may, there was certainly no indefiniteness in the hearty vote of thanks, accorded to the lecturer for a most interesting and pleasant evening, which terminated with an animated discussion.

SUTTON PHOTOGRAPHIC CLUB

PHOTOGRAPHY with chromium formed the subject of an interesting paper which Mr. Hector Maclean read at the above club on January 5, and which was introductory to a demonstration of the new and promising printing process known as "auto-pastel," a method of making photographs which have many of the qualities of "gum prints." The lecturer explained that the paper was procurable ready coated in eight tints, that it was easily sensitised in one minute, and might be dried and ready for printing half an hour afterwards. He also demonstrated how by means of a dish of hot water and a soft brush any one can develop the paper, which, unlike carbon, requires no squeegeeing or stripping. In the course of his remarks upon chromium and its services to photography, he stated that, apart from negative making, the world could better sacrifice the photographic properties of the salts of silver, gold, platinum, and iron rather than those of chromium, on account of the utility of the last-named in the carbon, gum, collotype, and photo-mechanical processes.

A number of striking prints were shown, including choice specimens reproducing pictures by Degas on "Papier Fresson," by Mrs.

Coles, a selection of Mr. Rawlins's most recent "oil prints," "auto-types," gum-bichromate prints by Messrs. Chas. Moss, F. A. Bolton, and by the lecturer; "auto-pastels" in variety, and collotypes, including unique examples on white satin kindly lent by the Auto-type Co.

WAKEFIELD PHOTOGRAPHIC SOCIETY.

At the Church Institution on January 6 Mr. F. W. Plews, of Leeds, gave a practical demonstration on "Dry-plate Making." He reviewed the conditions which now obtain with dry-plates as compared with the past, when only the wet-plate process was available. The new conditions were the result of experiments by Dr. Maddox, a Liverpool amateur photographer. Mr. Plews described all the formulæ and appliances necessary, and also proceeded to make up the solutions and coat the plates with plain and stained emulsions.

ILLUSTRATED directions for the use of the "Crossed Swords" gum-pigment paper reach us from Messrs. Chas. Zimmermann and Co., 9-10, St. Mary-at-Hill, London, E.C.

THE Optical Lantern.—"The Camera House Journal" of Messrs. Butcher and Sons refers, in its current issue, to certain articles on the "Revival of the Optical Lantern," among which is doubtless included that in the BRITISH JOURNAL OF PHOTOGRAPHY for September 16, 1904. On the factors concerned in reinstating the lantern in favour, the "Camera House Journal" writes: "There are two things that may have caused the popular interest in lanterns to wane, one is the abomination known as a three or four-wick lamp, and the other, the flood of rubbishy slides that have been, and continue to be, offered for hiring purposes. It is right enough to endeavour to popularise a trade by cheapening it, but it is quite possible to overdo it, and when dealers commenced to hire out slides at 6d. per dozen, all slides at one price, they overlooked the fact that some slides are worth more than others, and it was absurd on the face of it to hire out slides that cost 30s. for the same rate as others that cost only 10s. The consequences soon became apparent; they naturally, as business men, only put into stock those slides that could be bought cheapest, and the better class and quality became conspicuous by their absence, and are now not readily obtainable at all. It is not too late for dealers to try and redeem the position. They should re-arrange their hiring terms on a sounder basis, and have at least two scales or even three. Those sets of slides which have been kept in stock for years can still be hired out at the 6d. rate, but the new sets should be put up to 9d. or 1s. There would then be a paying margin and an incentive to purchase better quality slides and especially better coloured ones. There is no overlooking the fact that all animals are more attracted by coloured pictures than they are by monochromes, and the human animal is quite as susceptible as are butterflies and birds, it is therefore, only reasonable to understand that coloured lantern slides are more popular than plain ones, but they must not be daubs. As regards oil lamps, until three or four years since they were the only means of illumination for a lantern show on a small scale or at home, with the exception of acetylene generators. They were portable and inexpensive, and almost anyone could light up a lamp after a style, but the light is poor in quality, and the greater part of the lamp's energy is dissipated in smoke and heat. There are now on the market two very excellent "spirit lamps," which are quite as portable, as inexpensive to use, and as easy to operate as any oil lamp, but they give a much more brilliant light. There is no smoke or smell whatever, and comparatively little heat. If the lantern is to revive in earnest for home use these spirit lamps will play no small part in effecting the revival. When once they are fully understood it is really remarkable the amount and quality of light they give, and how easy it is to maintain."

Photo-Mechanical Notes.

The Dry Plate in Process Work.

THE time taken to finish and dry a gelatine plate is extremely irritating to the operator who is accustomed to wet collodion. He soaks the plate in methylated spirit to hasten the drying after what he considers a prolonged washing, and then finds his labour in vain because the film becomes quite opaque with a yellow opalescence when he takes it out of the spirit and it begins to dry. This is due to the fact that the hypo has not been properly washed out. A very short washing now will remove the opalescence and then the plate may be replaced in the spirit without fear. But, of course, no one wants to go this roundabout way to get rid of the hypo, nor does one want to wait for sufficiently prolonged washing in the first place, for in process establishments it is often of the gravest importance to save every minute.

Now, plates can be quickly dried with very simple precautions. First the plate should be thoroughly fixed, cleared of silver in one hypo bath, and then transferred for a minute or two to a clean 20 per cent. bath of hypo. Then a minute under the tap, and place the negative in a shallow dish of water and add a few drops of a solution of permanganate of potash just sufficient to turn the water pink. The colour will at once be discharged, the water is then poured away, fresh is taken, more permanganate added, and the operation repeated until the colour of the water remains pink; which is an indication that all the hypo is gone. This is one of the simplest and cheapest of Lyco eliminators and thoroughly satisfactory. It is perfectly possible to safely place a negative in spirit within three minutes of taking from the hypo if this method is used. Wipe off superfluous moisture with a pledget of cotton wool, and allow to remain for two minutes in the spirit. Then take out and replace in another bath of spirit—not previously used—and after two minutes in this, the negative can be removed, wiped over with another piece of cotton wool, and it will be ready within a few seconds, especially if slightly warmed. The methylated spirit after use should be renovated by shaking up with dried potassium carbonate and then decanting or siphoning off the spirit from the top.

Since density is nearly always required in process work, hydrokinone is the best developer to use, and to save time in this operation, the formula can be made up much stronger than that usually recommended by the plate makers. For example, a good formula is as follows and will be found in every way satisfactory for any plate likely to be used for photo-mechanical work:—

A.			B.		
Hydrokinone	... 1 part	...	Caustic potash	...	
Metabisulphite of	...	...	sticks	...	2 parts
potash	... 1 part	...	Water	...	40 parts
Potass. bromide	. 1 part				
Distilled water	... 40 parts				

Take equal parts A and B.

Orthochromatic Wet Collodion.

Wet collodion, which would be of much greater service to the process worker were it possible to work it readily in a colour-sensitised state, has received but scant attention from the investigators who have recently been at work on the newer methods of orthochromatism.

Formulae for orthochromatic wet collodion plates are few and far between, and operators who have used them rarer still. Some directions which MM. Calmels and Clerc append to their text-book on wet collodion are as follows:—

COLLODION.

Alcohol pure 96 per cent.	100 cc.
Cadmium bromide	20 gm.
50 per cent. solution of eosin in alcohol, 96 per cent. ...	25 cc.
Alcohol, 96 per cent.	300 cc.
Ether, 65 degrees	525 cc.
Nitrated cotton, H.T.	14 gm.

or

Ether, 65 degrees... ..	175 cc.
Twenty per cent. collodion	700 cc.

The plate is edged with rubber solution before the collodion is flowed on, with the object of preventing the lifting of the film in the considerably acid sensitising bath.

SENSITISING BATH.

Distilled water to make	1,000 cc.
Silver nitrate	150 gm.
Alcohol	70 cc.
Acetic acid	A few drops.

The plate is immersed until all greasy markings disappear. After exposure and before development it is placed for three minutes in the following bath:—

Distilled water, to make	1,000 cc.
Silver nitrate	12 gm.
Nitric acid	A few drops

so that the plate may reach the developer containing nitric acid in the pores of the collodion. In default of this, the image is grey and fogged. The other operations, fixing, intensification, etc., are done as usual.

Lenses for Process.

The requirements of the operator in half-tone and three-colour are the subject of some notes by Fritz Hansen in "Photographische Kunst." Though the cautions he lays down are not new, it is well to bear in mind the great need of flatness of field in a lens for process and the absence of spherical aberration at the working aperture. As regards these and the equally important property of proper achromatism, reference is made to the Apochromatic Collinear of Voigtlander, the Apochromatic Tessar and Planar of Zeiss, and to a new lens, the "Alethar" of Goerz, which is spoken of as an excellent instrument for process.

Chalks for Half-Tone Etching.

A soft fatty chalk, which only requires warming for application to the half-tone plate instead of the subsequent dusting with resin powder, consists of:—

Venetian turpentine	10 parts.
Yellow wax	30 parts.
White dry soap	20 parts.
Talc	10 parts.
Nitric acid, 1:10	10 parts.
Fine lamp black	1 part.
Graphite (Siberian)	5 parts.

In giving this formula in the "Photographische Chronik," Herr C. Fleck directs its preparation as follows:—The wax, talc, and turpentine are mixed in a deep, air-tight covered vessel such as an autoclave, of size such that it is only half-filled by these constituents. The soap is then added in fine shavings, and the whole raised to boiling. The heated mass is then removed from the fire, and ignited with a taper, being allowed to burn for about one and a half to two minutes. The cover is then put on to extinguish the flame, removed for a

moment and the nitric acid dropped in from a pipette, whilst the mass is vigorously stirred by an assistant. The mixture is then again heated, again ignited and allowed to burn for from one-half to three-quarters of a minute. After again extinguishing the flame, the graphite and lamp black, made into a paste with a little spirit and a few drops of glycerine, are stirred in. A stone plate with an edging of lead is prepared by rubbing its surface with poppy oil, and the fluid mixture poured on to it, being cut up into convenient sizes when the mass has hardened. The chalk must be protected from frost and damp.

Fac. Sim. Reproduction of Pencil Drawings.

A revised form of what is commonly spoken of as the "high-light" process is given in "Zeitschrift für Reproduktionstechnik" on the recommendation of Otto Mente, of the Klimsch Process School in Frankfort. It is based on the formation of images of the stop by suitably choosing the screen distance, the shape of the stop being similar to that of the screen opening as shown in the figure where the shaded squares are the apertures of the screen. With screen and stop thus adjusted, the adjacent dots join up completely in the negative, and thus the ground of a pencil drawing can be rendered quite opaque, whilst the lines are more or less broken. The *modus operandi* will be somewhat as follows: An exposure is made on the drawing with a comparatively small stop, and the square stop, figured above, then inserted to close up the ground. This

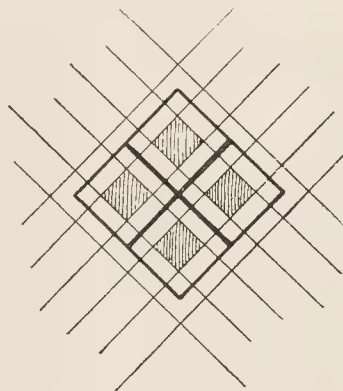


Fig 1

latter stop is turned round in the lens so that two of its sides are exactly parallel with the lamination of the screen. The square stop should be not larger than is necessary to effect the closure of the dots, for over-lapping may lead to the dots of the drawing becoming too light, and some fine detail may be lost. And this may occur also if a stop of the right size is exposed too long. Stop and exposure must be correctly adjusted to sharply mark out the drawing from the ground without vignetting. The negative is developed and fixed and intensified with copper bromide and silver nitrate. More powerful intensifiers, such as lead, should not be used, as the reproduction of the drawing suffers. The process saves an immense amount of tone and hand-work, which such subjects require at the hands of the fine-etcher and router.

Circular Screens for Three-colour Work.

The advantages offered by a screen of circular form have stimulated the efforts to minimise the disadvantages which have been found to attend this form of screen. Only two objections have been urged against the circular screen (writes Max Levy in "The American Annual of Photography"); one, the difficulty of turning in the holder or

camera, which is purely mechanical and can readily be overcome, and when overcome in the manner shown below, affords a further advantage over any other existing method in the complete protection of the screen from the silver solution and the large measure of further protection from accidental injury through jar or other causes. I have recently designed an arrangement and constructed a lathe for turning the aluminium rings up to 72 inches in diameter. In this arrangement the screen is carefully fitted and cemented into a ring turned from an aluminium casting, and this ring is arranged to rotate upon two friction rollers and a friction clamp, all of which are mounted upon a framework carefully built up of sheet aluminium and properly braced. The ring is graduated half way around, the gradations being fifteen degrees apart, and a pointer is mounted upon the framework by which the angle is read off. The direction of the rulings is carefully marked upon the screen, and one of these rulings is made to conform to 0 degrees and 180 degrees on the circular frame. A screen 40 inches in diameter, made for my exhibit at the Louisiana Purchase Exposition (St. Louis, 1904), is mounted in this manner, and moves with the greatest possible freedom and precision, so that in using such a screen there need be no fear whatever of any error in the angle of the rulings in resulting plates.

The chief obstacle in the way of the use of the circular screen is the extra large size of camera and plate holder required. The effect of this disadvantage is reduced by placing the screen in the camera instead of in the holder, the former being the English and Continental, the latter the American practice. I am able to say at this time that the difficulty is substantially, if not entirely, removed by an ingenious contrivance I have seen, in which a plate holder of the normal size for the required plate is employed in connection with a circular screen and framework considerably larger, the screen and framework being mounted in the back of the camera, with ample provision for cleaning the screen without removing it from the camera. I am unable to give full particulars of this device, as the inventor is not yet ready for publication.

Grain Versus Cross-line Screen.

The paper by Mr. Max Levy, before the Royal Photographic Society, and reported in our issue of December 30th last, appears in full in the December issue of "The Photographic Journal." On Grain Screens Mr. Levy says: "An irregular grain means, that of the elements of black and white which form the resulting picture, some are large and some are small, and that they are irregular in form and arrangement. If it were possible to attain such a result, and at the same time have the character, direction, and size of the elements varying in conformity with the character or texture of the subject, the result would unquestionably meet the highest ideals, but such a thing is entirely out of the question. It may be set down as an unquestionable fact that a picture having no visible texture is better than one with any texture that can be conceived of as possible of attainment. The uniformly ruled screen of 175 lines to 200 lines per inch produces a surface which has, to all intents and purposes, no visible texture. If an irregular sub-division is to be had that shall be equally unobtrusive, its smallest sub-division must be at least as small as the elements of the screen with which it is compared. It must also have an irregular surface for printing—that is, a surface in which some of the elements are larger and some smaller, and in which none exceeds the single elements on a 175 or 200 line screen. This would make a printing plate which could certainly not be used in the present state of the art. I therefore long ago came to the conclusion that no irregular grain surface can be produced which will hold its own with a cross-line screen of suitable texture in rendering all classes of subjects, and I am confident that time and experience will confirm this determination."

Major-General Waterhouse "thought Mr. Levy was right. It was exceedingly difficult to get an irregular grain which would produce

proper gradation and relief in the image, and it was impossible to regulate the diffraction effect as was quite feasible with cross-lined screens. The image was either too much broken up, and rough or spotty, or was covered with an even tint in the lights which was ruinous to effect. The best results of this kind could perhaps be obtained by a reversal of the ordinary photogravure process so as to produce a relief block with a fine dust grain."

At a recent meeting of the Photographic Society of Vienna, the Graphische Gesellschaft "Unie," of Prague, exhibited two colour prints in orthotype, which was stated to be a photographic half-tone method, based upon the light sensitiveness of asphalt, and which was applicable for one or more printings without the use of a ruled screen.

The death is announced of William Kurtz, at Rockaway, U.S.A., aged 71. He was born in Frankfort-am-Main, Germany, but went to America about twenty years ago. He was instrumental in introducing the Kurz-Vogel method of trichromatic printing into the States, and his company also produced fine half-tone and photogravure work.

Application for Patent.

No. 28,592. "Improvements in the methods of printing from photo-engraved intaglio plates." Sir Joseph Wilson. Swan and Donald Cameron-Swan, 116, Charing Cross Road, London.

Patent News.

The following applications for patents were made between December 27-31, 1904:—

DEVELOPMENT CAMERA.—No. 28,521. "An improved photographic magazine camera and developing box combined. Thomas Henry Vickers, 14, Egremont Place, Brighton.

COLOUR PHOTOGRAPHY.—No. 28,544. "An improved process of producing and fixing photographic portraits in natural colours." Alfred Cleaver, 10, Richmond Terrace, East Twickenham, Middlesex.

DEVELOPING FILMS.—28,594. "Improvements in means of developing photographic films." Henry Harris Lake, 7, Southampton Buildings, Chancery Lane, London (Charles Harris Shaw, United States).

PRINTING BORDERS.—No. 28,594. "Improvements in and relating to masks for printing, borders around the edges of sensitised picture-postcards, photos, and the like." Harold King Smith, 322, High Holborn, London.

FILMS.—No. 28,863. "Improvements in means for carrying and exposing in the camera photographic plates or films." Robert Ballantine and Matthew Ballantine, 37, West Nile Street, Glasgow.

PLATE ENVELOPES.—No. 28,869. "Improvements in protective coverings or envelopes for holding photographic plates or films." Frederick Mackenzie, 65, Chancery Lane, London.

FLASHLIGHT.—No. 28,919. "Flashlight apparatus for use in photographic operations and the like." Frederick Fitz Payne, 27, Chancery Lane, London.

RAY DIFFUSER.—No. 28,984. "A new ray-diffusing device and apparatus for use in photographing objects." George Hughes, 22, Fumival Street, Holborn, London.

CINEMATOGRAPH.—No. 29,051. "An improved cinematographic process and mechanisms for effecting same." Robert Thorn Haines, 322, High Holborn, London.

DEVELOPMENT APPARATUS.—No. 29,388. "Improvements in stand developing, fixing, and washing photographic apparatus." William Frederic Butcher, 322, High Holborn, London.

HAND CAMERAS.—No. 29,389. "Improvements in 'infinity' catches for photographic cameras." William Frederic Butcher, 322, High Holborn, London.

PHOTOGRAPHING TELEGRAPHS.—No. 29,428. "Improvements in automatic photographing telegraphs." Paul Ribbe, 323, High Holborn, London.

LENSES.—No. 29,561. "A method of increasing the brilliancy of the images formed by lenses." Harold Dennis Taylor, Buckingham Works, York.

LENSES.—No. 29,562. "Improvements in photographic and other lenses." Harold Dennis Taylor, Buckingham Works, York.

EXPOSING PLATES.—No. 29,587. "Improvements in and relating to means for packing, carrying, and exposing in the camera photographic dry plates or films." Frederick Mackenzie and George Wishart, 17, Douglas Street, Glasgow.

FOCAL PLANE SHUTTERS.—No. 29,656. "Improvements in focal plane shutters for cameras." Robert Ballantine and Matthew Ballantine, 37, West Nile Street, Glasgow.

Some Recent French Patents.

COLOURING SILVER PICTURES.—No. 345,033. See "Ex Cathedra." O. Gros.

SENSITIVE COATING FOR PHOTOGRAPHIC PAPER.—No. 345,206. "Paper coated with gelatine and zinc oxide is sensitised in silver nitrate or citrate. Prints of pleasing black tone are produced. They require no toning, but are simply fixed in hypo. The paper may be slightly exposed and the image developed." George Hauser.

STRIPPING FILMS.—No. 345,535. "A gelatine film, from 8 to 10 m.m. thick, is backed with collodion and a coating of gelatine emulsion applied to the unbacked side, the collodionised surface being fixed to a temporary support with an albuminous adhesive, soluble in water." M. Bry and Co.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 3d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

COPYING TRACINGS.—No. 3,382, 1904. "A machine for making photo-copies of tracings and drawings of any length. It consists of a flat glass plate, fixed in a frame, against which presses a series of rubber-covered rollers, which feed the tracing and sensitive paper between themselves and the plate. This is done at an adjustable pressure and at an adjustable speed, so that the printer can be suited to the sensitiveness of the paper. Small tracings can be fed through in the same way one after the other without altering the apparatus." H. R. Watts, Arrandale, Arran Avenue, Brooklands.

PRINTING FRAMES.—No. 3,648, 1904. "A printing frame designed to prevent the paper shifting (on examination) and the negative from being scratched when the paper is lifted off. In accomplishing the first of these ends one part, the smaller, of the hinged back is clamped to the end of the frame by a nut and bolt arrangement, the end of the frame being slotted for this purpose, or other devices used to clamp the back. To lift the paper slightly when the free back of the frame is opened a light spring plate is attached to the outer frame, overlapping the rebate on which the negative rests. The spring being permanently sprung upward, the paper is raised sufficiently to enable the operator to lift the same without damage to the negative." H. J. Spratt, A. S. Spratt, and G. A. Spratt, Tudor Works, Hackney, N.E.

OPTICAL PROJECTION APPARATUS.—No. 20,967, 1904. "Construction to admit of the automatic focussing of each slide as it is brought opposite the objective, the apparatus being of the type in which a series of slides are mounted on a carrier which is intermittently actuated by automatic means." G. C. Marks, 18, Southampton Buildings, Chancery Lane, W.C. (communicated by J. W. Mead and H. A. Mackie, of Amsterdam, New York State, U.S.A.).

Commercial & Legal Intelligence

For attempting to defraud the revenue by posting letters bearing cancelled stamps, a photographer named Speed was fined £25 and £8 costs at Colchester Police Court. In default of payment he went to prison for three months.

FOULSHAM and Banfield, Limited (82,984).—Registered December 22. Capital, £1,000 in £1 shares. Object, to carry on the business of photographers, photographic printers, photo-lithographers, printers, stationers, manufacturers of and dealers in negatives and pictures, etc., and to acquire the business carried on by Foulsham and Banfield at 95, Wigmore Street, W. No initial public issue. The first directors are R. Baelz and E. Cruesemann.

PICTORIAL Postcard Company, Ltd.—The above-named company has been registered with a capital of £2,000 in £1 shares. Object: to acquire the business carried on by Alice M. Honnest, of 15, Red Lion Square, W.C., as the Pictorial Postcard Company, and to carry on the business of picture postcard manufacturers and dealers, stationers, photographers, printers, etc. No initial public issue. Registered without articles of association.

EMPIRE Bioscope Company, Ltd.—The above-named company has been registered with a capital of £1,000 in £1 shares. Object: to carry on the business of public entertainers, to manufacture and deal in photographic apparatus, lanterns, lamps, films, cameras, and other instruments and accessories for animated photography or otherwise, makers of gramophones and phonographs, etc. No initial public issue. Registered without articles of association. Registered office, Cecil Chambers, 86, Strand, W.C.

COPYRIGHT of a Photograph.—At the magistrate's court, Wellington, N.Z., judgment for £60 was given for plaintiff in the case, *Tomlinson v. Hardy Shaw and Henry Clark*, claim £95 damages for the infringement of a copyright of a photograph of the New Zealand representative football team. The plaintiff registered the copyright, and obtained a certificate on August 15. Plaintiff wished to sell reproductions, and got a process block made by the defendant Shaw. The plaintiff then proceeded to get postcards containing reproductions printed. Certain other parties reproduced in certain football programmes defendants' photograph, with some obliterations. The process block for this reproduction was admitted to have been made by defendant Clark, who is in the employ of the defendant Shaw. The issue of the New Zealand team on these programmes materially interfered with the sale of plaintiff's postcards. It was alleged that Clark had made the block contrary to the instructions of his employer. The latter, however, was responsible for Clark's action.

CINEMATOGRAPH Accident.—A somewhat alarming incident occurred towards the close of a performance at the Southport Pier Pavilion. A cinematograph entertainment was being given, when the films suddenly caught fire. There was at once a rush for the door by some of the audience. The attendants, however, quickly assured the remainder that there was no danger, and they retired in an orderly manner.

News and Notes.

PHOTOGRAPHIC Instruction at Chiswick.—The programme of the Acton and Chiswick Polytechnic, Bath Road, Bedford Park, W., contains the syllabus of classes in photography and photo-engraving.

MR. SIMON MOTLE, who, for many years carried on the business of a photographer at Commercial Road, Hayle, died at the residence of his son-in-law, Mr. J. Woodcock, Goonvavern, at the ripe age of 87 years.

MESSRS. SPEAIGHT are compiling for the Lady Mayoress a portrait album of her Twelfth Night guests, and children in fancy dress on their way to the studio, were one of the sights of Bond Street during the latter part of last week.

"THE BRITISH OPTICAL ALMANAC," 1905, reaches us from the offices of "The Optical Journal," Temple House, Temple Avenue, London, E.C. It contains memoranda for opticians, and addresses of members of the optical societies, and a diary for the year.

IN announcing, last week, the appointment of Mr. Bartlett as advertisement manager for Kodak Ltd., we might have added that Mr. Alfieri, who resigned the position some time ago, did so to take up the duties of illustration manager for a leading firm of newspaper publishers.

THE death of M. Paul Henry, the well-known astronomer of the Paris Observatory, took place on the 6th inst. He had been for many years associated with his brother, the late Prosper Henry, in the preparation of the French section of the International Photographic chart of the sky.

A GLASGOW branch of Messrs. Houghtons, Ltd., has been established at 74-78, York Street. Northern and Irish customers of Messrs. Houghton's should note that the Glasgow house has the telegraphic address, "Houghtons, Glasgow," and the telephone numbers 1309 National, and 4666 Corporation.

VENICE in Yarmouth.—Photographers in Yarmouth during the past few days have been taking advantage of the recent floods in Yarmouth to secure views of the town in its Venetian aspect. In some of the streets there was as much as two feet of water, and boats were rowed up and down the thoroughfares.

PORTRAITS of Royalty.—Mr. W. S. Stuart, the well-known photographer, of Richmond, attended at Claremont last week, and took portraits of H.R.H. the Duchess of Albany, H.R.H. the Duke of Saxe-Coburg, H.R.H. Princess Alexander of Teck, H.S.H. Prince Alexander of Teck.

SPEAKING at a meeting of the Classical Association last week, Professor Ernest Gardner, Yates Professor of Archaeology, University College, said that whilst some illustrated editions of the classics were poor and others useful, the lantern slide was, in his opinion, a far better instrument, and more useful alike to the pupil and teacher.

THE Secretaryship of the Royal Photographic Society has been filled by the appointment of Mr. J. McIntosh, who, until recently, has been actively connected with photographic journalism, and brings as well, to the duties which he takes from Mr. A. W. W. Bartlett, the experience gained during his successful secretarial work for the North Middlesex Photographic Society. We offer Mr. McIntosh our good wishes in his new sphere.

A SOCIETY for Cromer has been formed under the presidency of Mr. D. Dulle. Other officers are: Mr. D. Davison and Dr. Burton (vice-presidents), Mr. D. Goodyear (hon. secretary), and Messrs. C. Munday, jun., H. C. Darby, P. E. Scooter (committee, with power to add to their number). The subscription was fixed at half-a-crown. The question of rules, etc., was left to the committee to go into and report at the meeting on Thursday, January 12. The society is to be known as the "Cromer and District Photographic Society."

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

AMMONIA IN EMULSIONS.

To the Editors.

Gentlemen,—The letter from Mr. Henderson which appears on p. 1119 of the issue for December 30 raises the question of priority as to the suggestion for the use of ammonia in gelatine emulsion making.

Dr. Eder, in his "Handbuch der Photographie," gives credit to Johnston. "B.J. Almanac," p. 85, and Schiendl, "Geschichte der Photographie," also give credit to Johnston, but both appear to have overlooked the fact that in the BRITISH JOURNAL for December 5, 1873, p. 586, there appears a letter over the signature "W. F. T.," which distinctly suggests not only the use of ammonio-nitrate, but also of ammonio-carbonate, of silver, the actual text being as follows:

"By slightly modifying the method of making a collodion emulsion, described in your leader of September 27, 1872, a gelatine emulsion can be formed with bromide of silver in an exceedingly fine state of division.

"An emulsion prepared as follows leaves only gelatine and bromide of silver on the plate when dry. The ammonia and carbonate of ammonia evaporate with the water:

A.—Gelatine 15 grains.

Dry bromide ammonium 10 grains.

Dissolve in water ½ ounce.

B.—Nitrate of silver 18 grains.

"Convert the silver into oxide or carbonate, wash and dissolve by the addition of a few drops of liquor ammonia; make up with water to half an ounce, and then mix the two solutions A and B. After filtration through paper the emulsion is ready for use."

In the BRITISH JOURNAL for March 13, 1874, p. 122, J. W. Gough describes an experiment of precipitating the silver bromide washing and adding a few drops of ammonia, and mixing in a mortar with the gelatine.

In the BRITISH JOURNAL for September 29, 1876, J. Johnston describes the use of a new silver salt for collodion emulsion making, and says that he thinks it is ammonio-nitrate of silver. In a leaderette in the issue for November 17, 1876, it is stated that a gelatine emulsion had been prepared with the new salt (by the Editor presumably), but that it had not been tested. In the issue of November 24, 1876, p. 553, and December 1, p. 565, the results of the experiments and the method of making the emulsion are detailed.

In the BRITISH JOURNAL for 1879, p. 375, Monckhoven describes his process of preparing silver bromide by the interaction of carbonate of silver and pure hydrobromic acid, and in a later paper (p. 476) he describes the use of ammonia.

Dr. Eder in the first edition of his handbook also describes the use of ammonia and carbonate of ammonia. This appeared in the BRITISH JOURNAL for 1880.

The first communication I can find on the subject by Mr. Henderson is entitled "Cold Emulsification with Uniformity," which appears in the BRITISH JOURNAL for August 18, 1882, and which was a communication to the L. and P.

The use of alcohol in the emulsion was first suggested by a writer to the BRITISH JOURNAL in 1873 who signed himself "Ostendo non Ostendo," and who claimed for it the production of a finer grain. Mr. E. W. Foxlee, in the BRITISH JOURNAL for December 26, 1873,

states that it gives increased rapidity, and numerous writers in the succeeding years also state that the addition of alcohol gave finer grain and greater rapidity.

Mr. Henderson is quite correct in stating that his paper before the Derby Convention, 1886, was reported in the *BRITISH JOURNAL*, and it is for practically the same idea that Herr Gaedicke has been granted an English patent.

In his German patent Herr Gaedicke points out that an after ripening by the aid of ammonia is a well known fact, and says that "the ammonia which is tenaciously held by the gelatine not only alters in the course of time the sensitiveness of the plate, but by keeping the much dreaded grey margins are formed, and that by this process there is never obtained a product of determined constant sensitiveness. This is a very serious matter, for the constant character of the product is very important. As in the principal ripening process of the previous process, the gelatine is very strongly attacked, so that frequently plates are obtained to which the film floats off, and the after ripening does not attack the gelatine, it appears advantageous to prepare the emulsion unripened and to wash it, and then introduce the main ripening process, and to effect this by the mild ripening action of ammonia, and then to neutralise this. Although the opinion has been hitherto held that in the absence of excess of soluble bromide, the sensitiveness cannot be raised sufficiently, it has been proved by experiments to be erroneous. The following facts were established: (1) Even in the absence of soluble bromides the sensitiveness can be sufficiently raised. (2) A washed emulsion only requires about one-tenth the quantity of ammonia in order to obtain the same sensitiveness as an unwashed emulsion. (3) An unripened washed emulsion, made very sensitive by digestion with a little ammonia, does not lose in sensitiveness by neutralisation or saturation of the ammonia with an acid. (4) The ammonia salts formed can remain in the emulsion without doing any harm. (5) The emulsion prepared as described in (3) does not alter when kept or melted up or in coating. (6) Such emulsions give plates which keep very well, which never have grey margins, and their sensitiveness does not alter by keeping. (7) Such emulsions always give constant results by a given method of work, as the ripening process is only allowed to continue for a given time and is then stopped.

Herr Gaedicke states that he prefers to make a slow emulsion of from 1 to 5 degrees Scheiner—that is, from about 6.5 to 16 H, and D.; the emulsion is then broken up and washed in the usual way and melted at 115 deg. Fahr., and the bulk made up to twenty times the total weight of the gelatine used, and from 1 to 5 cc.m. of ammonia, triethylamine, caustic potash, etc., added, and the mixture digested from one to four hours at 104 deg. Fahr., and then an equivalent quantity of sulphuric, tartaric, citric, or oxalic acid added, and the emulsion allowed to set, and again melted and coated.

Obviously the only claim in the patent is for the neutralisation of the alkali or ripener by an acid, but we are not told how the exact quantity of acid required, say, for instance, in the case of ammonia, is arrived at, as it must be presumed that, although according to Herr Gaedicke, gelatine retains ammonia very tenaciously, it cannot prevent the escape of some during a digestion of four hours at 104 deg. Fahr.—Yours faithfully,

E. J. WALL.

Foots Cray.

THE RETORT COURTEOUS!

To the Editors.

Gentlemen,—I was told a very smart thing about the free sitting business during the past week, which I can vouch for as being true, and will no doubt interest you and your readers. A well known and very popular clergyman was down at one of the seaside resorts, preaching and lecturing. The tip-top photographer of the place wrote and

asked for a sitting. The reply was brief. "Is thy servant a hen that he should do this thing?"—Yours truly,

W. E. DIXON.

Brighthouse Photographic Company, Briggate, Brighthouse.

January 7th, 1905.

NORTHAMPTON PHOTOGRAPHIC EXHIBITION.

To the Editors.

Gentlemen,—Kindly call your readers' early attention to the alteration in dates of our exhibition (now to be February 24-March 4).

Entries will be received up to February 7, and pictures to February 17.—Yours faithfully,

E. J. H. FELCE, Hon. Sec.

The Museum, Guildhall Road, Northampton.

January 7th, 1905.

THE EMPLOYEES' UNION.

To the Editors.

Gentlemen,—I was very pleased to see the letter signed "A Ten Year Assistant" in your last issue. The well-meaning people who from time to time advocate the formation of associations for photographic assistants are doubtless actuated by the best possible motives. But these good-natured folk seem entirely to forget that photography has become a universal hobby, which makes it unlike any other business, and therefore it cannot be gauged by the usages of ordinary trade.

The idea of a trade union for photographic assistants only is absurd. Unless you can govern the wages and control the hours of labour trade unionism is out of the question, and in photography this is impossible.

Benefit societies under amateur administration are better left severely alone. If photographic assistants have any opportunity or desire to become thrifty there has existed for many years several well-established, well-organised, and reliable institutions, which will be pleased to accept their weekly or monthly subscriptions, however small, and from these old-established institutions they may be assured of receiving, in case of need, whatever benefits are arranged for.

Without in any way wishing to call in question the ability, integrity, or good intentions of the kindly people who at uncertain periods "bob up" with proposals for benefit societies, unions, and benevolent schemes for photographers, we can but remember the previous failures in this direction. Provident institutions of any kind especially require more than a sentimental or even enthusiastic few to keep them going; and if they are to succeed they must be carried out on purely business lines by experienced men, and not left to the mercy of honorary amateur organisation.—I am, gentlemen, yours truly,

DROP SHUTTER.

PULLIGNY LENSES.

To the Editors.

Gentlemen,—Where can the lenses used by Major Puyo be got? They are stated not to be expensive.—Yours truly,

Peterhead.

JAMES SHIRAS.

[We have not M. Pulligny's address, but in the "Revue de Photographie" we see an announcement from 21, Rue Tronchet, Paris, which possibly may have reference to them. Probably a letter to M. Pulligny, addressed care of Major Puyo, Photo Club de Paris, 44, Rue des Mathurins, Paris, would be forwarded.—Eds. B.J.]

A NEW HONORARY TITLE.

To the Editors.

Gentlemen,—I have just received a circular which sets forth the particulars of certain classes, in which I find an honorary title that is quite new to me. It states that The classes are to be held by a Mr. Blank ("Royal Photographic Society.") What shall we come to next?—Yours faithfully,

London, W.

F. R. P. S.

Answers to Correspondents.

- *** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- *** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- *** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

H. Humphreys, Tring Station, Tring, Herts. Photograph of the Fleckney Family Representing Five Generations.
F. T. Taylor, Castle Square, Carnarvon. Four Photographs of Councillor D. T. Lake, Mayor of Carnarvon.

FLASHLIGHT.—I have to take a flashlight photograph of a theatre showing audience. Shall I require the lights to be lowered in the building, or will it make no difference?—S. H. S.

There is not the slightest need to turn down the ordinary lights, in fact, it is better to keep them burning, as they will not only add to the effect, but make the effect more natural.

RETOUCHING.—I shall be glad if you will kindly let me know whether there are any schools for retouchers in or about Liverpool?—ANXIOUS TO LEARN.

We know of no school in Liverpool; possibly lessons could be obtained at the Manchester Technical School, or an examination of our advertisement columns will give the addresses for postal tuition, which is quite satisfactory.

BOOKS ON STUDIO WORK.—Will you kindly favour me with titles of two or three works on general studio work, placing the one you consider best first on list? I want the book for instruction, more particularly in studio lighting and posing, etc.—C. C.

(1) "The Lighting in Photographic Studios," by P. C. Duchochois, 1s. (2) "Artistic Lighting," by Jas. Inglis, 2s. 6d. (3) "The Pose in Portraiture," No. 2 of "The Photo-Miniature" Series. You may also obtain "The Studio, and what to do in it," by H. P. Robinson, 2s. 6d.; and "The Photographic Studio," by T. Bolas, 2s.

LIST OF PHOTOGRAPHERS.—I should esteem it a favour if you could inform me if there is a list of "photographers" published, and where same may be obtained? Awaiting your reply at convenience.—P. E. MATTHEY.

Some years ago a list of photographers was published by Percy Lund and Co., but it is now out of print. Kelly's Directory of Chemists and Druggists might be useful, and still more so the Index of Standard Photographs, published by Dawbarn and Ward, 6, Farringdon Avenue, E.C., which contains a very full list of photographers.

EMULSION FORMULÆ.—1. Can you oblige me with good formulæ for slow bromide emulsion for gaslight working, and also formulæ for chloride paper (Vélox type) slow? 2. Should chloride emulsion be washed?

1. We are not aware that formulæ for "gaslight" emulsions giving black tones have been published. Our querist will understand that such formulæ are jealously guarded by the manufacturers of the papers. Chloro-bromide emulsions for warm tones are well known, and formulæ, notably that of Mr.

J. B. B. Wellington, will be found in the larger text-books. 2. Yes.

MATTY REPRODUCTION NEGATIVES.—I am a professional retoucher of six years' experience, but a brother retoucher has told me that it is important to understand the retouching of "matty reproduction negatives" to be up to date. I have never heard of them before. Are they a special kind of negative used only for reproduction work, or are they in general use? How are they retouched?—PENCIL.

We have never heard of matty reproduction negatives, though an advertisement about such things did appear in one of the daily papers. Possibly it means negatives coated on the back with varnish.

COLOURING ALBUMEN PRINTS.—I have albumenised prints to colour in water. Will you inform me if they require any preparation, or what medium I must use to make colours flow?—W. A. R.

The best thing to do is to rub the print all over with dilute solution of oxgall, made thus:—

Purified oxgall	60 grs.
Distilled water	16 ozs.
Rectified spirit	4 ozs.

Shake occasionally till dissolved. The oxgall can be obtained from any chemist. Special water-colours for tinting prints can be obtained, or, if the ordinary are used, then they should be diluted with the above mixture.

CARBON PROCESS.—Will you kindly inform me if the fumes of an oil lamp would be detrimental to carbon tissue? Gas fumes are, and I am anxious to know if I might safely use a lamp for drying purposes.—L. L. HUNT.

Whilst the fumes of an oil lamp are not so detrimental as gas, there is no doubt that they are prejudicial. There ought to be no difficulty in so arranging the drying apparatus that the heat only, and not the fumes, should have access to the tissue. An iron plate above the lamp might be arranged if a box is used, or the lamp might be placed in a chimney above the box, so as to create a current of air through the same; in this way we have perfectly dried tissue in winter in about eight hours.

INTERIORS.—I am writing to ask you which is the best way (1) to make an exposure when taking an interior of a church. Should I stop the windows from being exposed until the other exposure is made, then expose the windows? (2) And which is the best way of printing the picture? Are the windows to be blocked out until the other part is printed? (3) And is bromide paper good paper to print church interiors on? Is it better than the printing-out process? I have sent you a print. I want to make this work a speciality.—G. F. Y.

(1) Not necessary if you use a thickly-coated and backed plate. (2) It may be necessary to coat the back of the negative with yellow matt varnish, scraping this away over the windows. (3) Bromide paper is equally as good as a print-out paper, though with the latter it is often easy to dodge the negative during printing by covering portions of it.

COPYRIGHT.—Some time ago I gave a gentleman some unmounted and unregistered photographs for the purpose of making post-cards, on condition that my name was printed on them. The postcards appeared with my name in black and white, but another lot has been brought out, coloured, without my name. What I wish to know is whether, if I register (those photos which I think fit), it will stop the publication of them, and, if so, which is the best course to pursue?—F. H. C.

There is no custom of the trade as to mention of the photographer's name, so that it will be necessary for you to prove

this to have been a condition of reproduction. Assuming this to be done, you can register the photographs either at Stationers' Hall or through our publishers, and you can then take action for the stoppage of further copies without your name.

COPYRIGHT.—An artist friend has given me the rights of reproducing his paintings—for America—of sporting and cattle subjects. I am anxious to know if (1) a subject, being copyrighted here, is also copyright for or in the States and Canada. (2) Can you give the address of any good firms that would be likely to buy the sole right for reproducing them there. (3) Can you give me an idea of the value of the sole right to reproduce any or all of them? There are about two dozen or so.—CISTERCIAN.

(1) No. The United States does not subscribe to the Berne Convention. To obtain copyright in the States it would be necessary for the copy of each painting to be made in America, the photographic copyist there registering the copyright. (2) We should advise you to apply to some of the large publishing firms, such as MacLure's, Munsey, "The Ladies' Home Journal," "Collier's Weekly." (3) Impossible to say. Why not put the matter in the hands of an agent? In our advertisement pages this week you will find the announcement of at least one firm which handles such business. In regard to Canada, it was stated some time ago that British copyright did not extend to that colony, and Sir Wilfred Laurier promised that steps should be taken in the matter.

COPYRIGHT IN GROUPS.—Several groups of from eight to twelve persons each come to my studio, unasked by me, and are photographed in fancy dress costume. No order is given me by any of the individuals, nor is any agreement made to buy, but I assume if I make a satisfactory photograph I will get orders. After showing a proof the parties individually order copies from me, which I supply at a uniform price, but no one member of a group gives me an order for the other members or takes any responsibility with the order. I simply take my own chance of what orders I may get from each separate person. (1) Does the right of reproduction belong to me? (2) Am I at liberty to reproduce these photographs along with an article in a magazine without the consent of the parties photographed? (3) Can I prevent these same parties publishing the photographs in which they appear in a similar magazine? (4) Would I be at liberty to issue the same photographs as postcards?—H. B. C.

(1) It is a moot point. The Copyright Act gives the copyright to the sitter, if the photographer receives "valuable consideration" for his work. Your best plan is to get the parties in the groups to sign an assignment of the copyright to yourself. (2), (3), and (4) If you establish your proprietorship in the copyright, you can grant right of reproduction, and restrain the persons photographed from granting rights of reproduction.

STUDIO QUERIES.—1. I am erecting a studio in my garden here for professional work. It is 22 ft. by 9 ft. 8 in., height to eaves 7 ft. 5 in., height to ridge 9 ft. 9 in. I suppose this will be ample for general work? I cannot make it larger to comply with the Building Act, which ties me down to 10 ft. margin to next properties. 2. I propose using a Goerz 14 in. focus for head and shoulders. 3. Can I use comfortably a 10½ in. focus Goerz for full-length cabinets in a 22 ft. studio? If not, what focus should I get? 4. I enclose a rough plan of the ground, studio, sun-rising point, etc. Would you kindly help me as to what blinds I should use? I mean colour and material. Should there be two blinds, one holland and the other darker?—G. CLARK.

1. The studio will answer, but it would be better if it were

three or four feet longer and a foot or two wider. It would then be better adapted for taking groups. 2. This will do very well. 3. Yes, as a lens this focus will only require a distance of 15 ft. or 16 ft. between camera and sitter for a full-length cabinet portrait. 4. With this aspect of studio we should advise tolerably dark green blinds for the roof, and curtains, of "art serge," of a somewhat similar colour for the sides. We do not think a double set of blinds will be necessary if you employ one or other of the different forms of head screens now on the market.

ORTOL.—Re the article on Ortol as a good all-round developer in a recent issue of the B.J., I have tried the one recommended for bromide paper (I use Kodak plat matte), but find it acts fearfully slow, especially in comparison to metol-quinol. Even when using ortol much stronger—1 part No 1, 1 part No. 2, and 1 part water, instead of the four parts water advised—the image is an exceedingly long time in appearing. I find rodinal acts much quicker than ortol, but would very much like to know if rodinal, ortol, edinol, and adurol affect the skin like metol. The manufacturers of rodinal say "1 in 70" for bromides, but I find this no good at all—but with 1 in 20 I can get satisfactory results. Please reply to "Trooper" in your next issue, and oblige. Please say which of above-mentioned developers you consider most satisfactory and economical for general use, and oblige.

The speed of development is purely a matter of personal equation, as some like a rapid-acting developer and others a slow one. Ortol can be made to act more quickly by omitting the metabisulphite from the formula or increasing the alkali somewhat. The developers named do not, so far as we know, affect the skin, and metol only affects some people. Personally, we should always use adurol for bromide work, as we prefer the character of results obtained. As regards economy, we do not think there is ought to choose between them.

ST. MATTHEW'S Camera Club, Sheffield.—The first annual exhibition and entertainment of this club were held last week. The club was founded by the late Rev. Norman Larchin, and has produced some very creditable work. The exhibition consisted of about 200 photographic prints and enlargements, the work of members of the society. A number of enlargements were lent by Dr. Helm and other friends. Among the prints exhibited were those which gained prizes in the recent annual competition.

NOTICE.

A number of "Answers to Correspondents" are crowded out of this issue, and will appear next week.

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No. 2333. VOL. LII.

FRIDAY, JANUARY 20, 1905.

PRICE TWOPENCE.

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EX CATHEDRA.

Formaline for Test Purposes.

The reactions of formic aldehyde with a number of organic bodies may serve as a ready means of distinguishing between substances which are occasionally employed in photography. Herr G. Glucksmann has pointed out that formalin mixed in equal parts with a solution of the substance to be identified in hydrochloric acid produces certain characteristic effects on the whole being boiled. Phenol (carbolic acid) in these circumstances gives a white precipitate; pyrogallie acid, a reddish-violet colour and precipitate; pyrocatechin, a dirty violet; and resorcin, a reddish-violet precipitate.

* * *

New Formaline Compounds. Continuing the interest of M. Lumière's recent paper on hydrosulphite as a developer, is a note in one of the French dyeing journals that these salts readily unite with formaldehyde, forming a rather complicated mixture of formaldehyde-sodium-bisulphite and formaldehyde-sodium-bihydrosulphite. The latter compound, which quite possibly may be found worth investigation as a developer, is stated to dissolve freely in water. Its other reactions show it to be a powerful reducing agent. A new antiseptic, according to a recent French patent, is prepared by heating formic aldehyde with phenol under pressure in a slightly alkaline condition. Combination takes place, and the new substance, which may prove of service in photographic mountants, does not possess the odour of phenol.

* * *

Solid Formaldehyde. The liquid state, whatever convenience it may confer upon a substance from the point of view of the actual user, has serious drawbacks to

the distribution of that substance in the trade. That formalin, the 40 per cent. solution of formaldehyde, should have secured a firm footing among photographic chemicals, despite the risks of transport and storage, is a fact which speaks for its usefulness as a hardening reagent and an antiseptic. But if the claims of a German patent are borne out in practice, it will be possible to buy it in the solid state. The method of manufacture of the suggested product is by mixing the 40 per cent. solution with dextrine to a paste over a water-bath. The operation is to be performed in vacuo, and when the pasty mass is cool, it is dried in vacuo over sulphuric acid, or other desiccating agent. The finished product is stated to be a fine soluble powder, to keep well in closed vessels and to act in solution exactly like pure formaldehyde. The marketing of formalin in the solid state would certainly win the approval of the photographic trade, and probably the presence of the diluent dextrine would not prejudice its action as a tanning agent in any way.

* * *

The Scottish Salon.

The holding of the second Scottish Salon in the Western metropolis, in succession to the two great international exhibitions managed by the Glasgow and the West of Scotland Amateur Photographic Association, and at a time when all winter festivities are in full swing, is a very bold step. There are those who consider it extremely rash. We mention this, before the extent of public and financial support is known, for the sake of discounting some remarks that will surely be made if the success should not be so great as the promoters hope. Whatever the balance-sheet may show, the principle of federation will remain unaffected. The exhibition successfully fulfils its two main aims—it brings out some good workers, hitherto unknown, and it gives to a host of Scotsmen their first opportunity of seeing the work of their neighbours and fellows. And quite apart from the Salon, the Federation gives exchange of courtesies between societies, provision of lecturers and judges, economies and advertisement for local exhibition managers, circulation of portfolio prints, and many other facilities, including a great deal of information in the annual "Blue Book," and the monthly "Secretary's Letter."

* * *

A Flourishing Institution.

The record of work submitted at the annual meeting of the Scottish Photographic Federation is one of which anybody might well be proud. The fact that this Federation has grown to thirty-four societies shows that it had a niche to fill in the world of photographic work. The government of it is distinctly popular, every society has a say in its membership, and the fact that the secretary belongs to one of the smaller

societies shows that the larger societies have no monopoly of office. The lantern-slide prize-list, too, shows that the larger societies have no monopoly of talent. The Scottish Salon is an institution that could only have been successfully organised by such a representative body, and does every credit to its promoters. It is a permanent tribute to the high quality of photographic work north of the Tweed. Such institutions as the S.P.F. can make for nothing but good, and it deserves the whole-hearted support of every photographer and every society within its sphere of influence.

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Curiosity and Vanity.

Why is it that a camera is exempt from the common rule? In every other sphere of work a thing ceases to attract attention as soon as it becomes common. People no longer gaze in wonder as a bicycle passes, and they are learning to ignore the motor. But a camera!—people are as excited to-day as when the first photographer staggered under a load, and carried his tent with him. The poor man who can photograph in a public space without suffering from the posing of passers-by, is indeed fortunate. The professional suffers most acutely when baby is to be photographed. His majesty the baby must be accompanied by mother and nurse, and too often a contingent of feminine relations. It is a good rule—on paper—to exclude all, or all save one, of these retainers, making them stay in the reception-room. But what photographer can do it? By the time poor baby is posed anything may happen. If she is "good as gold" her supporters must audibly comment, or at least giggle, and the whole air is electrically charged and the tiny sitter alert to the faintest disturbance. Verily, vanity and curiosity are two of the small troubles which tend to bestow many anxious minutes on the photographer who has pride in doing good work.

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Cost of Working the Daguerreotype Process.

The Daguerreotype process, which is prominent in this week's "History," was by no means a cheap one to work, more particularly in its earlier days, as the following will show. At the end of Lerebours' Treatise on Photography, 1843, is a price list of the materials required. Plates, one-tenth silver, of the quarter-size, are quoted at 3 fr. each. "Twenty-five grammes of bromine, in bottle, 4 fr. A bottle of hyposulphite of soda, containing 500 grammes, 8 fr."—roughly, 5s. 6d. per pound. Ten years later its price had become reduced to about 1s. 6d. per pound. Then, notwithstanding its high price, hypo was more lavishly used in the fixing of prints, with the view to rendering them permanent, than it is by many workers of the present day, although it is but 2d. a pound. From the above quotations it will be seen that Daguerre's process was a somewhat costly one to work. But the collodion process which superseded it was by no means a cheap one in its early days. In a price list dated 1854, three years after the publication of Archer's process, collodion is quoted at from 1s. to 1s. 6d. per ounce. Pyrogallie acid, in 60-gramme bottles, 2s. 6d., or 16s. the ounce. Absolute alcohol, 10s. the pound. The bromide of ammonium was 8s. an ounce and that of potassium 2s. 6d. an ounce. The nitrate of silver was then 5s. the ounce. Glass plates for the collodion process were—the quarter-plate size 2s. 6d. and for the half-plate 5s. a dozen. At that time patent plate glass had to be used for negatives, as the common kinds were so uneven that they could not be trusted in the printing frames. What a contrast then and now, when we purchase our plates in a sensitive condition, ready for exposure in the camera, for considerably less than half the price that the plain glass used to cost.

The Drying of Colours.

The rapidity with which a paint or ink becomes dry is intimately associated with possible progress in photographic and photo-mechanical methods. Pigment printing processes in which the pigment is applied to a film capable of selectively fixing it are among the new-comers, of which the apostles of individual control prophesy great things. A quick-drying mixture of oil and pigment is a desideratum in such processes, and of immeasurably greater importance still in tri-colour processes with half-tone blocks or collotype plates. In these connections the report of the research laboratory of the Imperial High School of Graphic Arts in Berlin may be quoted, as part of the recent work in that institution has been devoted to the drying of inks. It was found that the time required for oil inks to dry was in no way connected with the proportion of pigment which they contained, but is connected with the chemical character of the pigment. Many colours with which oil was mixed in no large proportion were found to dry extremely slowly. Among these were zinc white (with 25 per cent. of oil), cinnabar (with 20 per cent.), light ochre (with 45 per cent.), ultramarine (with 50 per cent. of poppy oil). On the other hand Prussian blue (with about 100 per cent. of oil), chrome-green (with about 100 per cent.) cobalt-blue (with 140 per cent. poppy oil), dry in one-fifth to one-tenth of the time required by the above-mentioned mixtures. A remarkable difference exists in the behaviour of chrome oxide green (anhydrous oxide of chromium), which with 30 per cent. of poppy oil does not dry quicker than the hydrated oxide green of chromium, which requires more than 100 per cent. of poppy oil. The pigments have very different effects on the drying oil, and this reaction is so great as to swamp the differences which may exist in the proportion of drying oil. The experiments suggest the advantage which can be taken of suitable combinations of pigments and oils. In other words, the pigment can be selected to play the part of a "drier," and, unlike the drier usually used, will be present in an insoluble condition, and, therefore, free from the danger of producing ill-effects if the proportion of pigment to oil becomes unduly great.

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Faked Photographs as New.

"There is nothing new under the sun," but much that is old. And the old has a happy knack of reappearing long after it has been written down as defunct. The wonderful composite pictures which were the acme of photographic art forty years ago were produced just as long as the pioneer workers who perfected them held the field. New men, new methods. Photographs, printed from two or more negatives; continued to be—and are still—produced. But the light effects, the sky printings, etc., of the newer school have little which may be considered in direct descent from the old line work. Recently the old method has been revived to a commercial use, and photographs, representing "truth" rather than art, are faked from two or more negatives or prints in order that by assembling detail from several sources more realistic scenes may result. As is well known, the illustrated papers frequently give finished drawings of scenes based upon photographs, or correspondents' sketches, or "from particulars supplied by an eye witness." But photography is much used by papers, partly because photographs often give the best idea of some scene or event, and partly because in some cases photographs are cheaper than drawings. Largely to meet the many low-priced Continental illustrated papers on this matter of cost, one or two photographic agencies across the Channel are turning out very ingenious fake photographs. There are thousands of photographs in existence of scenes in Port Arthur and other places in Manchuria. But there are many pictures

of current events out there which are by no means easy to obtain. A picture of, say, a Port Arthur fort has no commercial value, but if half a dozen dead Japanese are grafted into the foreground it at once becomes gruesome and topical. If a very much alive Russian stands on the ramparts so much the better. By thus adding life and actuality to mere mundane scenes, hundreds of saleable photographs are annually produced from otherwise worthless material. Sometimes a print is made direct from two negatives, more often the additions are pasted on to the background print, the joinings retouched, and the whole rephotographed. Some of the work is very crude, and must be apparent to the editors, but by the time the blocks are made, and rapidly printed on cheap paper, there is little left to reveal any fraud. And, after all, such pictures are quite as truthful as any sketch evolved by some artist who obtains his facts and ideas from several photographs.

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Death of Professor Ernst Abbe.

It is with great regret that we announce the death of Professor Ernst Abbe, which took place at Jena on Saturday last, January 14, after a long and painful illness. Professor Abbe retired little more than a year ago from the directorship of the Carl Zeiss Optical Works. His share in that institution and in the foundation of the optical glass factory of Jena will be noticed at the length which it deserves in our next issue.

WHAT IS LIFE SIZE IN PORTRAITURE?

If one looks back two or three decades we see that at that time a greater feature was made by professional portraitists of large portraits, taken direct in the camera, than is the case at the present time. At that period many of the leading opticians, both at home and abroad, made a speciality of lenses of the Petzval form for portraits up to 18 x 15 and larger, and having a diameter of 6 in. and upwards. Some (many) years ago the late Mr. Rob. Crawshaw, with the view to encouraging large portraiture, offered a series of substantial prizes for the best large portraits, both direct pictures and enlargements up to life size, and the pictures shown in competition attracted a great deal of attention in the photographic world at the time. Some severe comments, it may be mentioned, were passed on the life-size heads exhibited that were taken direct in the camera by reason of their unpleasant appearance, good photographs as they were, through the necessarily near approach of the camera to the sitter.

On the Continent now large direct portraits, but nothing approaching life size, are in much greater vogue than they are in this country, and exceedingly fine the majority of them are. It may be admitted, we think, that a large portrait taken direct, of a size, say, 16 in. or 18 in., when the camera is placed at a good distance from the sitter, as is done in Continental studios, possesses technical photographic qualities that one does not get in an enlargement from a small negative. When these large direct portraits were most in vogue in this country, wet collodion was the process employed, and, of course, the exposures were exceedingly long as compared with what would be required now with gelatine plates. However, it is not with large direct portraits that the heading of this article applies, for we imagine that few nowadays will essay taking life-size portraits direct. It is with enlargements we are dealing.

It is not many photographers who make their own

enlargements, except perhaps those of the smaller sizes, and disappointment is sometimes felt when a life-size one is received from the professional trade enlarger, and this brings us to the question—what is “life size”? The obvious and literal answer is, of course, the size of life. But does the size of life, by measurement, in a portrait always convey the idea that it is “life size”? Whether it does or not, as we shall presently explain, very much depends upon circumstances, and these circumstances are not always taken into consideration when photographers dispatch their negatives to the professional enlarger. It may be taken that the average size of male heads is about $8\frac{1}{2}$ in. from the bottom of the chin to the crown of the head—not the top of the hair—and that of women about an inch less. Now if these dimensions were strictly adhered to, in all cases the results would be unsatisfactory. Supposing, by way of example, a pair of portraits, a lady and a gentleman, were made to the above dimensions, and they happened to be the exact ones of the persons portrayed, but the gentleman possessed a rather thin face and a bald head, while the lady had a round face and a profusion of hair, dressed high on the head. Here the two pictures would look disproportionate. The gentleman's portrait would, by comparison, appear to be less than life size, while that of the lady would look larger than life size, although both portraits were, by the foot rule, the exact size of the originals.

We will here quote a case that came under our notice a little while ago. It was this. A photographer executed an order for an enlargement of a gentleman—a vignettied head and shoulders, a $5\frac{1}{2}$ in. head. The gentleman was very thin, and the portrait was taken three-quarter face and figure, and the enlargement gave every satisfaction. Another was ordered, same size, but from a different negative. In this the face and the figure were nearly full, and when this picture was sent home it was returned as being much smaller than the first one, while, as a matter of fact, by actual measurement, the head was nearly $\frac{1}{2}$ in. larger. Yet, notwithstanding this, the head in the second picture certainly looked considerably the smaller of the two.

In making enlargements attention ought to be paid as to where the pictures are to be hung. If they are to be hung high up in a lofty room the head will appear to be much smaller than it would do if hung low in a less lofty place. This is a matter that is usually taken into consideration by portrait painters, who often, when the first-named conditions prevail, paint the head an eighth or so larger than the exact size of life. Here is another example of how the apparent size of a portrait may be affected. Let us suppose that a three-quarter or half-length portrait of, say, a lady, with the hair dressed high on the head, be made the exact size, by measurement of the original, and framed with a margin. When seen at a distance, as such pictures usually are, the head will appear to be the size of life. But let the head only be cut out and framed up close, it will then, to all appearance, be much larger than life size; in fact, will be ugly in the extreme. In such a case as this, the “life-size head” should be made considerably smaller than it is by foot-rule measurement.

From what has been said it will be seen that the query as to what is life size in a portrait is not quite so easy to answer as it would at first sight appear. Our object here is to point out to those who send out their enlargements to be made the desirability of sending with the negatives specific instructions as to the dimensions they are to be made to within two definite points in the picture—say, for instance, between the top button of the coat and the top of the hair, after, of course, duly considering the frames into which they are to be put, and the conditions under which they will be hung.

IMPRESSIONS OF THE SECOND SCOTTISH SALON.

THE first impression—and it is one that grows as the show becomes more familiar—is that the principal work of art is the one which will be destroyed by its own creators shortly after the end of this month. It is the exhibition as a whole. Mr. G. D. Macdougald hit upon a truth when he humorously said at the luncheon that the Salon Committee had made the exhibition, while the contributors had only made a few pictures. A small body, with Mr. J. W. Eadie as the very strenuous acting head, has created an exhibition which has more feeling of successful design than almost any exhibition which has preceded it.

The (London) Salon, hung by Mr. Evans, is an annual triumph in this direction; but the problem set to Mr. Evans is different, and the limitations imposed upon him are different. Mr. Eadie has a much larger room, and a much larger area of pictures, so that his greater space is more crowded. He has also a few stronger high-lights than are usual at the London Salon, and a more solid mass of sombres, with little middle-tint work, and has planned each wall or panel as a vignette, with the high-lights toward the centre, and with as smooth gradation as the prints and frames will allow, to the edges. The whole arrangement is backed with a dark slate-grey canvas, and surmounted by a stencilled frieze which well supports the general effect, and that effect is restful, harmonious, distinguished. But a little gem is occasionally "skied" to make a general harmony.

It seems a pity that so much really good thoughtful work as goes to the making of such an exhibition should go unrecorded, and Mr. Eadie is wise in photographing the show as a whole, and the principal panels.

The personalities of the Scottish Salon are interesting. The Lord Provost, himself an earnest amateur, makes a perfect host, and an admirable opener of the exhibition. His speech, of simple eloquence and eloquent simplicity, was a model. Henry Coates, the president, polished, quietly enthusiastic, eminently business-like; J. W. Eadie, artistic, untiring, tending to drive others beyond their strength, but driving himself most of all; W. A. Frame, full of his secretarial work and responsibility, worried with details from every side, over-conscientious and over-anxious, but settling down to placid satisfaction as an undoubted success, was evolved out of weeks of chaos—and the Federation Secretary, the great, strenuous, straight-talking, forty-horse power force behind the whole thing, J. B. MacLachlan! Yes! they are an interesting lot of personalities.

And what is the pictorial crop? The pictures are mentioned in detail elsewhere in this issue. But here we must make a note of new men emerging. J. Craig Annan, W. Crooke, Archibald

Cochrane, and John M. Whitehead fully hold their positions; and W. A. Clark, of Birmingham (who would have suspected him of being a Scotsman?) makes a strong showing of work that is already well-known. Beyond these, however, there is much of the good and new. Charles Macdonald, with four frames, reveals a new and strong personality of the very first rank, a man who has no counterpart as to style, who comes nearest, perhaps to some of the Germans or Belgians, but who deal with much more complicated problems. His ability in decorative arrangement is quite unusual, and he places strong notes with a mastery that is his own specialty.

Another man who is good and interesting even when seen alongside one so powerful as Mr. Macdonald is Mr. G. D. Macdougald, of Dundee, one of the few "gum" workers in the show who justifies his choice of medium with every one of his works.

There is a crowd of other little-known people:—Geo. L. A. Blair, of Paisley; R. Murray, of Barrhead; D. S. Maclellan, of Blairgowrie; J. C. Robertson, of Brechin, who is both very strong and very prolific; John Hepburn, of Glasgow, who adds to his recent R.P.S. successes; A. W. Hill, of Shotts; Dr. Richmond, of Glasgow; J. B. Johnston, of Edinburgh; E. Drummond Young, of Edinburgh; Louis C. Logan, of Woking; A. W. Reid, of Greenock; J. Bruce Cameron, of Kirkintilloch; J. Peat Millar, of Beith; and Mrs. V. C. Baird, of Broughty Ferry, are all notable. And they do not by any means exhaust the noteworthy exhibitors.

The panel devoted to Alexander Keighley, as an invited exhibitor, was most worthily filled, and the work seemed very fully appreciated by many who had not previously seen it.

The other "foreign" exhibitor, Alfred Enke, of Stuttgart, was distinctly puzzling. The introduction of his pictures to British students is an act for which the Salon must be sincerely thanked, and of which its committee may well be proud. At first sight, to those who knew the work only through Mr. Enke's own fine reproductions, the originals were very disappointing, and even after repeated study some of them must be frankly admitted to be distinctly inferior to the reproductions. The original prints, in strong pure blacks and whites, lack mellowness, and emphasise strength into harshness. But for all that, they are a fine masterly exhibit. Such an example as "Devotion" (272) proves that Enke is a master of delicate silvery tone. "Born to Command" takes very high rank as a figure study of tremendous power; "Sea Surf" (253) shows that something new and good remained to be done in seascapes. And many another example is worthy of space which cannot be afforded.

THE Press Photographer.—The "Daily Mirror" in its issue of Friday last cannot contain its pride in the photographer who obtained a flashlight exposure of Mr. Chamberlain at Preston. Committees were obdurate in refusing him to make use of his "most reliable camera" (will the "Daily Mirror" tell us more about this desirable instrument?), but Mr. Chamberlain himself arrived to dispose of their objections, and offered to submit himself to the camera. He expressed the hope "that he would come out all right," but unfortunately the "Mirror" does not print his comments on the photograph as it has fared at the hands of the process-man and printer.

GLASS transparent to ultra-violet light has been recently manufactured by Messrs. Schott and Genossen, of Jena. For optical purposes it will find many uses, and radiographers in particular

expect to make use of it. Mr. J. H. Gardener, in a paper on the new glass in the current "Journal of the Röntgen Society," writes:—"It seems to me possible that the excessive opacity of the heavy ultra violet flint to X-rays may be of value. It would be interesting to try the effect of using this glass instead of the usual glass for photographic plates. It is possible that the X-rays being so completely absorbed might give rise to some effect in the glass, which would enhance that due to the X-rays themselves. The glass would also certainly be of value as a cover for barium-platino-cyanide screens, for without in any way impairing the clearness of the visible image it would form a perfect protection to the person using the screen from exposure to X-rays. There are certainly many other directions in which U V glass may be of value, and one can only hope that the demand for the material will soon enable it to be produced in quantity and at a reasonable price."

THE FOCAL PLANE SHUTTER.

I.

THE past year having witnessed a much wider adoption of the focal-plane shutter even among cameras of comparatively low price, it seems advisable to collect one or two of recently published writings on this piece of apparatus. Opinion is divided on focal-plane matters in several particulars. It is stated, for example, that the exposures made with it are always distorted—a view taken by Chapman Jones, who writes¹:—"It should never be used when a shutter at the lens is possible because it distorts the image of the moving object. If the shutter moves downwards and the man is photographed as he is running, the man's head is first photographed, then gradually his body downwards, and then his legs. But he is moving, and therefore the lower part of the image is in a more forward position on the plate than the upper. The man may be actually leaning forward and the image may show him as if he were inclining backwards. If a man in a horizontal position is falling downwards, as sometimes in diving, he will appear stouter than he really is. Other effects of exposing a plate piecemeal can easily be discovered. It must be admitted that these distortions are not often obtrusive in photographs taken with focal-plane shutters, but the effects cannot be avoided, and would be revealed by a critical examination of the picture. Therefore such shutters should never be used when it is possible to use a shutter at the lens." Quite contradictory is the experience of W. Kilbey, who pronounces strongly² for no distortion on the ground of practical work with a number of shutters.

Focal Plane versus Lens Shutters.

Then as to the efficiency of the shutter compared with others which work in or near the lens. Kilbey, again basing his statement apparently on the basis of practical work, estimates the focal-plane shutter to be twice to three times as "efficient" as one working near to the lens, "that is to say, the developable action would be as great with an exposure of 1-100th second in the former case as with 1-30 to 1-50 second in the latter."³ On the other hand, this estimate has been thought to be altogether too unfair to the lens shutters, which would have to be very bad indeed in order to have an efficiency of only 33 or 50 per cent., assuming the focal plane to pass the whole of the light to the plate which enters the camera by the lens diaphragm.

This latter point is referred to in a paper by Herr K. Martin, of Rathenow, in contrasting focal-plane and other shutters.⁴ It is pointed out that an efficiency of 50 per cent. represents a very crude type of shutter, consisting of a circular aperture covered and uncovered by the passage of a board, the square aperture in which has the same diameter as the circle across which it moves. But such an apparatus stands near the bottom of the scale of shutters, and with suitable design and mechanism shutters of efficiency up to 90 per cent. should be capable of construction, Herr Martin thinks.

Variable Focal-Plane Efficiency.

A well-made shutter of this class may thus exceed a focal-plane shutter in efficiency, for the latter may suffer in this respect if the distance between slit and sensitive plate exceeds a negligible quantity. Theoretically the moving slit should be in contact with the plate. Usually it is as near as the maker can get it. Sometimes it is removed to an extent sufficient to reduce the efficiency of the shutter. In many cameras, says

Herr Martin, the slit is 10 millimetres, often 12 to 14 millimetres, from the plate, and therefore the rays reaching the slit are spread out into a band which is broader than the slit itself. The defect from this cause becomes more marked the larger the stop of the lens, the greater the distance of the slit from the plate and the smaller the width of the slit. If, for example, the focal length of the lens is 120 mm., its aperture (F.4) 30 mm., and if the slit is 3 mm. wide and 12 mm. from the plate, the actual band on the plate will be 6 mm. in width, and the light utilised is only 50 per cent. The formula connecting the three quantities is as follows:—

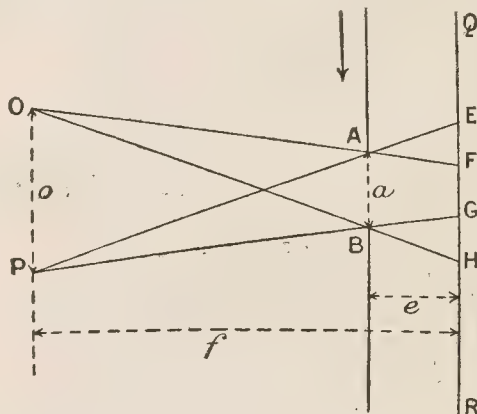
Lens aperture in mm. \times distance of slit from plate in mm.

Focal length of lens in mm.

The arithmetical result of this expression is the smallest width the slit can be, if it is to employ the full aperture of the lens.

Factors in Focal-Plane Efficiency.

The relations of these factors in the efficiency of the shutter will be clearer if the simple mathematical treatment adopted by Legros⁵ be studied. In the figure, AB is the blind of the shutter, a the width of the slit, b the distance of the slit from



the plate, f the focal length of the lens, and o the diameter of the lens aperture. In this figure the action of the light takes place between F and G. But it is not constant. Between F and G the plate receives the full action of the lens. Between G and H and between E and F the action is incomplete. The effect of the light is better as the two periods G H and E F are very small in comparison to the central band E H. The "efficiency" can be regarded as represented by a fraction of which the numerator is the complete period, plus one incomplete period, and the denominator the total of the three periods. Thus in the figure—

$$\text{Efficiency} = \frac{FG + EF}{FG + EF + GH} = \frac{EG}{EH} = \frac{af}{af + oe}$$

This expression is always less than 1. To attach a practical value to it, an efficiency of $\frac{2}{3}$ means that the ideal shutter would produce the same effect with an exposure of $\frac{2}{3}$, that given by the apparatus of efficiency, $\frac{2}{3}$. The efficiency increases directly as a and f and inversely as o and e . In the construction of a shutter the distance, e , from slit to plate should be made as small as possible to obtain the best efficiency. When $e = 0$, we obtain the ideal shutter of efficiency, 1, or

¹ "The Science and Practice of Photography."

² Advanced Hand Camera Work and Focal-plane Photography, page 34.

³ *Ibid.*, page 18.

⁴ Photographische Mitteilungen, 1904, page 340.

⁵ Fabre's Traité Encyclopédique de Photographie, 3rd Supplement.

100 per cent., to express it in the terms which Herr Martin has chosen.

Practical Measurements of Efficiency.

The total period, E H, can be measured by arresting the slit at any point in its passage across the plate and focussing the lens on infinity. On then pointing the camera to a clear sky or some strongly illuminated surface, the width of the bright band on the ground glass can be measured. . . . By exposing, or rather under-exposing, a slow plate the limits of the bands E F and G H can sometimes be sharply discerned and the efficiency directly ascertained by measurement, using the formula already given—viz., efficiency = $\frac{EG}{EH}$.

Varying Efficiency at One Exposure.

It will at once be understood that if the course of the slit is not in strict parallelism with the surface of the plate, the efficiency of the shutter will be greater at one point than another. It may be that the want of parallelism will be sufficient to cause markings in the nature of bands running across the plate parallel with the slit. This seems to be the only explanation of faint bands of this kind complained of by a correspondent of the "Photo-Revue."⁶ The effect, as will be easily seen, is noticeable only when a narrow slit is used, as with a slit of considerable breadth is employed, the area, F G, of complete action is in greater proportion to the outer bands of incomplete action.

⁶ Nos 32 and 38, 1904.

Dark Bands in Focal-Plane Exposures.

Another defect of which this same correspondent shows one of many examples obtained by himself consists of a series of bands, irregularly alternating between light and dark, which are formed on the plate at right angles to the slit. They also occur only when a very narrow slit is used and are more liable to be formed under conditions of strong lighting. The consensus of opinion obtained from readers of the "Photo-Revue" locates the cause in the roughness or irregular surface of the opposing edges of the slit. The two edges are not perfectly smooth, and hence at some points in the slit, where two prominences face each other, the exposure is diminished and a light band is the result. In the case of a slit so narrow as, say, 4 millimetres (= 5.32 of an inch), the markings will not occur, as the light intercepted by the excrescences is then very small compared with the total amount transmitted through the slit to the plate.

The Evils of a Narrow Slit.

Both of these drawbacks need not be feared if the worker is content to avoid the use of very narrow slits. The tendency of focal-plane shutters is lately in the direction of a very narrow opening in the blind for the highest speeds. This plan possesses the advantage from the maker's point of view of permitting a slower movement of the blind. But it should not be forgotten that when a slit as narrow as 3.16 of an inch is used strictly plane and parallel surfaces become of the highest importance. On other grounds as regards the avoidance of distortion—the balance of advantage appears to lie with a broader slit moving at high speed rather than with a narrower opening passing less rapidly over the plate.

THE WEEK IN HISTORY.

The R.P.S. in Being.

TO-DAY is the fifty-second anniversary of the meeting at which the present Royal Photographic Society was founded. At four o'clock on January 20, 1853, the premises of the Society of Arts in John Street, Adelphi, housed a small company of artists, chemists, and photographers, brought together there by advertisement in the public Press. Sir Charles Eastlake, President of the Royal Academy, took the chair at this meeting, and became the first president of the society, a position which he filled until 1855. The formation of the society followed immediately on Fox Talbot's partial abandonment of his patent rights. Indeed, the exhibition of 1851 had created such interest in photography that a society would have been formed earlier but that the patents of Fox Talbot hung like the sword of Damocles over the prospects of an independent society, and threatened to be an insuperable obstacle to the progress in the art. Rules of the new society were adopted by this meeting and a date fixed for the first ordinary meeting, and Roger Fenton was appointed honorary secretary. Even this inaugural meeting appears to have wandered from business into technics, for an unknown gentleman from Scotland exhibited a series of "remarkably fine sea-views obtained upon glass," explaining that the collodion was prepared by himself and that wheat-straw entered into its composition.

January 25, 1839, was the day on which the first public exhibition of Fox Talbot's "Photogenic Drawings" took place. The date fell on a Friday, and it is usually stated that the prints were exhibited by Faraday at the usual Friday evening lecture at the Royal Institution. The Journal of the Royal Institution was not published during this period, but I am informed by the present assistant secretary that there is a note in the records

stating that Mr. Fox Talbot showed his photogenic drawings in the Upper Library of the Institution on this date, but that there is no mention of Faraday's share in the proceedings.

Vignetting in 1853.

The first vignetter of which any distinct record can be found was not the now common form employed, on the front of the printing frame, but a contrivance fixed before the camera whereby a negative in vignette was produced. In the absence of documents ante-dating the patent of John Edwin Mayall, January 25 must be the anniversary of this oft-despised effect. The word "vignette" does not occur in Mayall's description of his invention, and I am at a loss to say who introduced it into photographic parlance. Mayall, who is himself described as a "photographer," titles his patent "Improvements in the Production of Crayon Effects by the Daguerrotype and Photographic Processes," and his contrivance, which resembled a huge fire-screen, consisted of a slowly revolving disc, with a central aperture in it in the form of a large star. "The central or free open portion of this star is sufficiently large to admit the rays from that part of the object which is to be shown in strong light, or as a firm sharp image, whilst the rays from those exterior parts which are to be gradually shaded or deepened off to a dark or light background are partially intercepted by the converging points of the star. With this apparatus the intensity of the light is gradually diminished, and the pictures taken in conjunction with it possess the required softened-off crayon effect. The apparatus is applicable to every kind of camera, and by placing it at different distances from the camera different portions of the image may be softened-off. . . . It will be obvious to the practical man that the apparatus may be variously modified to produce similar results,

and especially that the pure stellar shape of aperture is not essentially necessary for the end in view, inasmuch as other shapes would answer for producing the gradation of the rays."

The Publication of the Daguerreotype Process.

"F. J. T.," whose letter appearing on another page has been handed to me, should have gone to the trouble of confirming his facts before offering them second-hand from a popular encyclopaedia. In the first place there was no meeting of the Academy of Sciences on January 17, 1839. There was a meeting on the 14th, and another on the 21st, but none between. But I can explain "F. J. T.'s" citation of the 17th. It is wrongly quoted either by him or by the "Penny Encyclopaedia" for January 7, on which day M. Arago did read a paper on Daguerre's process before the Academy of Sciences. I suppose "F. J. T." will still say, with intensified insistence, that that paper, anticipating the work of Fox Talbot, ought to have been included in "The Week in History." It ought not, as I will proceed to show, though I would much prefer that "F. J. T." should himself turn to the original paper, which appears on page 4 of Vol. I. of the "Comptes-Rendus" for 1839. If he does so, he will find that that paper is not a paper on Daguerreotype in the sense of explaining in what the process consists, but a talk about Daguerreotype, confining itself to a narration of what views Daguerre had taken, and becoming very guarded when approaching anything like a working method. In other words, Arago was telling just as little as he could about a secret process. He did say that Daguerre obtained what we now call a positive by his process, and he did say that the picture could be taken in about eight or ten minutes. And that is as much as he would disclose.

Now the point which I wish to impress on "F. J. T." is that such a paper is no publication at all. In fact, Daguerre's former partner, Niépce, did actually offer to the Royal Society in the year 1828 a paper which said just about as little as this of Arago's said about Daguerreotype. Niépce's paper was never read, and very likely Arago's never would have been if the circumstances had been different. Therefore we are justified in dismissing this note of Arago's as in the nature of the modern "preliminary paragraph," emanating from a celebrity, to whom it causes "unfeigned astonishment"—to use the stock phrase—when it gets into the papers. Perhaps I may leave "F. J. T." without a doubt if I point out that M. Arago's paper is referred to by the Paris correspondent of the "Athenæum," writing on January 16. He confesses his inability to give precise details as none have been disclosed by Daguerre or Arago on his behalf. He interviewed Daguerre, who showed him a sketch made (by the Daguerreotype process) in the pouring rain, another procured "by the moon's light," and explained that the apparatus was so little cumbersome that it was hardly noticed by the passers-by. The interviewer, with remarkable foresight, laid his finger on what is at once the glory and the evil of photography in the comment "that there is still wanting to its results something to be given by the hand and eye of the artist, and . . . the mechanical exactness of M. Daguerre's views may become monotonous." ("The Athenæum," 1839, January 26, page 69.)

THEFT by a Photographer.—Walter J. Newey, a travelling photographer, of Lord Street, Wolverhampton, was charged at the Tamworth Police-court with stealing a watch and chain, value 25s., the property of William Mobb, drayman, Kirkowen Terrace, on the 6th inst. It was alleged that the prisoner called at the house for orders and stole the watch. He was arrested the same night at the railway station by Police-sergeant Oulton. The prisoner was remanded.

Photo-Mechanical Notes.

THE SO-CALLED "HIGH LIGHT" PROCESS.

As there appear to be some interest in processes for obtaining the whites of any subject completely opaque in a cross-line screen negative, I thought it well, at the L.C.C. School of Photo-Engraving and Lithography, to get a student to make some negatives of this character by several methods with a view to determine which was the simplest way. These methods were tried, and each gave equally good results, the simplest being the exposure first with a small stop, and then for a short time with a large stop.

In the examples here shown, the subject is a pencil-drawing

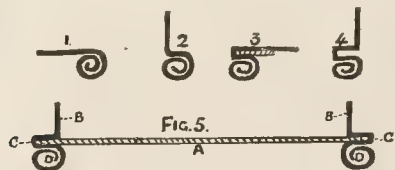


Fig. 1.

copied to same size. The cross-line screen used is of 133 lines to the inch ruling, and its distance from the plane of the plate five millimetres. Both had an exposure with F. 64 (i.e., 1-128th of camera extension) of $2\frac{1}{2}$ minutes, and a supplementary exposure in the case of the ordinary half-tone of 20 seconds with F. 22 round stop (i.e., 1-44th of camera extension, Fig. 1). In the case of the high-light result, the supplementary exposure was made with a square stop, the side of which was equal to the diameter of F. 16 (i.e., 1-32nd of camera extension), and the time given was 12 seconds. This negative was slightly reduced, then intensified with lead, with the result that the high-light or ground of the picture was rendered completely opaque without affecting the lines at all (Fig. 2). While such negatives are

and snap off. The writer having experienced these difficulties devised a simple appliance (that can be made by any practical man) to obviate these troubles.

Procure a piece of sheet lead about 3-32nds of an inch in thickness, and cut some strips 4 in. by 2 in. or larger, according to the size of



A. Copper plate. B. Tab for lifting. C. Plate grip, which can be tightened by squeezing between thumb and finger. D. Foot to prevent plates touching bottom of etching dish.

plate to be etched. Fold a $\frac{1}{4}$ of an inch from the end over two or three times, see fig. 1. Then bend up as in fig. 2. Now take a piece of waste copper and bend the lead over, see fig. 3. And finally as in fig. 4. Fig. 5 will explain matters more fully. You will now have a useful appliance to add to your etching bench. W. J. SMITH.

A Line Etching Difficulty.

In the corner of Messrs. Penrose's "Process Work," wherein readers compare notes and help each other out of difficulties, is the reply of Ernest S. Foden to a reader, who writes:—I occasionally find that after the first bath, as soon as the plate is touched with the roller the work picks off, especially in the large spaces of solid and becomes quite porous. Why is this, and how can it be avoided to save waste of time and metal? Let me say at once the printer is to blame for line-etcher's difficulty. There are several reasons for the work picking off as described. The most important is the using of ammonia a little too strong in the developing to clean and thin down an over-developed plate. This takes the nature out of the slight coating of ink and turpentine used previous to developing, and although the printer has no difficulty in being successful with his final roll up, or powdering in with bitumen, yet it is obvious that where the ammonia has robbed the development coating of its grease, water will be underneath, or intermixed, and the etcher's first bath will assuredly find the weak spots, and etch through and under, taking all support away and causing these weak portions to stick to the roller as soon as it passed over them. Another reason is the using of a very stale nitric-acid-alum bath previous to coating the plate with albumen. This causes a very dirty and dark oxide to form on the plate, and if not sponged vigorously before sensitising leaves portions of the oxide on, making a false surface which the nitric acid soon gets under, causing the picks off. Another reason—and this only applies to bitumen resist, is burning the plates in inefficiently or excessively. If the former, the appearance of the image will be a dead brown, and parts will rub off with the pressure of the finger. This explains itself why it should be porous, etc. If the latter, the nature will be taken out of the ink and the bitumen, giving the bitumen no grip on the zinc and making it too brittle. The surface will be rough and the colour varying from dark brown to a brown black. The acid very easily etches through this resist, and the roller soon cracks the brittle surface, fetching pieces off. A plate properly burnt in should have a smooth and glossy image of a rich chocolate colour. The only method that I know of in dealing with such cases as mentioned is to make the first bath short and sharp, to wash off the gum immediately it is put on, to get just sufficient ink on the roller to cover the plate in the first three or four rolls of the roller. The less rocking, sponging, and gumming that can be given the better, it will prevent further moisture from getting under, and together with less rubbing and

rolling will tend to give the plate the benefit of doubt. A far better and wiser plan for avoiding the waste metal box is to get the printer to pay a little more attention to his work."

A Recipe for a Stop-out.

Replying in "Process Work" to the request of a correspondent for a stopping-out solution for acid resist, adapted to zinc or copper, Herman J. Schmidt advises shellac: "Its acid-resisting quality is perfect and, above all, it is cheap. Take some brown shellac, say 1 lb., and put this into a tin; now get some wood alcohol and pour it on the shellac so that it is all covered up in the liquid. This will dissolve in a few hours, after which you put in a little methyl violet, say about two drachms, to colour the shellac resist, so that you can see where you are stopping out. This dries almost spontaneously, when putting on. When you wish to remove it, heat your plate well and pour wood alcohol over it, rubbing well with a good stiff brush and your resist will come away. I am sure that you will find this the very best stopping-out varnish of any that may be recommended to you; use this by all means. I think that for cheapness this cannot be beaten, and it will please you very much. You see, wood alcohol is not more than three or four shillings a gallon, shellac about two shillings a pound, and the methyl violet about 10d. an ounce. Of course, as you use a great amount you can make this cheaper still by buying barrel lots, which comes 40 per cent. cheaper."

PHOTO-MECHANICAL PROCESS PATENTS.

NON-INFLAMMABLE CELLULOID.—No. 9,277, 1904 (George E. Woodward, 94, Shaftesbury Avenue, London, W.).—The process consists in mixing the celluloid with liquefied fish glue, with an addition of gum arabic, gelatine, and rape oil. To one kilogramme of celluloid are added one and a half litres of liquid fish glue, 400 grammes of white gum-arabic, 100 grammes of white gelatine, and 40 grammes of rape oil. The substance to be added to the celluloid must be of a liquid syrupy consistency. The process is carried out in the following manner: The liquid fish glue with the gum-arabic is put into a receptacle of glass, china, or the like, and left to soak for twenty-four hours in a very dry place open to the air, therefore uncovered. Then the receptacle with its contents is placed on a water bath and stirred, for instance, with a stirrer of china or the like, until the gum has become perfectly liquid. The temperature of the mixture must not exceed 25 deg. C. Then the gelatine is added and stirred until it is quite dissolved, so that there is no more solid residue. The mixture is then lifted off the water bath and rape oil is added to it while stirring continuously, when, after being thoroughly mixed, it is left standing about 24 hours to cool. Before it is quite cold it is put through a sieve, in order to remove any solid pieces. After the soaking, dissolving, and cleansing by means of the sieve, it is left standing in the same place open to the air. Any scum formed during the cooling is always removed. For the treatment of the celluloid a perfectly clear colourless syrup should be used. The celluloid to be treated must be in a glass or china receptacle or the like, in a syrupy state. The mass containing fish glue is poured in by drops while carefully stirring, preferably in the middle of the celluloid, and gradually increasing the stirring surface. After a thorough mixing the celluloid is ready for use, and on coming into contact with flame does not ignite. The solution of fish glue used during the process can be obtained by letting 200 grammes of fish glue soak in a litre of cold distilled water. It is then passed through a sieve, and any parts kept back are crushed, so that they are completely mixed with the water; 10 grammes of kitchen salt are added to clear the mixture, and then it is again filtered.

PRINTING APPARATUS.—No. 4,171, 1904 (E. Luboshey, 11, Cromwell Street, Glasgow).—The printer is a box in which is a lamp and an arrangement whereby a roll of sensitive paper can be drawn off one roller, taken over the negative, and wound on to a second roller. The back of the paper is protected from light by a wrapping of non-actinic fabric or paper. The first of these claims is for "A photographic apparatus for printing and like purposes, characterised by a box or chamber, which is provided with means for giving artificial light, means for giving a non-actinic light, means for moving the sensitised material, and means for shutting off the actinic light from the sensitised material at such times as the material is being removed, substantially as described."

RELIEF PHOTOGRAPHS (Friedrich Gärtner, 43, Tanus Strasse, Wiesbaden, Germany).—(1) The improved process of making relief portraits, consisting in printing an impression from a photographic negative or the like on a sheet of sensitised porous unsized paper, stretching said impressed sheet in a frame, coating the back of the sheet with glue, applying over the glue a thin layer of plastic compound capable of becoming subsequently hard, and modelling the picture from the front against a board by means of modelling sticks. (2) The improved process of production of relief photographs or the like, consisting in printing an impression from a photographic negative or the like on a sheet of porous unsized paper, sensitised with potassium bichromate and nitrate of silver, toning, fixing, and drying the impressed sheet, stretching the sheet on a skeleton frame, moistening the impressed side, coating the back of the sheet with glue, applying over the glue a thin layer of glaziers' putty, covering the surface of the putty with powder, such as French chalk, and modelling the picture from the front by means of a board and modelling sticks, and allowing the backing to harden. (3) A modification of the process set forth in claim 2, wherein instead of putty a backing of wax is employed, which wax is removed when the modelling is completed, and the depressions on the back of the picture filled in with suitable hardening compound. (4) The improved process of and means for the production of relief photographs or the like, substantially as described.

Exhibitions.

EVESHAM CAMERA CLUB.

LAST week an exhibition of photographs was held in the Council Chamber at the Town Hall. An excellent collection of prints was shown by members, including contributions from Messrs. O. G. Knapp, W. Cox, Buckley Bent, A. W. Ward, R. C. Mawson, C. C. Moberley, E. H. New, W. Lean, and others, but the organisers felt that members might have supported the venture in this way to a greater extent than they did. The prints exhibited showed that the club, though only recently established, has already attained a high standard, and the prints in landscape and architecture were of excellent quality, but, with about two exceptions, portraits and figure studies were absent. An interesting feature of the exhibition was the collection of record and survey prints, about fifty in number. These included photographs of churches, old houses, and so on in the town and neighbourhood (some of which have been recently demolished) the borough maces and loving cup, and other objects of a like nature; these photographs are printed in a permanent process, and will now be presented to the Public Library for safe keeping for the future. Most of the record and survey photographs of view on Wednesday were taken by Mr. O. G. Knapp and Mr. A. W. Ward. The Camera Club hope in time to furnish the Public Library with a collection of

photographs which will be not only interesting, but in many ways valuable. Another prominent feature of the exhibition was the collection of old local prints, etc., by Mr. O. G. Knapp. Lantern slides by Messrs. W. Cox, R. C. Mawson, and W. R. Coulter were shown on the screen during the evening.

ALDERSHOT CAMERA CLUB.

THE following were the awards made at this exhibition, which was held last week, by Mr. W. D. Welford. Class A.—Open to members of affiliated societies. Gold medal withheld; silver medal, Mr. F. Judge, Hastings; bronze medals, Messrs. Kimber and Kay, Southampton. Class B.—Affiliated clubs collective exhibit of four pictures. Prize two guineas, Southampton Camera Club. Open-class postcards, silver medal, Mr. F. Judge, Hastings. Landscape, members, gold medal, T. Stratton. Portraiture and animal studies, photo outfit, Mr. T. Stratton. Architecture, silver medal, Mr. E. H. Orange. Hon. mention, Mr. J. T. Belton. Members' lantern slide, Mr. J. Russell. Good loan collections were exhibited by Kodak, Limited, the Royal Photographic Society, and the Ozotype Company.

HASTINGS AND ST. LEONARD'S PHOTOGRAPHIC SOCIETY.

THE exhibition was held in the Public Hall, Hastings, from January 11 to 13. The opening ceremony was performed by Major Freeman Thomas, M.P. In addition to the prints arranged in the various classes, there was an exhibit of more than ordinary interest in the shape of a number of photographs taken with Kodaks by her Majesty the Queen, H.R.H. the Princess of Wales, H.R.H. Princess Henry of Battenburg, H.R.H. Princess Charles of Denmark, Princess Victoria, and H.R.H. the Duchess of Fife.

The following is a list of the awards:—Gold medal and the best picture in the exhibition: A. E. Coleman.

OPEN.

Champion Class: Silver medal, A. E. Coleman; bronze medal, B. C. Wickison.

Landscape, Seascape, and River Scenery: Silver medal, C. D. Kay; bronze medal, C. E. Walmsley.

Portraiture and Figure Study: Silver medal, H. Cross; bronze medal, John Smith.

Architecture: Silver medal, A. E. Henley; bronze medal, Louis J. Steele.

Flowers and Still Life: Silver medal, A. E. Henley; bronze medal, E. Seymour.

Lantern Slides: Silver medal, E. Seymour; bronze medal, H. S. Warschawski.

For pictures rejected at the Photographic Salon and the Royal Photographic Society's Exhibition of 1904: Silver plaque, S. G. Kimber; silver medal, J. C. Warburg; bronze medal, John Smith.

MEMBERS.

Silver medal, H. Cross; bronze medal, John Smith.

Silver medal, A. M. Apel; bronze medal, J. H. Spree.

Awards: Fred. Judge, A. M. Apel, and J. H. Spree.

Bronze plaque, H. O. Bannister.

THE SCOTTISH NATIONAL SALON.

Specialty Reported.

THE Scottish National Salon is undoubtedly the Scottish exhibition, and a place on its walls has already become the hall mark of quality, and rightly so, when one considers that the selection of the pictures is entrusted to Scotsmen of the world-wide reputation of Messrs. J. Craig-Annan, Archibald Cochrane, and Wm. Crooke, men of widely dissimilar modes of expression, each a master in his own sphere, and each recognised as an authority in the art he adorns—a more com-

plete trio it would be difficult to find. The Salon since its inception last year has had the support of the leading men in Scottish photography, and it is confined to Scots at home and abroad, it is evident that a good estimate can be formed of the position of photographic art in Scotland. The entries sent in totalled nearly 700, and of these 325 were hung, exclusive of the invitation sections and the contributions of the Selection Committee. The decoration was undertaken by Mr. J. W. Eadie, convener of the Salon Committee; the walls were draped with green surmounted by a frieze of Scotch thistle in a decorative design, the walls being panelled by a green stained strip of wood, the whole forming an admirable background for the display of the photographs. A walk round the rooms clearly indicates that the exhibition is not "local," but a national demonstration of the photographic art of the country. An impartial critic must admit that, while there is a weakness here and there, the general trend of the work reflects honour on the country of its origin. Time was when Scotland was an unconsidered factor in the world of photographic art, though those who relegated it to that position must have overlooked the notable work of D. O. Hill; nowadays, with such men as Craig-Annan, Cochrane, Crooke, Whitehead, Moffat, Patrick, and many others of more recent "arrival" (you can see their work at the Scottish Salon) Scotland can proudly hold up her head alongside the other countries of the world, and to judge by a speech made at the official lunch after the opening of the Salon, means to do so.

The Scot while clannish, is not self-contained, and by inviting two "foreigners" to exhibit at the Salon a valuable opportunity is afforded the stay-at-homes of comparing their own work with that of workers beyond the borders.

Enke's work, a notable exhibit, is mentioned elsewhere in this issue, and Keighley's is so well known to our readers, by reputation at least, that further comment on it is useless.

J. Craig-Annan sends five prints, including his famous "Harrington Mann, Esq., and Children," although many preferred his ever-charming "Ladies of Verona."

Archibald Cochrane only shows two prints—his much-discussed "Labour" and a beautiful panel picture of cattle and trees, "Summer Pastoral."

William Crooke sends four specimens of his work; these may be taken as representing the high-water mark of professional photography. "Miss Kate Douglas Wiggin" is reproduced in the catalogue, although his strong, simple portrait of "Henry Irving" is, perhaps, a more popular exhibit.

Dan Dunlop, one of Scotland's younger professionals, has had no less than fourteen works accepted. His exhibits show a wonderful range of subject, with merit of execution in all, and the fact that he has been able to secure recognition from the Selection Committee in so many branches of photography stamps him as a man of great versatility.

J. W. Eadie has several strong exhibits, his portrait of himself being an admirably executed piece of work; perfect in balance and unstudied in pose, it will rank as one of the best things that Mr. Eadie has done.

Arthur Hawes has a large exhibit; in landscape his "A Snow-capped Town," an effective snow picture, and "A Frosty Morning—Ayr Harbour," are noteworthy, while he has a beautiful example of portraiture in "A Lady M.A."

John Hepburn maintains his place as a delineator of Scottish home life, his "Grannie's Tired Bairn," "The Village Doctor," and "When Once Life's Day Draws Near the Gloaming," being delightful transcripts of the home life of the people—the story is simply, truthfully, and effectively told; particularly telling is the calm, resigned, and yet wistful expression of the old dame in the last-named picture.

A. W. Hill, one of the new men who made his debut at last Salon,

is gaining confidence and improving decidedly in his gum prints. Mr. Hill is a gum enthusiast, and has really obtained the mastery of his process, and it serves his will instead of the opposite, as is too often the case. His figure studies are delicate and free from that clogging up in the shadows, so often seen, and his landscapes and harbour scenes are strong and decided in their treatment. In a very short time he has taken front rank amongst Scottish workers. If we were to specially instance any of his exhibits it would be "Beauty's Dawn" and "Study of a Head" (16), delightful examples of gum work.

G. D. Macdougald, the new President, is another gum enthusiast, free from the out-of-focus habit so much affected in this work. His exhibits on the present occasion are dainty little pictures—perhaps just too small for effective treatment by this process—with a luminosity in the shadows that is noteworthy.

Charles Kirk has some telling natural history studies.

J. Peat Miller has two examples hung, one a pretty picture of a chubby bairn.

A. C. Milne has a convincing harvest scene, "The Crofter's Hairst."

John Moffat, with "Principal Rainy, D.D.," and other two exhibits, represents, as he has for long so ably done, admirable technique wedded to artistic conception; he is a striking example of thoroughly good, honest work.

James Patrick has not such an outstanding exhibit as we expect from him, though his "At the Cottage Door" is an echo of former memories; his "When Day Expiring in the West" is one of his admirable farm-life pictures—quiet and restful.

Dr. Richmond has two strong figure studies in "A Foster Mother" and "A Clay Modeller," while a strong, perhaps rather heavy, seascape illustrates the title—"How calm, how beautiful comes on The stilly hour when storms have gone."

J. C. Robertson has a large exhibit, his "A Picture Book" being reproduced in the catalogue.

P. G. Terras shows a pretty picture of "A Spanish Maid."

C. M. Wane returns as an exhibitor with a number of pictures showing good technique and absence of conflicting tones.

John M. Whitehead has a notable exhibit. All his work exhibits a delicacy of execution that is refreshing in these days of broad effects and disregard of detail. "La Tulipe" is as charming as ever, but "Briar Roses" appears more delicate; the fragility of these blooms is admirably rendered. In his landscapes, "Desolation," "November Night, 1903," and others, compete for recognition, and the spectator is apt to halt between two opinions—all are good, and it is somewhat difficult to differentiate.

E. Drummond Young has good examples of portraiture. John Spark has also a good print, although nothing approaching his famous "In Pensive Mood" of last Salon.

We have only touched the fringe of exhibits; a detailed criticism is beyond the possibilities of our space.

FORTHCOMING EXHIBITIONS.

January 14-23.—The Scottish National Salon. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

January 20-21.—South Essex Camera Club. Hon. Secretary, T. Mitchell, 180, Browning Road, Manor Road, E.

January 23-28.—Lancaster Photographic Society. Hon. Secretary, R. T. Simpson, 21, Cheapside, Lancaster.

January 28-February 12.—Photographic Society of Marseilles. Secretary, M. Astier, 11, Rue de la Grand-Armée, à Marseille.

January 31-February 4.—Cardiff Windsor Amateur Photographic Society. Hon. Secretary, Mr. G. Gallon, 37, Hamilton Street, Cardiff.

February 6-11.—Blairgowrie and District Photographic Association. Hon. Secretary, Wm. D. M. Falconer, James Street Cottage, Blairgowrie.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club. Largerplatz No. 3, Vienna III., 5.

February 16-18.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earham Road, Norwich.

February 21-March 7.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 7; for pictures, February 17. Hon. Secretary, E. J. Felce, 83, Adam's Avenue, Northampton.

February 25-March 4.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-14.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 20-25.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITION.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

THE monthly prize in the Austin-Edwards Film Negative Competition has been awarded to the Rev. W. C. Hoke, St. Columb, Cornwall, for his negative "Study of a Child."

THE "Graphic" Photographic Competition.—The first of three art supplements appears in the current issue of the "Graphic," containing reproductions of selected photographs in the recent competition. The place of honour is occupied by M. Pierre Dubrenil and among the other photographs reproduced we note the work of J. Cruwys Richards, Birmingham, and Clive Holland, Bournemouth. Our contemporary comments on the large proportion of work submitted which bore evidence of care and judgment on the part of the photographer. One lesson of the competitions seems clear—that the amateur is no longer content with merely touching the button and snap-shotting under almost impossible conditions.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between January 2-7, 1905:—

TRIPODS.—No. 23. "Improvements in or connected with tripod stands." J. Ashford, Prudential Buildings, Corporation Street, Birmingham.

PRINTING FRAMES. No. 27. "Improvements in picture and photo-printing frames." Wm. Herbert Milnes, Birkbeck Bank Chambers, High Holborn, London.

DARK SLIDES.—No. 118. "Improvements in photographic dark slides or plate holders." Arthur Lewis Adams, 26, Charing Cross Road.

VIEW FINDERS.—No. 119. "Improvements in view finders." A. L. Adams, 26, Charing Cross Road, London.

LENS MOUNTS.—No. 119. "Improvements in photographic lens mounts." A. L. Adams, 26, Charing Cross Road, London.

CAMERAS.—No. 120. "Improvements in photographic cameras." A. L. Adams, 26, Charing Cross Road, London.

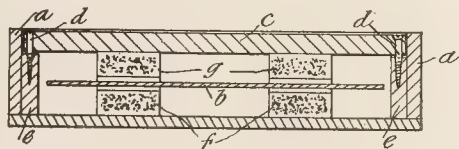
ROLL-HOLDER.—No. 190. "An improved roll-holder or film package, and adapted for use in connection with photographic cameras." Wm. Albert Edwards, 51, Vant Road, Tooting, London.

OPTICAL COMBINATION.—No. 322. "To take several photographic records in one operation and with one lens, the recorded images being in one plane." Otto Pfenniger, 105, Hythe Road, Brighton.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

BOXES FOR NEGATIVES.—No. 3,773, 1904. (Joseph Hart Balfour, Walnut Tree Villa, Yiewsley.) The box consists of a body, in the bottom of which one or more yielding pads are fixed, a lid having one or more yielding pads fixed thereto in corresponding positions, between which two sets of pads the negative or other



like article is placed, and means for fastening the lid to the body of the box so as to cause the negative or other article to be securely held between the two pads.

MESSRS. LONGMANS AND Co. have in the press a translation by Mr. J. Garcin of Blondlot's papers on N-rays, which he communicated to the Academy of Sciences, Paris. The volume will contain additional notes and instructions for making phosphorescent screens for observing the rays.

A NEW industrial apparatus for generating oxygen and hydrogen gas in commercial quantities by decomposing water with the electrical current has been brought out by the Maschinenfabrik Oerlikon, near Zurich. A cubic metre of oxygen and two cubic metres of hydrogen are produced by an electrical power of about 12 kilowatt hours.

New Books.

"Annuaire Général et International de la Photographie, 1904." Edited by Roger Aubry. Published by Plon-Nourrit and Co., 8, Rue Garancière, Paris. Price 5 francs.

This excellent annual contains a very copious summary of the advances made in the various branches of photography, such as optics and photo-chemistry, astronomy, photomicrography, radiography, stereoscopy, colour photography, and photographic materials and apparatus. A useful section is that devoted to a summary of all the legal cases in connection with photography that have arisen in the year, and the meetings of the leading societies and exhibitions. A list of patents, chemicals, societies, both English, French, and German, dark rooms, and dealers, with some original articles by the leading French writers, completes a useful volume, which is well illustrated by textual and full page illustrations.

"Photographischer Almanach, 1905." Edited by Hans Spörl. Published by Ed. Liesegang. Price 1s.

For the twenty-fifth year this little volume makes its appearance, and contains a series of original articles by various well known writers, a brief summary of the more important advances in technical work, and a review of the latest introductions in apparatus and materials. The book is also well illustrated.

"Die Photographische Kunst im Jahre. 1904." Published by W. Knapp, Halle, Germany. Price 8 Marks.

The third yearly issue of this German annual appears as hitherto, under the editorship of F. Matthies Masuren. It reproduces and criticises chiefly German and Austrian work, though apparently the aim of the editor is to make his pages international. If that be so he grants a disproportionate share in the space to the American Secessionists, to the neglect of French and English work. We could have spared a few pages of Secession for some of the work of, say, Demachy or Puyo. Many of the German photographs are mediocre, but a few are the very best in the volume. If only that it reproduces the works of M. Spitzer, Heinrich Kühn, R. Duhrkoop, and W. Weimer, the book is worth possessing. The production is excellent. It is faultlessly printed on a tinted paper, and contains a number of supplemental plates, among which is a charming piece of three-colour, by M. Miethe.

"Die Bildmässige Photographie." Part I. (Landscape), 1904. Published by W. Knapp, Halle, Germany. 5 Marks 50.

In these handsome quarterly issues the publishers bring together photographs by workers of very widely separated characters, though all would be classed as advanced "pictorial photographers." The first is devoted to landscape, and includes some thirty to forty reproductions of work which has appeared within the last few years. A succeeding issue is to deal with portraiture.

"Wellcome's Photographic Exposure Record and Diary, 1905." Published by Burroughs, Wellcome, and Co., Snow Hill Buildings, London, E.C. 1s.

A guide to exposure in negative making and printing—that is the chief function of the now familiar light-green volume which makes its yearly appearance from the gloomy precincts of Snow Hill Buildings. The service which it renders in this direction is not emphasised in the title as it might be, so that we may be forgiven if we explain to those who know it not that a calculator and tables provide for the determination of exposure under extremely varied conditions. In this edition of the "Record" the light tables have

been brought opposite the calculator, and each month's table being torn out, the next is exposed to view. Hence the labour of setting the calculator is reduced to a vanishing quantity. In the body of the pocket-book a new feature is the provision of pages for a record of exposures given when making prints or lantern slides from certain negatives. But the convenience of the book as a diary and record will possibly appeal less to the amateur worker than the notes on the factors which enter into exposure and on nearly every operation concerned in the making of a photograph. These are given as concise memoranda, and are carefully indexed. Altogether the "Diary" appeals to a very wide circle, and there is no photographer, if our own experience is any criterion, but will find constant occasion to make use of it. As usual, there are two editions, one for the Northern and one for the Southern Hemisphere, each also in a cover of red buffing grain, at 1s. 6d., in addition to the 1s. canvas edition.

New Materials.

RECEIVED.—"Wellington" Plates (Wellington and Ward, Elstree, Herts). The following brands of newly-issued plates will be reviewed in due course:—"Landscape" (100 H and D), "Speedy, Special Rapid" (250 H and D), "Iso Speedy" (H and D 250), "Lantern" (H and D, 5), and "Photo-Mechanical."

"The Kodak Rapid Printer." Sold by Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

The convenience of exposing bromide prints in the dark room without disturbing the conditions of illumination is one which makes for comfort as well as for rapidity. Eye-strain, it has been found, is caused by constant change from the yellow or red lamp into a brighter and white light more than by prolonged work in a non-actinic illuminant. There is thus a double reason for adopting the system of exposing bromide paper, for which the apparatus of Messrs. Kodak, Limited, provides. The "Printer" consists of a chamber, ruby-windowed, containing an incandescent gas burner, the light of which is scattered by reflection from a surface of white enamel paint, and reaches the negative through ground glass. The result is an equal distribution of the light, which, except through the red or yellow filter, never escapes into the dark room. The printer is made in two sizes—for whole plate (price £1 17s. 6d.) and for 12 x 10 (price £2 7s. 6d.) In each case smaller negatives can be printed just as conveniently as those of the full size for which the apparatus is made, and the sensitive paper is adjusted in place on the negative by yellow light.

TEN thousand photographs of natural history subjects is the total which Mr. Kearton named, at a recent lecture, as the result of the labours of his brother and himself. To obtain them they had travelled nearly 20,000 miles, from Shetland in the North to Sussex in the South, from Essex on one side to the West of Ireland on the other.

PHOTOGRAPHING Army Horses.—The Army Council has approved of photographs being taken of the different kinds of horses used in the Army, for record purposes in the office of the Director of Transport and Remounts. The horses selected are to be of the best type, and are to be photographed in "watering" and in "marching" order, and the photograph of each animal is to be accompanied by a full description, giving its Army number, height, age, nationality, etc. The photographing will be carried out by the School of Military Engineering.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
23.....	Camera Club	<i>A Landscape Painter in Japan.</i> Mr. Alfred East, A.R.A.
23.....	South London Photo. Society....	<i>The Carbon Process.</i> Mr. W. F. Slater.
23.....	Southampton Camera Club	<i>Photographic News Prize Slides.</i>
23.....	Luton Camera Club	<i>Conduct Chloride Papers and Toning.</i> Demonstrated. Mr. W. H. Cox.
24.....	Royal Photographic Society	<i>Some Problems in Shutter Design.</i> Mr. William Taylor.
24.....	Sheffield Photo. Society.....	<i>Bromide Enlarging.</i> Demonstrated. Mr. George Tomlinson.
24.....	Brentford Photo. Society	<i>Various Tones on Paper by Development.</i> Mr. E. J. Smith.
24.....	Birmingham Photo. Society.....	<i>Exhibition of Prints and Lantern Slides.</i>
24.....	Nelson Photographic Society	<i>Bourneville: The City of Pines.</i> Mr. Imman Whittaker.
25.....	Everton Camera Club	<i>Cameras and Pictures.</i> Demonstrated. Mr. Hesketh of the Thornton-Pickard Company.
25.....	North Middlesex Photo. Soc.	<i>The Trend of Photography.</i> Mr. S. H. Fry.
25.....	Boro' Poly. Photo. Society	<i>Points in Pictorial Photography.</i> Mr. A. Horsley Hinton.
25.....	G.E.R. Mechanics' Institution	<i>Platinum Printing.</i>
25.....	Photographic Club.....	<i>Various Tones on Papers by Development.</i> Mr. E. J. Smith.
25.....	Rugby Photographic Society	<i>Photography of Still Life.</i> Mr. L. Cumming, M.A.
26.....	Leigh Photographic Society	<i>Carbon Printing.</i> North Wales. Mr. H. W. Coupe.
26.....	Southport Scientific Societies	<i>A Life's Tour in Ire'and.</i> Mr. Fred. Clibborn.
26.....	Hull Photographic Society	<i>Natural History Photography.</i> Mr. Riley Fortune, F.Z.S.
26.....	Birmingham Photo. Society	<i>Annual Dance.</i>
26.....	Watford Camera Club.....	<i>The Toning of Bromide Prints, and Intensification and Reduction of Negatives by Tabloids.</i> Demonstrated. Burroughs, Wellcome & Co.
26.....	London and Prov. Photo. Assn.	<i>Microscopic Projection.</i> Mr. Freshwater.
26.....	Liverpool Amateur Ph. Soc.	<i>Competition Pictures on View.</i>
26.....	Richmond Camera Club.....	<i>India and Ceylon.</i> Mr. J. D. Gibson.
26.....	Camera Club.....	<i>Wave Phenomena.</i> Mr. Vaughan Cornish, D.Sc.
27.....	Boro' Poly. Photo. Society	<i>Matt P.O.P. and Platinum Toning.</i> Mr. G. W. Francis.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEMBERS' meeting was held at the Royal Photographic Society, 66, Russell Square, on Friday, the 13th inst., Mr. Alfred Ellis, Past President, in the chair.

The Chairman said he was sorry to notify that their President was, in consequence of a bad attack of influenza, unable to be present that evening. He proposed with their concurrence to convey to Mr. Turner their sympathy and best wishes for his speedy recovery.

The Assistant Secretary drew the attention of the members to certain additional paragraphs in the new "Handbook," which was now in the hands of all members, relative to untuned proofs, and the form of licence for the reproduction of photographs, also further instructions in connection with the registration of photographs.

The Chairman also intimated to the members that a sheet almanac was being prepared giving the particulars of the Assistants' Scheme, etc., and he trusted that the members would have these posted up in some conspicuous place in their workrooms. He also hoped they would endeavour to make the scheme a success by encouraging their assistants to go in for the certificates, and that in applying for new assistants they would intimate that preference would be given to applicants holding P.P.A. certificates.

Some discussion followed on various points, and it was explained by the Chairman that the Committee had decided that in its present form it should be tried for a year, and that if any weaknesses were brought to light they would be then rectified. They were extremely anxious to establish a system which would be acceptable to both employers and assistants, otherwise it would not be practical. He would be willing to accept suggestions from any quarter.

The Chairman, in reply to Mr. Frank Turner, said the application forms would be ready in a few days.

The Assistant Secretary notified the result of the canvass of the members for the suggested Benevolent Fund up to the present.

Mr. Lang Sims drew attention to the subject mooted in the current number of the BRITISH JOURNAL OF PHOTOGRAPHY on the Shop Hours Bill.

Mr. P. Lankester drew attention to the large business which was done by stationers, etc., in picture postcards. He thought that photographers should endeavour to keep as much of this trade as possible in their own hands. He found that the sale of these cards led frequently to more important business in other directions. He was of opinion that photographers ought to do their own cards from their own negatives. By taking advantage of times when other business was slack, photographers in provincial towns should be able to place themselves in a more advantageous position than the stationers could both with regard to variety and quality.

Mr. L. Sims said that of course provincial photographers are different in this respect from town photographers, who have no views to take that would be worth anything as views. In reply a member stated that there was a demand for views of the most ordinary streets possessing no pictorial characteristics.

Mr. Lang Sims proposed, and Mr. M. Jacolette seconded, that the Committee discuss the question of holding a social evening at an early date.

Previous to the members' meeting a meeting of the General Committee was held. Present: Messrs. Alfred Ellis, Martin Jacolette, F. A. Bridge, S. H. Fry, H. Edmonds Hull, A. Mackie, D. Prodger, Edgar Scamell, Lang Sims, R. Fellows Willson, Wm. Grove, Wm. Gill (Colchester), P. Lankester (Tunbridge Wells), and H. C. Spink (Brighton); Mr. Alfred Ellis (Past President) in the chair.

The minutes of the previous Committee meeting, held on December 9, were read and confirmed.

The Assistant Secretary announced that the new "Handbook" for 1905 had been issued to the members, who now number 539. The draft forms of application, etc., for the assistants' examination were in hand.

It was decided, in order to bring the scheme under the direct notice of assistants, that an advertisement be inserted in the BRITISH JOURNAL OF PHOTOGRAPHY. It was thought the advertisement would serve the purpose of bringing the Association to the notice of the photographers and their assistants.

Mr. S. H. Fry again suggested the advisability of arriving at a decision regarding the method by which the Association could continue to retain the interest of assistants when they had obtained certificates by making them Associates, or in some way affiliating them to the Association. He was very anxious to see this suggestion carried through, and in this manner obtain the good-will and interest of the assistants in the Association.

The Chairman said he was afraid the matter could only be dealt with at a general meeting, and suggested that Mr. Fry should give formal notice of his suggestion and bring it forward at the next annual general meeting. He was quite in sympathy with the subject, but it was really outside the scope of the Association as at present organised.

On the proposal of Mr. Fry, seconded by Mr. Bridge, it was decided that the Committee should take the matter into consideration at their next meeting.

The Assistant Secretary announced that as a result of the plebiscite of the members as to the suggestion to form a Benevolent Society, he had received but thirty-two replies, seventeen in the affirmative with promises in the aggregate of about £13, the remaining fifteen being in the negative.

The Committee then constituted itself a Board of Arbitration to consider the case of Senior and Co. v. French and Co., which had been referred to them for settlement by mutual agreement.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

MEETING held January 12. Mr. T. K. Grant in the chair.

Mr. P. R. Salmon, Editor "The Photographic News," read a paper entitled, "Woman, Her Face and Figure," illustrated with a selection of slides of high technical and artistic excellence.

The first section of paper dealt with the various types of female beauty, the second with a comparison between figures from certain well-known paintings and life models posed in the same attitudes, following which were life studies of Mr. Salmon's own composition. The comparison between the figure as painted and the figure from life explained the reason why artists required more than one model from which to build up the perfect whole, and also to show why photography of the nude must fail in rendering an ideal figure.

The Chairman said that Mr. Salmon had treated his subject throughout in a thoroughly masterly manner, and given the members ample food for discussion. In his opinion, the most successful pictures were those of Mr. Salmon's own composition.

Mr. Furley Lewis pointed out that the pictures copied were painted by Continental artists, and that the Continental type was of a more robust build.

Mr. Brown and Mr. H. W. Bennett were of opinion that Mr. Salmon's own compositions were the best, the imitations of the paintings proving nothing, except, perhaps, failure.

Mr. W. J. Kindon said such a comparison of figures must fail, painters building up their figures from various models, so that pictures from a single figure must suffer by comparison.

Mr. Hector Maclean said that each woman had only a modicum of beauty of figure, and was never perfect. He thought that lantern slides were the worst possible means of illustrating such a lecture; prints would have been far better.

Mr. Tespe said that the colouring of the background, etc., in a painting had much to do with the perfect rendering of the figure, emphasising certain points and accentuating them. These effects were entirely lost in a photographic reproduction, and gave a false rendering. Unless colour-sensitive plates, with a selective light filter, be used, photography cannot give true tone values.

Mr. Drage said Mr. Salmon's own compositions gave all the beauty of lines and curves, but they lacked the flesh texture; artists combined the two, and obtained a better rendering.

Mr. Salmon, in response to vote of thanks, expressed himself gratified with the reception of his paper.

ULSTER AMATEUR PHOTOGRAPHIC SOCIETY.

JANUARY 9. At the twentieth annual meeting held at the Museum, College Square, North Belfast, the gold medal presented by the Lord Mayor was awarded to Mr. D. W. Elliott. Mr. Alfred Werner, F.R.P.S., who judged the prints, placed Mr. B. J. Anderson second, Mr. L. B. Bagot third, and highly commended Mr. Hugh Cochrane, junior. The following officers were elected for 1905:—

President, D. Elliott, B.A., T.C.D.; committee, Miss W. Haslett, Miss E. Haslett, H. Struver, S. W. Allworthy, M.D., M.A., Hugh Hill, Wm. McLean, J. Campbell Carson, L. B. Bagot, A.M.Inst.C.E.; hon. treasurer, C. Mitford Martin; hon. librarian and hon. lanternist, Hugh Cochrane, junior; hon. secretaries, Thomas N. Murray and J. B. Anderson.

Mr. S. K. Kirker then gave an interesting lecture on "A Trip to the Canary Islands and Madeira," illustrated with about ninety slides taken from his own negatives.

SCOTTISH PHOTOGRAPHIC FEDERATION.

It was a happy thought of the originators of the S.P.F. that the annual general meeting should be held jointly with the opening of the

Scottish National Salon. Delegates were present from twenty-four societies, and a number of associates were also present. Mr. Henry Coates, president, occupied the chair. The annual report of the secretary (Mr. John B. MacLachlan) showed a steady growth on the part of the Federation from twenty-three at last annual meeting to thirty-two at the present, and incidentally mentioned that another two had already federated this year. The lectures, portfolio, slides, etc., circulated by the Federation had been largely taken advantage of; the lecturers and demonstrators had been kept very active. "The Blue Book," the year book of the Federation, and also the monthly journal, "The Secretary's Letter," had been heartily welcomed by the societies and associates. The treasurer (Mr. Archibald Campbell) reported a balance of £29, as compared with £17 at last annual meeting. Both reports were unanimously adopted. Office-bearers for the season were elected as follows:—President, G. D. Macdougald, Dundee and East of Scotland; vice-presidents, J. W. Eadie, Monklands, and D. Horn, Glasgow Southern; secretary, John B. MacLachlan, Blairgowrie; treasurer, Archibald Campbell, Stewart Terrace, Barnhill, Broughty Ferry; auditors, J. Murdoch, C.A., and R. C. Thomson. Council (after a vote)—Henry Coates, Perthshire Society of Natural Science; W. A. Frame, Glasgow Southern; R. Milne, Paisley Philosophical Institution; D. Dunlop, Motherwell; S. Stewart, Kirkcaldy; V. C. Baird, Dundee and East of Scotland; W. D. Boyd, Greenock; E. D. Wilmot, Edinburgh University; James Johnstone, Stirling.

It was decided that the next annual meeting be held in Dundee, and that the third Scottish National Salon be held at the same time and place. Power was given the Council to alter the date from February if found necessary. The annual excursion was also discussed and remitted to the Council. Mr. S. Stewart was unanimously re-appointed portfolio secretary. The secretary was instructed to exercise all diligence in the publication of "The Blue Book" for 1905.

PHOTO ART CLUB, ABERDEEN.

UNDER the auspices of the Photo Art Club a lecture was delivered by Mr. G. L. Smith, entitled "Recent Advances in Photography," last week. The lecturer referred to the rapid progress which photography had made during recent years. In speaking of portrait photography, he said the improvement had not been so marked. Some of the best work of the Daguerreotype and wet collodion days, would compare favourably with the average portrait of our own day. Landscape photography had, he said, undergone a species of evolution. First, we had the picture which aimed at microscope detail in every part, then came what was termed the "fuzzygraph," which name described it. Modern landscape had struck the happy medium, suppressing detail only in some minor parts, that the principal object and aim of the picture might at once be seen and understood. In this connection Mr. Smith spoke of the perfection of the modern camera for landscape work, compared with the crude, clumsy, and inferior article of earlier days. He explained the use photography was being put to in surveying, and of the utility of photographs taken from a height, by means of kites and balloons for topographical survey purposes, and in times of war. Perhaps the most interesting part of Mr. Smith's lecture was his description of the making of a star-chart, and of the great use photography was being put to in astronomical research. He said that in observatories all over the world a great combined scheme for the photographic mapping of the heavens had been in progress for years, and that tens of thousands of photographs would be included in the completed result. He would pass, he said, from recent advances of photography in the infinitely great, and speak of its explorations in the infinitely little. Here the lecturer gave a brief and interesting account of the methods and aims of photo-micrography.

In concluding, reference was made to colour photography, and a description given of the two processes which had produced anything

like successful results, namely the "three colour" and "Lippman's" process. The lecture, which was one of the most interesting of the session, was listened to with great attention throughout. The subject of the fortnightly competition was a "flashlight" print. The chairman read the criticisms by the judges, Mr. Findlay and Mr. David, and by the repeated applause their careful adjudication seemed to give great satisfaction. The successful competitors were, in order of merit: Mr. Jarvis Mr. Stephen, and Miss Dalgety. Mr. Stephen, the lanternist, with his assistant, Mr. Bow, showed a number of exceptionally good slides, by members of the club.

CROYDON CAMERA CLUB.

JANUARY 11.—"The Absorption of Light," by Mr. C. E. Kenneth Mees, formed one of the most instructive and interesting papers read before the members this session. Beyond a few simple algebraic equations, mathematics, for once, were left severely alone, and to the majority the lecture lost nothing in consequence. Mr. Mees had brought his modified form of the Hüfner spectrophotometer, and his lucid description of this complicated instrument was little short of masterly. Employed in conjunction with a powerful limelight, the spectrum was thrown on the screen, and a number of striking experiments were carried out. Although the lecturer did not say so, so far as recollection goes, this was the first time an absorption photometer had been used for screen projection, and no general audience had hitherto seen the actual "reading" of a plate density. After an incidental reference to three exceedingly important optical subjects—viz., the theory of lenses, the measurement of light, or photometry, and the absorption of light—all scantily treated of in English text books, though adequately in German treatises—Mr. Mees pointed out that there were two kinds of instruments which were termed photometers; one, an instrument designed for measuring the relative intensity of two light sources, the other designed for measuring the amount of light absorbed by any medium. The latter, he said, might more fittingly be termed an absorptionmeter.

Mr. Mees next dealt with Messrs. Hurter and Driffeld's work, and by means of simple blackboard illustrations showed that the "density" of a plate equals \log of opacity; the density, in all cases, being the weight or mass of silver present per unit area. The question of colour was then entered into, and shown to be correlated with wave length, different portions of the spectrum being identified by their respective wave lengths; for his own photographic work he generally employed the bright green portion. The varied absorbing powers of the following substances were, among others, next shown on the screen. Bichromate of potash solution transmitted red, yellow, and green; photographic ruby glass transmitted red, and a perceptible amount of blue; a "Geka" filter No. 3 passed red only: phenolphthaleine, on the addition of an alkali the solution turned to the familiar pink, and a gap in the green of the spectrum shot into position; by neutralising with acid the green was restored, affording a pretty experiment. Mr. Mees then passed on to a consideration of gas absorptions, and clearly explained Fraunhofer's lines, and the principles underlying them, concluding with a reference to a recent controversy which had taken place amongst the members as to whether the position of a light filter (other conditions remaining the same) affected exposure. He was definitely of opinion it did not.

In the discussion which followed, Mr. E. A. Salt inquired if Mr. Mees had made any experiments as to the absorberency of the ultra-violet by modern optical glass. Mr. Mees replied, this no doubt was appreciable, he had made no direct experiments, but under certain conditions thought 50 per cent. might be absorbed.

Mr. A. J. Newton mentioned that when dealing with wet plates, which were chiefly sensitive to the ultra-violet, the stopping powers of some of the modern lenses to this region of the spectrum was a very serious factor. With one of the most recent anastigmat process lenses sent to him to test, the requisite exposure, aperture for aper-

ture, was found to be thirty minutes, as against ten minutes when an ordinary type of R.R. was employed. He remembered in one case a whole battery of expensive anastigmats were laid on the shelf, cheap French R.R.s taking their place for this very reason. With the modern dry plate, owing to its vastly increased sensitiveness to other portions of the spectrum, the difference might not be appreciable.

Mr. A. E. Isaac differed from Mr. Mees's conclusion in respect of the position of a light filter, he believed the intensity of the light influenced the absorption curve. When in the diaphragm slot, or adjacent to the lens, the light intensity would be greater than if the filter were in the focal plane, and in the first place more blue would be forced through.

Mr. J. M. Sellors said he found that dyed-film filters, placed close to the focal plane, gave better definition than in alternative positions.

Mr. Mees said this merely proved the filter was of inferior quality: for the finest definition its glass supports must be optically worked, then its position was unimportant.

Mr. Newton did not agree. Given a perfectly true surface it was a matter of extreme difficulty to coat it with an absolutely even film of stained gelatine. Should this be uneven, definition would be impaired, but the defect would show least, if the filter were in position immediately in front of the plate.

SOUTHAMPTON CAMERA CLUB.

JANUARY 16.—Mr. C. H. Hewitt lectured on "Gum Printing." He dealt very exhaustively with the theory and material of the print production, setting out from the inception thereof by Mr. Poncey and pointing out by the way that it was claimed on behalf of the inventor that sufficient credit had not been given him for his work. After detailing the history of the process, the values of every class of paper in general use by prominent workers, the exact relation of the apparatus—shown by the lecturer—to the perfecting of the print, and the combination of pigment and medium with the necessary sensitising process; the lecturer proceeded to actual demonstration of the art. The manipulation of the whole process was accomplished, the development of the single coat print being followed by that of the built-up production. A very hearty vote of thanks was accorded him at the instance of Mr. G. T. Vivian, who presided.

A MEETING of the newly-formed Photographic Society of Cromer was held at Mr. Jessop's, High Street, on January 12, when Mr. D. Dawson was in the chair, and those present included Messrs. Barritt, Jessop, Samuels, Kirby, Battson, Munday, Goodyear, etc. It was decided that the Society should meet on the first and third Mondays in each month, while a proposition that the rules suggested by the committee should be adopted was also agreed to. The first meeting of the Society will be held on the first Monday in February. An interesting hour was devoted to the inspection of a number of photographs shown by the members.

A WELL-ATTENDED meeting was held in the Central Hall of the Church Institute last week to inaugurate the formation of the Kettering Camera Club. Mr. J. A. Gotch, J.P., F.S.A., occupied the chair, and in opening the proceedings said that he looked upon the art of photography as more adapted for scientific than artistic purposes, the chief function being to obtain records. Proceeding to point out the benefit of the League, Mr. Gotch said the advantages to be derived were many and various, the first being to associate its members for mutual assistance in photographic matters and social intercourse as a means of instruction, demonstrations, lectures, competitions and organised photographic excursions, and he was firmly of opinion that a camera club was possible, providing it was supported loyally by all interested. The rules were submitted by the secretary, Mr. E. Claypole, who said that Lord Lilford had kindly promised to become a patron of the club. Views were afterwards shown.

Commercial & Legal Intelligence

MIDLAND Counties Photo Company, Ltd.—A debenture for £150, dated December 10, 1904, charged on the company's general assets, has been registered. Holder -T. Sadler, 11, Nelson Street, Sunderland.

UNI-BIFOCAL COMPANY, LTD.—This company has been registered with a capital of £3,000 in £1 shares. Object: To carry on the business of opticians, wholesale, and retail manufacturers of photographic and projection apparatus, mathematical and scientific instruments and appliances, etc. No initial public issue. The signatories are to appoint the first directors. Qualification (except nominees of vendor or of any subsidiary or allied company), £100. Remuneration fixed by the company.

CLAIM for a Bioscope.—At the Greenwich County Court on Friday last, Walter Marchant, trading at Brattenham Road, Walthamstow; as Charles Ross, sued Matthew Brown, of Knowles Hill Crescent, Lewisham, for the recovery of a bioscope, films, etc., and for damage done to films. Defendant hired the machine and films to tour with, but paid nothing, and refused to return it. He had, however, sent back some films, which were now useless. His Honour gave judgment for plaintiff for £49 10s., to be reduced to £21 if the bioscope and films were returned.

An extraordinary general meeting of the Lumière North American Co., Ltd., was held on Monday at the registered office of the Company, 4, Bloomsbury Street, W.C., for the purpose of confirming a resolution passed at the extraordinary general meeting of the company on December 14 last, respecting the amendment of the articles of association regulating the directors' remuneration, directors' out-of-pocket expenses in attending meetings, and other matters. The notice convening the meeting having been read, the resolution of the general meeting was confirmed.

DETAINED Photographs.—At Barry on Tuesday Charles Pennell sued W. F. Jones, of King's Road, Cardiff, trading as the Provincial Portrait Company, for 25s., or the return of photographs sent him for framing. Mr. F. P. Jones-Lloyd appeared for the plaintiff. Judge Owen: Here is a letter from the defendant:—"We admit non-deliverance of photo frame owing to legal dispute." (Laughter.) Plaintiff said he had sent the defendant two photographs to be framed, and had not received them back. Defendant did not appear, and judgment was eventually given for the amount claimed, with costs, the amount to be reduced to 1s. if the photographs were returned.

A PICTURE Postcard Dispute.—At the City of London Court on January 9, in the case of Gale and Polden, Ltd., v. Clark and Misson, the plaintiffs; 2, Amen Corner, sued the defendants stationers, Gravesend, for £15 18s., the price of picture postcards supplied. "Mr. F. W. Hill, solicitor, represented the plaintiffs, and Mr. Percival Hughes was counsel for the defendants. Mr. Tomlin, traveller in the employment of the plaintiffs, said he obtained an order from the defendants for 1,000 packets of picture postcards at 3½d. a packet. There had been some previous negotiations with the defendant, Mr. Misson, who was told that it he cared to give an order for 1,000 postcards, he would have certain rights over other customers. He (the witness) was told to call later on, and did so, then receiving the order from an assistant. Nothing was said at the time about the cards being supplied upon sale or return. Mr. T. H. Misson said it was mentioned that, if he gave an order for 1,000, the cards would be on sale or return. On these terms the order was eventually given. They returned the cards left, and paid into Court the amount due for the cards sold. The Registrar was of opinion that the defendants had given an order for cards upon sale or return. Judgment was returned in their favour beyond the money paid into Court.

At Clerkenwell County Court, last week, Joseph Chanot, violin maker, of Wardour Street, was sued by the proprietor of "The Gentleman's Journal" for £4 4s. This was for taking photographs and making blocks for defendant's shop window, which appeared with an article in "The Gentleman's Journal." Defendant said the photograph had been touched up, and in this process the fiddles had lost their character. They looked like guitars. (Laughter.) Judge Edge (examining the photograph): I don't think anyone would suppose the instruments to be guitars, but the one at the end seems to have grown into a 'cello or double bass. (Laughter.) Plaintiff's representative: We did not make an art photograph. Judge Edge: Of course not. But he says you made the fiddles too fat. (Laughter.) A verdict was given in plaintiff's favour.

EMBEZZLEMENT.—Frederick Headley, of the Waverley Hotel, a traveller, was charged at the Plymouth Police-court on remand with embezzling the sum of £2 1s., the moneys of his master, Maurice Isidor Horwich, of the Modern Art Company, on December 24. Mr. S. Carlile Davis appeared for the prosecution, and intimated that he would confine his attention to one item of 7s. 6d., which accused obtained from Henry Sargaret, of the Caprera Hotel. Prosecutor did not press the charge, and asked the Bench to deal leniently with defendant. Prosecutor said the firm were photograph enlargers and picture frame manufacturers. Accused had no authority to deliver goods or collect money. He had not accounted for the 7s. 6d., which he had received from Mr. Sargaret. Prosecutor, through Mr. Davis, said the firm knew that defendant had a delicate wife, and as he had always been a good servant, they hoped the most lenient sentence would be passed. It was probable, if accused was not convicted, that he would be taken back into the firm's employ. Prisoner pleaded guilty, and was bound over in the sum of £5 to come up for judgment if called upon within six months.

SENIOR AND Co. v. French and Co.—This case was submitted to the arbitration of the Committee of the Professional Photographers' Association on Friday, 13th inst., by mutual agreement of the parties. Messrs. Senior and Co., of Bristol, are collotypers and printers of postcards, Messrs. French and Co. are photographers at Wallington, Surrey. About October last year, Messrs. French sent some negatives to Messrs. Senior from which to print postcards, and the results were so satisfactory that ten more negatives were sent, and subsequently another. The postcards were delivered in due course, and were immediately returned as not being equal to those previously made. One objection to them being partly on account of their being printed in an ink of different colour; a further objection to one particular set being that the title was wrongly spelled, and in another set that the spire of a church had been altered in the blocking out. A statement of the facts of the case which had been adopted by both parties was read, and a number of specimens were submitted to the inspection of the Committee, their unanimous decision being (1) that the second order was not equal to the first in quality; (2) that Messrs. French were not justified in returning the whole batch; (3) that the justice of the case would be met by Messrs. French retaining possession of the cards and paying the amount of the account, less 25 per cent. It must be explained that Messrs. Senior had not included in their formal statement of account the two subjects to which particular objection had been made.

WE understand on excellent authority that the Linked Ring have obtained a lease of the gallery of the Royal Society of Painters in Water Colours at 51, Pall Mall East for their future exhibitions. This gallery, it will be remembered, was for many years the home of the exhibitions of the old Photographic Society of Great Britain, now the R.P.S.

News and Notes.

THE Melita Studio has been opened at 211, Clapham Road, London, S.W., as a branch of the Regent Street studio of Mr. John Mallia, late of Malta.

A LECTURE on "Rising to the Occasion," was delivered before the Devonport Camera Club on January 10 by Mr. W. D. Welford, by whom also a demonstration of the carbon process was given.

WHEN leaving Sydney for America, Paderewski is said to have ordered 10,000 large panel photographs of himself for sale during his American tour, the largest order of the kind ever known in Sydney.

PHYSIOTYPE is a printing process now being placed on the market by Messrs. Barclay and Sons, 95, Farringdon Street, London, E.C. It is intended for the copying of ferns, lace, etc., and development is stated to be done by means of a powder.

A VERY sad loss has been sustained by Mr. W. Mottershaw, of the Sheffield Photo Company, and his family in the death of his second son, Mr. J. A. Mottershaw, who was only twenty-one years of age, and who passed away after suffering very severely during the last couple of months.

THE Cardiff Windsor Amateur Photographic Exhibition, the entries for which close on Sunday next (we thought we had heard of a Welsh revival!), includes a number of open classes. One is for photographic postcards, and in others prizes are offered by several of the large firms in the trade.

THE 1905 Kodak Competition.—The full text of the competition announced last week has now been published by Kodak, Ltd., and is obtainable from 57-61, Clerkenwell Road, London, E.C. There will be three open classes, and three for novices, i.e., for those who have never been awarded a prize in a photographic competition. Prizes vary from £30 to £1, and are distributed so that the total £400 will be divided amongst eighty of the competitors. Among the regulations of the competition are the following:—All pictures sent in to the competition must be from negatives made with a Kodak on Kodak N.C. Film, and must be printed or enlarged on one of the following printing papers: Solio, Self-toning Solio, Kodak C.C. Paper, Self-toning Aristo, Kodak Platinum Paper, Dekko, or one of the brands of Kodak Bromide papers. Prints only are to be sent in; not negatives. Prints must be mounted but not framed. The title of the picture, with the name and address of the competitor, class entered for, and the name of the printing paper used for the pictures, must be legibly written on the back of the mount. The film must have been exposed by the competitor, but it is not necessary that competitors finish their own pictures. No competitor will be awarded more than one prize in a class. Not more than one prize will be awarded to prints from one negative. Contact prints from the same negative cannot be entered in two classes. All competing prints are to become the property of the Eastman Kodak Company, except the non-winning enlargements (Class "C"), which will be returned at owner's risk and expense upon request. The negatives from which the prize-winning prints and enlargements are made to become the property of the Eastman Kodak Company. Entries for this competition will be received up to the last day of September, 1905, and should be addressed "Kodak Competition Department," Kodak, Ltd., 57-61, Clerkenwell Road, London, E. Continental exhibitors can arrange to have their prints forwarded direct and free of charge from any of our foreign branches. Detailed information on this point may be had by addressing Kodak, Limited, at the above address.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

POSTCARDS AND COPYRIGHT IN GERMANY.

To the Editors.

Gentlemen,—Referring to article "Week in History," appearing on page 4 of January 6 issue, and paragraph headed "Legalised Piracy," a case was fought, some little time back in the German Courts, under the auspices of the Photographic Copyright Union, on behalf of a member whose copyright photographs had been reproduced on postcards in Germany, with the result that the case was decided against them in the first Court, and although an appeal to the Higher Court was made against this decision, the case was lost on the grounds that a postcard was a "manufactured article."—Yours faithfully,

HENRY GOWER, Secretary.
Photographic Copyright Union.

London, January 9, 1905.

THE WEEK IN HISTORY.

To the Editors.

Gentlemen,—I am very surprised that among the anniversaries recorded by "Historicus," in the "B. J." for the 13th inst., no mention is made of the first publication of the Daguerreotype process which falls in the present week. Such a fundamental occasion as this ought surely not to have been overlooked by a writer, and it is inexcusable in one who claims even a superficial acquaintance with the past history of photography. I would ask "Historicus" to turn to the article on "Photogenic Drawings," in the "Penny Encyclopædia," published by Charles Knight in 1840, in which appears the following:—"Such apparatus is named after its inventor, the Daguerreotype, and the process itself, either photogeny, photography, or heliography (sun drawing). The invention was first formally communicated to the public by M. Arago, who read an account of the Daguerreotype before the Academy of Sciences, January 17, 1839. From that moment Daguerre (who was afterwards rewarded a pension by the Government) and his invention engrossed general attention." The notes by "Historicus" promise to interest a number who, like myself, do not limit their interest to the present day; but a gross omission, such as the one I point out, is calculated to irritate the reader.—Yours truly,

F. J. T.

January 14, 1905.

[Our correspondent is asked to moderate his anger until he has read the paragraph in "The Week in History" on another page, in which reply is made to him.—Eds. B. J. P.]

FOX TALBOT AND DEVELOPMENT.

To the Editors.

Gentlemen,—Your note, headed "Anniversaries," in last week's Journal, states that Fox Talbot "borrowed the idea of development from Daguerre, and possibly also, as there is evidence to show, from the Rev. J. B. Reade." In the case of Daguerre was not the development of the latent image an accidental "discovery"? The silver plate was not purposely exposed to the fumes of mercury, and in Talbot's case the use of a solution of nut-galls was also accidental if the published statement to that effect is correct.

I shall feel obliged if you will state what the evidence of Talbot's "borrowing" is. It is true that in 1837 Reade used gallic acid to develop negatives, but in his own words the discovery of "the master fact that the latent image which had been developed was the basis of photographic manipulation," was due to Talbot, and to him only.

In 1892 I was at some trouble to obtain the facts of this case, and if those facts are not as I have stated I shall be glad to receive correction.—Yours truly,

A. BROTHERS.

Handforth, Cheshire.

[We have often seen it stated that Daguerre's discovery of development was accidental, but on what grounds the statement is made we do not know. Our comment on the idea being borrowed by Talbot from Daguerre is based on the comments made by Talbot immediately after the publication of Daguerreotype. Speaking at the British Association at Birmingham, on August 24—Daguerre's process had been published on August 20—Talbot is reported, in "The Athenæum" (of August 31) to have said that "He had considered the possibility of applying a silver plate thus combined with iodine to the purpose of photogenic drawing, but he had laid it aside as insufficient for that purpose, on account of its sensitiveness appearing to be much inferior to that of paper spread with chloride of silver, and therefore in an equal time it takes a feebleness impression. Now, however, M. Daguerre has disclosed the remarkable fact that this feeble impression can be increased, brought out and strengthened, at a subsequent time, by exposing the plate to the vapour of mercury."

Again, in the action of Talbot v. Laroche, which took place in 1854, Talbot admitted in Court that "he first became acquainted with Mr. Reade's experiments when he published them in 1847, but he had heard a vague account in 1840 while speaking to a scientific friend. He thought that friend was Mr. Ross, an optician. What occurred was this: He was talking with his friend concerning photographic drawings and the means of making them more rapidly. Mr. Ross said that Mr. Reade had recommended infusion of galls." Report of the case in "The Photographic Journal," December 21, 1854. As Mr. Brothers says, Reade, on the other hand (according to the same report), "had on one occasion been called away, and at that time a piece of paper had only been a short time under the action of light, but when he came back he found an image upon it. This, however, did not give him the idea of a latent image, and he had not the slightest notion of it until he had learned it from Mr. Talbot. The Chief Justice: He was accidentally developing without knowing it by using gallic acid."

It may be assumed, we think, from these pieces of evidence that the idea of development came to Talbot from Daguerre, and that a stepping-stone to the development process, which he published in 1841, and in which he used gallic acid, was the account he had heard of Reade's use of gallic acid.—Eds. B. J. P.]

ABOLITION OF THE R.P.S. MEDAL.

To the Editors.

Gentlemen,—The announcement that the Council of the Royal Photographic Society have decided that no medal shall be offered in the Pictorial Section of the Exhibition to be held in 1905 must come somewhat as a shock to the ardent photographers all over the country, who, be they amateur or professional, have long regarded this coveted award as the *ultima Thule* of their endeavours in the world of photography. And is not this as it should be? Surely the five or six medals (intrinsically worth very little, but in all other respects worth a great deal) annually awarded in the Pictorial Section by the premier society should set the hallmark of excellence on the work of the recipients. Of course, the inevitable quibbler is always ready to hand every year to belittle the work of the judges and quarrel with the awards, but do we not find this individual in every phase of competitive endeavour where the awards to the many are regulated by the decision of one or two? Does he not attack the umpire at the cricket match and the referee at football, even though in many cases he himself has had a hand in choosing the arbiter? In the present case, let it not be overlooked that the judges at the R.P.S. Exhibition are chosen by the members themselves, and the

membership is composed of nearly one thousand interested photographers. Surely this is sufficient justification of the choice of judges, while a little investigation and thought will show that rather than sneer at the judges' awards a high tribute should be paid them for their perspicacity in distributing the medals to the right exhibitors, inasmuch as it is to be observed that in nearly every case for many years the R.P.S. medals have been awarded to workers who have proved themselves worthy of this distinction by the continued excellence of their work, displayed—sometimes for a period extending over many years—not only at provincial exhibitions, but also at the R.P.S. shows. I nevertheless agree with those in favour of the abolition of the medal, in that it has been considerably cheapened by the same individual winning the award on several occasions, and, although this may point to the continued excellence of that individual's work—a fact doubtless to be proud of—it cannot be denied that much more dignity and value would accrue to the award if the winning of it once were to be considered the final honour capable of being achieved by that particular photographer.

In any case I think the withdrawal of the R.P.S. medal will prove a grave mistake. It has been tried once before, some years ago, and it neither increased the number of pictures submitted nor raised the standard of the work one iota, and it is significant that it was not long before the Council thought fit to revive the custom, as they will undoubtedly do in the future.—Yours truly,

Gosport, January 14, 1905.

J. HALLIDAY WEST.

[Mr. West's letter opens a topic that is likely to be greatly discussed in photographic circles before the advent of the next R.P.S. Exhibition. We shall, of course, be pleased to publish the opinions of our readers interested in the medal question.—Eds. B.J.P.]

A NEW PRINTING PROCESS.

To the Editors.

Gentlemen,—I have been rather taken aback by the interest caused by the birth of my little bantling, as evidenced by the mass of correspondence I have received from all parts of the United Kingdom, on the subject of my new printing process. I find that my method of coating would be powerless to cope with the requirements, and I have had to order larger machines.

Meanwhile, I beg to ask my many correspondents, whilst thanking them for their kind and appreciative letters, to bear with me until I can reply to their many interesting questions, and get enough paper coated.—Yours sincerely,

HERBERT S. STARNES.

AMMONIA IN EMULSIONS: GAEDICKE'S PATENT.

To the Editors.

Gentlemen,—In reference to this patent, I should be glad if any of your emulsion-making readers would say whether in their opinion any novelty can be claimed for the method described, for personally I know that this method has been used in several works for some years.

It is a very common practice to ripen slow emulsions after washing by digestion with ammonia, soda, and other alkalies, and although some firms may send such alkaline emulsions direct to the coating machine, it has been my practice for many years to neutralise the free alkali before coating. This was done, not for the purpose of obtaining the many advantages mentioned in Gaedicke's patent, but simply because it is impossible to introduce chrome alum into an alkaline emulsion without producing fatal defects in the plates. Other emulsion makers have adopted the same method of working, and I do not know who first used this process.

This patent is of the same nature, so far as originality is concerned, as that which was taken out for the matting of emulsions by the addition of starch.

With regard to the ammonia remaining in the film, if the emulsion is not washed or neutralised after digestion, I should like to point out that I have coated such emulsions very often, but never found that the dried film had an alkaline reaction; on the contrary, the film was always acid to litmus paper. The explanation of this is probably that acid products are formed during the drying which more than neutralises the trace of ammonia remaining in the film, so that the ammonia exists in combination with an organic acid.—

Yours faithfully,
Mobberley, Cheshire.

C. F. S. ROTHWELL, F.C.S.

Answers to Correspondents.

*** All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.

*** Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

*** Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

*** For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

G. H. Stainer, 2, North Parade, Taunton. Three Photographs of the Ven. W. H. Askwith.

A. Webster, Barnack, Stamford. Photograph of Uffington House Fire. Three Photographs of Ruins of the same.

J. Perkoff, 186, Commercial Road, London, E. Photograph of Louise Michel.

H. De Witt, "Balmain," Keymer, Sussex. Photograph of a Little Boy Feeding a Pig from a Bottle.

Barker's Photo Works, Albert Hall, Windermere. Photograph of Major and Mrs. Noble at Calgarth Hall, Windermere. Photograph of Maj.-Gen. Baden-Powell and Major Noble at same place.

E. M. Dickins, 7, Cambridge Avenue, Lincoln. Two Photographs of H. B. Dickins

PULLIGNY LENSES.—We are informed by a correspondent that Pulligny lenses can be obtained from M. H. Calmels, 150, Boulevard du Montparnasse, Paris, XIV.

REES AND CO.—Address, Harp Alley, Farringdon Street, London, E.C. It is against our rule to reply to inquiries by post.

D. (Gloucester).—The only registrations published are those made through our publishers.

P. L. AND CO.—We do not know the firm. Your best course is to address an inquiry to the local police. It is best in such transactions to make use of the deposit system, by which advertisers in our columns are able to protect themselves.

BOOKS ON STUDIO WORK.—Would you kindly tell me if there are any books published on posing, both groups and single figures, and also on lighting sitters in the studio. I shall be pleased to see an answer in your paper if you can manage it.—OPERATOR.

If you will turn to the reply to "C. C.," on page 39 of last week's issue of the BRITISH JOURNAL OF PHOTOGRAPHY, you will see that your question is answered.

POSITIVE FILMS.—I wish to make transparencies on ordinary "films" for stereo pictures, but I know of no films which are coated with "lantern" emulsion. How should I proceed to make contact transparencies with any ordinary "film" as to developer and exposure, etc.?—SUNDODGH.

Probably any firm making stiff celluloid films would coat some with lantern emulsion, but they can be obtained from Fitch and Co., Seldon House, Fulwood's Rents, High Holborn, W.C.

ADUROL.—In replying to a correspondent in last Friday's journal, you mention adurol as the developer which you prefer for

bromide paper. I should be much obliged if you would give what you have found a suitable formula.—C. E. F. N.

The developer we always use is:—Sodium sulphite, 4 oz.; potassium carbonate, 3 oz.; distilled water, 10 oz. Dissolve the carbonate first, then add the sulphite and stir till dissolved, and add adurol, $\frac{1}{2}$ oz. For use, dilute one part with seven parts of water, and add $\frac{1}{4}$ grain of potassium bromide to the ounce, though this last is not really necessary.

EQUIVALENT WEIGHTS.—Red tones on "C.C. matt paper," p. 29, B.J.P. for January 13. Will you kindly give me the formula in grains and ounces?—T. JONES.

It is very easy always to convert the metric measures into the English ones if the grammes are reckoned as grains and the cubic centimetres as minims. Still, the formula would read:—

Prepared chalk $\frac{1}{2}$ oz.

Water 20 oz.

Chloride of gold (1 per cent. solution)..... 96 minims.

OZOTYPE.—Can you tell me whether the ozotype process is difficult, and what are its essential features, and can the material be obtained commercially?—W. B.

The ozotype process is not a difficult one, and may be briefly described as follows: A well-sized paper is sensitised with bichromate of potash and a manganese salt, dried and exposed under a negative, when, of course, a visible image is obtained; this is then washed in water and dried, and is then soaked in a special bath with a piece of "pigment plaster" or special carbon tissue, and then squeezed together. The print is then developed in the ordinary way, and the image is found to be transferred to the unexposed carbon tissue. The materials can be obtained from the Ozotype Company, Kenash Town, N.W.

INSTRUCTION IN COLLOTYPE.—Would you kindly give me information on the following subjects?—(1) Are there any evening classes in London where colotype printing is taught? If so, could you give me any particulars regarding them? (2) What is the average wage of an improver to colotype printing? I would like to know the wage for one who has had five and a half years' experience in colotype printing.—TYRO (Leeds).

(1) The London County Council School of Photo-Engraving and Lithography, Bolt Court, Fleet Street, E.C., and the Photographic School, Regent Street Polytechnic, London, W. Write to the Principals for prospectuses and fees. (2) We believe an average wage for an improver-printer (i.e., a machine minder) is from 30s. to £2 a week.

NOTICE.

A number of "Answers to Correspondents" are crowded out of this issue, and will appear next week.

*** NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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No. 2334. VOL. LII.

FRIDAY, JANUARY 27, 1905.

PRICE TWOPENCE.

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EX CATHEDRA.

Bold Advertisement. While we hold strongly the view that the best advertisement a photographer can display is a high standard of work, we would not, therefore, discourage the practice of organised publicity. Photographers' advertisements, whether in the press or on the hoardings, are too often wanting in the qualities which make them read and remembered. A vein of humour is the making of many an advertisement, and a hint may be taken from a photographer in an American city who displays from his establishment the legend, "Time is flying. You will never be so good looking again. Come in and be taken now."

* * *

In Memoriam. The phlegmatic temperament of the Anglo-Saxon does not make for hero-worship, and it will probably be many a long day before a photographic society in this country follows the example of the Deutsche Photographen-Verein, which has just fixed a memorial tablet on the house in Nordhausen, where formerly resided Ludwig Belitski, an honorary member of the association, whose death took place about two years ago. Indeed, if we are not mistaken, the only two memorials to British photographers are the Traill-Taylor Lectureship in honour of a former Editor of this journal, and the extension of the chancel of Lacock Church, in Wiltshire, which was undertaken some time ago as a memorial to Fox Talbot.

* * *

Action of Light on Uranium Solutions. A note recently published in the "Journal" of the Berlin Chemical Society may prove to have some application in the employment of uranium salts as the sensitive materials in photographic printing processes.

According to A. Bach, uranium acetate in solution is not reduced on exposure to sunlight unless carbon dioxide is present. In the absence of carbon dioxide, or if the gas is led through the solution in the dark, the reduction to uranous and uranic hydroxides was found not to take place, in opposition to the experience of Euler, who had noted the reduction both in the presence and absence of carbon dioxide. Herr Bach takes the view that impurities in one or other of the uranium salts may account for these contradictory results.

* * *

Photography and Public Characters.

We read that, before leaving Sydney, Paderewski ordered 10,000 large panel-size portraits of himself for sale and distribution during his American tour. This is a large order to give for one's own portrait, but doubtless it will prove remunerative from an advertising point of view. Some two or three decades ago, more than one photographic firm made reputations by the publication of the portraits of actresses as well as reaped a good harvest by the sale of the pictures. This class of business of late years, so far as the sale of the pictures is concerned, has been considerably discounted by the portraits that appear in the illustrated papers which are printed from high-class process blocks. It has justly been said that in years gone by some photographers' reputations were largely made by the theatrical profession. It now would almost appear that conditions are reversed, and that the reputations of not a few artistes, particularly of the "variety" stage, are largely due to photography, aided by retouching. The circulation of the portraits in the "illustrateds," and the exhibition of them in the shop windows, serving as an excellent advertisement. If one with the reputation of Paderewski finds it worth his while to order such a large number of his portraits as above stated, supposing the report to be correct, by way of advertising himself, one may fairly assume that the large circulation of minor celebrities' portraits would be highly beneficial to them.

* * *

Bank Note Forgeries.

A case of the forgery of Bank of England notes is now engaging the attention of the police authorities. In this instance it appears that photography has played no part. In most previous cases it has, or it has been alleged that it has. At first sight it would appear to be a very simple matter by photo-mechanical methods to produce spurious bank notes that would defy detection. But the thing is not so easy as it seems, as evidenced by the comparatively few attempts there have been to forge the notes. The main things the Bank authorities rely upon is the simplicity of the design and the water-mark of the paper. In some countries the engraving is of a very intricate character, and not easy of imitation. In Russia, colour-printing is now

adopted. But one would think that photography is now quite equal to these cases, and the spuriousness of the notes, even if the results were somewhat crude, and easily detected by experts, would not be so readily noticed by the general public, on whom they were foisted as plainer ones, particularly if they had not genuine notes at hand with which to compare them. It is difficult to carry in the mind the intricacies of a fine design, or the exact tint of any particular colour. With the simplicity of the design, and the water-mark, of the Bank of England note a spurious one is more easily detected by the general public than would be one with a more intricate design, particularly if colour were added to it. This, we believe, is why the Bank authorities have so long adhered to the present simple style of note.

* * *

Photographers' Benefit Association. During the past few months there has been considerable correspondence in our columns as to whether it is desirable to form a benevolent association amongst photographers: and, if so, how is it to be done, and who are the proper ones to take it up? Of the desirability of such an institution there is no question, provided it was founded on a firm basis, and it received the active and pecuniary support of those it was intended to benefit in time of need. Various suggestions have been made as to who are the proper ones to take the matter in hand, and amongst others the Professional Photographers' Association was named. This Association which numbers some five or six hundred members, is a very representative body, and the Committee took the matter into serious consideration. At their last meeting, the result of the plebiscite of the members as to the suggestion to form a benevolent society, the Assistant Secretary reported that he had received but thirty-two replies, seventeen in the affirmative, with promises in the aggregate of about £13, the remaining fifteen being in the negative (see page 54 of our last issue). The response may reasonably be taken as indicative of the attitude of the profession towards the formation of a photographers' benevolent society. It is quite possible that the fifteen members who replied in the negative, and possibly some who did not reply at all, had in mind the old Benevolent Association and the scant or non-support it received from those for whose benefit, in time of misfortune, it was founded. It is notorious that, although the subscription was quite a trifle a year, but very few employees subscribed to the fund, though not a few applied for assistance when they were overtaken by misfortune.

* * *

A Neglected Branch of Business.

At the last meeting of the Professional Photographers' Association one of the members called attention to the large business that was being done by stationers and the like in picture postcards, and suggested that photographers should keep this trade in their own hands as much as possible. This is a thing we have often advocated since the picture postcard became firmly established in this country. Many of the picture postcards published in provincial towns—particularly in small country towns—have been copied from local photographers' views, which they have issued of a larger size, and sold at a shilling and upwards each. Not unnaturally, the photographer, when he finds his work thus reproduced, feels aggrieved, but, after all, but a limited amount of sympathy can be extended to him, inasmuch as he might have prevented piracy, or have recovered substantial damages for it, had he taken the trouble to register the copyright in his work, which he could have done for a trifling sum. On the

other hand, one can have but little regard for stationers and others who annex what is—morally, at least—another man's property. It is not all photographers, however, who have ignored the picture postcard business, for we know that many have done a very remunerative trade with them by supplying them wholesale to the stationers, as well as by selling them retail themselves. A photographer is in a better position to supply picture cards at a low rate than are others, inasmuch as he produces the negatives, and can print them as bromides at a quick rate when he or his assistants have nothing else to do; or, failing that, he can send the negatives to a trade collotype printer. As a rule, however, unless very large numbers are required, he will find the bromide process the more economical, while the results will probably suit the public taste the best.

* * *

Impure Shellac.

The increased cost of genuine shellac, as we pointed out some time ago, has led to great adulterations being practised; in fact, to such an extent is sophistication done in some cases that the shellac becomes totally unsuitable for varnish making. This question came up in a paper recently read before the American section of the Society of Chemical Industry. The author, A. C. Langmuir, refers to the scandalous substitution of resin for shellac, the former being about one-fifteenth the cost of the latter. Mr. Langmuir gives a number of analytical methods for the detection and determination of resin. He adds two practical tests which may be applied to a suspected sample by those unprovided with the means of elaborate analysis. The first of these tests is based on the fact that the higher the percentage of resin the more bleaching solution of sodium hypochlorite is needed to decolorise the sample. An ounce of shellac is dissolved in sodium carbonate solution by heat—if there is 10 per cent. or more of resin its odour will be recognised—the solution allowed to stand for fifteen minutes, and decanted through a fine sieve. It is cooled to 105 deg. F. and solution of sodium hypochlorite of standard (decinormal) strength added until a cream colour is finally obtained. A pure shellac will require 150 to 175 c.c.s., but the amount may be as great as 250 or 300 c.c.s., if much resin is present. The sample is tested alongside one of known purity. In the second test the red-violet colour characteristic of resin is obtained by adding a drop of sulphuric acid to a solution of the shellac in acetic anhydride. One gramme of the sample is treated with acetic anhydride to obtain the resin in solution by careful warming. The bulk of the shellac is filtered off as a gelatinous mass. To the filtered liquid in a test-tube a couple of drops of strong sulphuric acid are added. Where the acid meets the liquid a coloration is produced, with so small a proportion of resin as 2 or 3 per cent.

—◆—

PLATINUM TONING.

THE use of platinum for the toning of print-out papers cannot be said to have obtained the wide vogue prophesied for it at its inception. Like many another process, it suffered from the over-sanguine views of its supporters. It has been argued that a print toned with platinum must possess a high degree of permanency, a claim, it need hardly be said, which rests on a basis almost as unsubstantial as the still wilder statements to the effect that a platinotype print—because it consists of the noble metal—can be "toned" by various chemical mixtures without prejudice to its lasting character. In point of fact, the

toning with platinum of a printed-out image on collodion emulsion involves conditions which are in the direction of impermanency of the prints and this statement is still more applicable to the case of a gelatine print-out paper. It may be well to refer to one or two of the points wherein platinum toning chiefly differs from gold, in the hope that photographers will perceive the necessity of precautionary measures. Like gold chloride, the active toning agent potassium chloroplatinite, enters into reaction with soluble salts of silver—e.g., with the silver nitrate or silver citrate which are more or less completely removed from the print in the washing before toning. But, whereas gold chloride, like other chlorides, produces silver chloride, which is practically harmless, the chloroplatinite forms silver chloroplatinite, and this is a compound which will give rise to yellow stain if formed in the film even in minute quantities during, or after, toning. The access of actinic light to the prints during this operation is a predisposing cause of discoloration, and on this account greater care is necessary with platinum than with gold. A procedure often recommended in platinum toning is to immerse the prints without washing in a weak solution of common salt, a treatment which is advisable for the reason that it converts the whole of the soluble silver compounds into chloride of silver, and thus leaves the print in a state in which it cannot form silver chloroplatinite when it comes into the toning bath.

Then the platinum toning bath is acid, and that fact exposes the process to irregularities in two ways. In the first place, the speed of toning increases with the acidity of the bath, and if prints carry into a bath any considerable proportion of the free acid which many of them contain the speed of toning will be increased. That would not matter were the course of toning readily discernible, but in platinum toning it is rarely possible to watch the toning action, and it is necessary to give a fixed time in a bath of known composition. For this reason it is advisable to obtain the prints in a uniform state as regards acidity before they enter the toning bath, for which purpose a preliminary treatment in a solution containing salt and bicarbonate of soda is prescribed. The salt converts the soluble silver compounds into chloride of silver, and the bicarbonate neutralises any free acid. The second precaution which the acid toning bath renders necessary concerns the subsequent fixing. No traces even of acid must be carried by the prints into a plain fixing bath of hypo. If they are we have at once the proper conditions for decomposed hypo and decomposed hyposulphite of silver with their after effects in the form of yellowing of the prints. Hence steps must be taken, either in the shape of an intermediate alkaline bath or by the composition of the fixing bath, to guard against this acidification.

There is no difficulty in observing these conditions in the toning operations, but they represent additional precautions, and hence explain the comparatively slight extent to which platinum toning has come into use. If a neutral or alkaline bath could be found one great objection to the process would be removed, but though baths of this character have been put forward their toning action is extremely slow; in fact, no toning whatever takes place with some papers. Potassium oxalate and potassium chloroplatinite formed a bath of this kind some years ago, but it gave only warm brown tones on the paper for which it was intended, and was destitute of toning action on many other brands. An acid or acid salt appears to be a necessary auxiliary to the platinum toning of gelatine and collodion papers, but it is well to avoid the stronger acids, such as nitric and hydrochloric, and to choose in preference a weaker mineral or organic acid. Professor

Namias, after the examination of a number of platinum baths differing only in the acid used, concluded that oxalic acid was the least open to objection, and that phosphoric acid, often used to acidify the platinum bath, was to be avoided. But our experience and advice are that the formula is less important than the way it is used, and that complaints of the platinum bath are due to neglect of recognising the differences in manipulation which it requires.

FROZEN WATER PIPES.

THE recent frosts have caused serious inconvenience in the shape of frozen water pipes to many photographers. In nearly every case the trouble might have been avoided had a few timely precautions been taken. Serious as is the inconvenience of a frozen water supply, a still more serious one may follow when a thaw sets in, and burst pipes make themselves manifest. This latter may usually also be avoided by a timely precaution. If, when the pipes are found to be frozen, they are carefully examined throughout their length, the fracture will be discovered by a bulge in the pipe and ice protruding through it. Then the aid of the plumber should be sought at once. While the frost lasts there is little difficulty in obtaining the services of a plumber, but when a general thaw occurs it is not such an easy matter, and much damage may be caused by the escaping water. If the above precaution be neglected, and the burst is only found out by the escaping water, the supply should be cut off by plugging the outlet pipe from the cistern. If this cannot be readily done, the next best thing is to batter up the pipe with a hammer, a few inches in front of the fracture. This expedient will make a little more work for the plumber, but the cost of that, when the burst is in the house, is well saved by the avoidance of flooded premises, damaged carpets, furniture, and the like, to say nothing of saturated walls that may, possibly, take months to dry. If in a case such as that just cited, the supply of water can be cut off, the pipe may be temporarily repaired by the photographer himself, and still be useable. Here is the method. First the pipes should be pulled well away from the wall; then, with a couple of hammers, using one as an anvil, the fracture is closed as neatly as possible. Next, a plaster, spread on linen, of equal parts of white lead and putty, is applied, and bound tightly round several times with strong broad tape. A repair thus made, if well done, will last for many months without leakage. An old aphorism runs, "Prevention is better than cure," and severe as has been the weather we have had, still more severe may follow, and it will not be too late for those who, up to the present, have suffered no inconvenience to adopt precautions against the trouble it may bring. One good precaution is to leave the water just dribbling at all the taps, particularly at nights. This the water companies will object to, if they are aware of it, and if the water is paid for by meter it adds slightly to the water bill. All outside or much exposed pipes should be protected by binding them round with hay or straw bands. A thick hair felt is now supplied by most ironmongers, specially made for the protection of water pipes against frost, and it is very cheap and is excellent for the purpose. When the main supply pipes are laid near the surface of the ground, as they frequently are, they may possibly freeze during a long and severe frost. The best way of protecting them is by spreading over the ground above them six inches or so of good stable manure. Exceedingly simple precautions, if taken in time, will avoid the inconvenience and discomfort of frozen water pipes, but they are too often neglected until too late.

THE FOCAL PLANE SHUTTER.

II.

In continuation of the previous article on this subject (THE BRITISH JOURNAL OF PHOTOGRAPHY, January 20), it will be well to refer to a paper contributed to a recent issue of "Das Atelier," by W. Schmidt, in which is examined the effect on efficiency and rapidity, when the focal-plane shutter is worked, not in its normal position, closely adjacent to the plate, but in a plane considerably nearer the lens. The case is one of practical importance, inasmuch as it may arise when a back extension is employed with a focal-plane camera. It remains to be seen how far the calculations as to speed and exposure under these conditions are borne out in actual work, but the notes of Herr Schmidt should appeal to users of focal-plane shutters as drawing attention to factors which are largely disregarded. Calling the time occupied by the slit in traversing the whole plate the "absolute rapidity," and the time during which the slit moves through a distance equal to its own breadth the "relative rapidity," the relation of the shutter when in its normal position close to the plate is shown in Fig. 1. Rays enter the camera in all directions through the diaphragm aperture b . They are limited by the diaphragm and by the slit. The latter is never in the ideal position of contact with the plate, but often .5 cm. away from it. For this reason the area $B C$, which receives the full action of the rays from the diaphragm, is bordered on either side by the bands $A B$ and $C D$, in which the light action falls off, this falling off depending on the diameter of the stop, the breadth of the slit, and the distance of the curtain from the plate. The action does take place to an extent sufficient to affect the efficiency of the shutter in practical work.

Distortion.

This commonly alleged defect of the focal-plane shutter is viewed more seriously by Herr Schmidt, who points the example of an exposure made from a train in rapid motion. If the slit of the shutter travels from top to bottom of the plate, the image will be sharp in all parts, but vertical lines will be rendered as leaning forwards, as the upper parts of the plate are exposed before the lower ones. The tilting of the vertical lines from this cause will increase with the rate of movement of the camera past them, assuming that the exposure is rapid enough to give a sharp image. Reference is made to the camera of Curt Bentzin, which employs a square focal-plane shutter, the position of which can be adjusted so that the slit runs parallel with the length of the moving object, its direction of movement being either that of the object or, better, the opposite.

The Position of the Shutter when Exposing.

In the case of a hand-camera it is obvious that any such special apparatus is unnecessary, as the camera itself can be held in the best position. W. Kilbey, in his "Advanced Hand Camera Work," draws attention to this precaution in the use of the focal-plane shutter, and directs that the camera should be turned into such a position "that the direction of the shutter is contrary to the movement of the image, or, in other words, in the same direction as the subject." In accordance with this rule and, presuming that the camera is built according to the usual type, with the slit of the shutter parallel to the longer edge of the plate, it is recommended by Kilbey that the camera be held in its normal position for diving or falling objects; upside down for high jumping or rising objects; and vertically for subjects which move practically at right angles to the axis of the lens.

The Slit Shutter Removed from the Plate.

The action of the slit (proceeds Schmidt) is modified if the camera be fitted with a rear extension, which sets back the plate and leaves the shutter about midway between it and the lens. The dotted portion of Fig. 1 shows the altered con-

ditions. P is the plate at the focus of the lens of approximately double focal length. From this it will be seen that the area fully illuminated by the diaphragm is contracted to $B_1 C_1$, and the side bands are as shown by $A_1 B_1$ and $C_1 D_1$. To ascer-

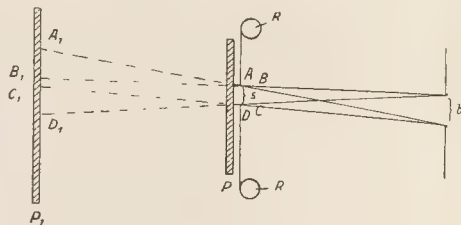


Fig. 1.

tain the relative rapidity at this double extension, it must first be found how many times the slit must move the distance of its own breadth to reach the point whereat no further light reaches the surface corresponding to it at the rear position. This number multiplied by the relative rapidity of the slit in position P gives this rapidity in position P_1 . In this method, which takes account of the total breadth of the area of diminished light action, a small error creeps in, as the intensity of the light at the time affects the action on these portions. In dull weather there may be no action, and so the breadth of the slit must be taken as less than the theoretical, and the rapidity becomes slightly greater.

Efficiency at Single and Double Extension.

The relative intensity of illumination at single and double focus is not so easily dealt with. In place of the unequally illuminated area at the double focus, the equally illuminated

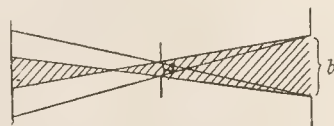


Fig. 2.

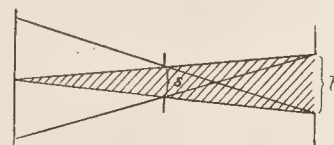


Fig. 3.

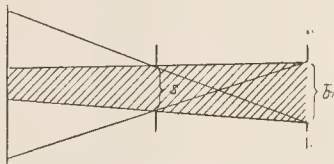


Fig. 4.

one between B_1 and C_1 must be taken as the basis of calculation. This area is smaller than the original one, as the illuminations vary inversely as the areas, and as in each case the illuminated area is a rectangle of the same length, calculations can be based on the width of the slit. Perhaps the conditions can be more clearly expressed by means of an example. Let the breadth of the slit be 1 cm., and that of the surface illuminated under the altered conditions 4 cm.

Then the illuminations of the two surfaces are as 1:4. But the relative rapidities of the slit are different in the two cases, say 1-120th second in the normal position and 1-40th second in the position of double focus. Hence the more weakly illuminated area at the double focus is exposed for three times as long (1-40 : 1-120). Thus the plate at the double focus receives only three-quarters of the light obtained at the single or normal focus. As no exact mathematical treatment of the problem can be given, it may be noted by those who are interested in this method of approaching the subject that two cases must be distinguished: the first (Fig. 2), in which a crossing of the rays takes place before they reach the double focus, and secondly (Fig. 4), the case in which no crossing occurs. In the first case the width of the slit is larger, and in the second smaller, than half the diameter of the diaphragm. If $s = \frac{1}{2} b$ (Fig. 3), where s is the width of the slit and b the diameter of the stop, then the illuminations are the same in each case.

A Table for each Shutter.

The following table is drawn up on these lines. The relative

mm	2	4	6	9	12	15	20	25
40	$\frac{1}{1.25}$							
	$\frac{1}{24}$	$\frac{1}{24}$	$\frac{1}{23}$	$\frac{1}{22}$	$\frac{1}{22}$	$\frac{1}{21}$	$\frac{1}{20}$	$\frac{1}{19}$
	0.52	0.52	0.56	0.56	0.56	0.59	0.62	0.67
30	$\frac{1}{1.5}$							
	$\frac{1}{34}$	$\frac{1}{33}$	$\frac{1}{32}$	$\frac{1}{30}$	$\frac{1}{29}$	$\frac{1}{28}$	$\frac{1}{26}$	$\frac{1}{25}$
	0.52	0.52	0.56	0.59	0.59	0.62	0.67	0.71
20	$\frac{1}{2.0}$							
	$\frac{1}{48}$	$\frac{1}{45}$	$\frac{1}{43}$	$\frac{1}{41}$	$\frac{1}{38}$	$\frac{1}{36}$	$\frac{1}{33}$	$\frac{1}{31}$
	0.52	0.55	0.59	0.62	0.67	0.71	0.77	0.84
10	$\frac{1}{2.50}$							
	$\frac{1}{91}$	$\frac{1}{83}$	$\frac{1}{77}$	$\frac{1}{69}$	$\frac{1}{66}$	$\frac{1}{57}$	$\frac{1}{55}$	$\frac{1}{44}$
	0.56	0.59	0.67	0.71	0.77	0.91	1.06	0.91
5	$\frac{1}{2.60}$							
	$\frac{1}{167}$	$\frac{1}{143}$	$\frac{1}{125}$	$\frac{1}{105}$	$\frac{1}{91}$	$\frac{1}{80}$	$\frac{1}{67}$	$\frac{1}{57}$
	0.59	0.71	0.84	1.00	0.91	0.84	0.77	0.71
2	$\frac{1}{3.00}$							
	$\frac{1}{333}$	$\frac{1}{250}$	$\frac{1}{200}$	$\frac{1}{154}$	$\frac{1}{125}$	$\frac{1}{105}$	$\frac{1}{93}$	$\frac{1}{69}$
	0.77	1.00	0.84	0.71	0.67	0.62	0.59	0.59

speed of the slit at its different widths is taken as known, being obtained from the table of approximate speeds of the 9 by 12 cm. focal-plane shutter of Carl Zeiss. It should be

noted that these are the speeds at the lowest tension of spring; when working at the full tension they must be doubled. The table is arranged so that the widths of slit (in millimetres) fall in the left vertical column. The diameters of the diaphragms are given also in millimetres in the top horizontal column. By giving this dimension the table holds good for all focal lengths, assuming that the shutter is worked at a single and double focus. Opposite to each width of slit are three lines. The first, one number only, is the relative speed of the slit, and applicable to all diameters of stop. The second row gives the relative rapidity at the double focus for each diameter of stop, and in the third row is the relative illumination, taking that at the single focus as 1.

How to Use the Table.

A couple of examples will make the arrangement clearer. Working with a slit 20 mm. in width and with a stop of 12 mm. diameter, the relative rapidity of the slit is 1-50th second. Under 12 mm. in the top column is 1-38th second, the relative rapidity at the double focus, and underneath it again the number .67, indicating that the plate receives .67 of the light which would reach it were it immediately behind the shutter. Thus the plate altogether loses one-third of the light. To take another example: We wish to work at the double focus with a speed of 1-125th second. We find this, or the nearest number, in the middle columns opposite one or other of the slits. It will be found in the two bottom columns, giving us the choice of a 5 mm slit with 6 mm. stop, or 2 mm. slit with 12 mm. stop. We shall naturally choose the former, as we obtain greater depth of focus and there is not so much loss of illumination as in the second case.

Alternatives in Practice.

This last example shows the wide application of a table of this kind, and how it indicates the best course to pursue in practice. It may be well, therefore, to offer a few notes on it before concluding. If the figures which indicate the light illuminations be examined, it will be seen that in the three lower columns they rise to 1 and then fall again. They thus point out the advisability of working with the slit of width half the diameter of the stop. Under these conditions the relative rapidities at the single and double focus are in the simple ratio of 2 : 1. The table further shows how the relative rapidity at the double focus is depressed by the use of a large stop and by broadening the slit. On both of these grounds the photographer will most usually choose to obtain a certain speed in the way already indicated, as he thereby avoids the sacrifice of depth of focus and illumination. On these lines, one would use of the bottom row of speeds at the double focus only the first three, obtaining the slower ones with the wider slit in the row above. Of this latter series one would use only the first four, selecting speeds of 1-90th and less from the 10 mm. slit. The table also shows that as the width of the slit increases the diameter of the stop loses its influence on the speed, and that at last the relative speed at the double focus is very little less than that at the single position of the shutter.

A DISTRESSING CASE.—Walter John Newey, photographer, Lord Street, Wolverhampton, pleaded guilty to stealing a watch and chain, value 25s., the property of William Mogg, drayman, Tamworth, on January 6. Defendant was canvassing for orders, and appropriated the watch during the temporary absence of the occupant, and pledged it with a Tamworth pawnbroker. He was under the influence of drink at the time. Mr. J. A. Cotterell, solicitor, Wolverhampton, said defendant was well connected. He addressed the Bench in mitigation of punishment. A fine 40s., inclusive of costs, was imposed.

THE WEEK IN HISTORY.

Sulphite in the Developer.

LET everybody who uses a developer recall to mind the boon of cleanly working which was brought by Berkeley twenty-four years ago to-day. In *THE BRITISH JOURNAL OF PHOTOGRAPHY* for January 27, 1882, appears the paper on "Sulphite of Soda in the Developer" read by Mr. Herbert B. Berkeley before the (then) Photographic Society of Great Britain. A brief mention of sulphite had already appeared in an article on emulsions in the "Almanac" for that year, and the addition came as a relief from the plague of "yellow sickness" which afflicted gelatine negatives developed with pyrogalllic acid. Mr. Berkeley made up his pyro developer by first dissolving forty parts of crystallised sulphite of soda in water, a little short of one hundred parts. The solution was then nearly neutralised by addition of citric acid, ten parts of pyro added, and the whole made up to one hundred parts with water. The intention in adding the citric acid, wrote Berkeley, "is to neutralise the alkalinity of the sulphite, which, besides being itself an alkaline salt, commonly contains carbonate as an impurity, the crystallisation being very imperfectly carried out. The alkalinity might tend to the oxidation of the pyro and cause the solution to have less perfect keeping properties. Probably from this point of view it is a refinement of no great value. But we prefer to consider our pyro to be neutral. One slight objection to citric acid alone as a preservative of pyro was the necessity of allowing for the amount of citric acid present in each developer, and this, of course, varied with the quantity of pyro solution used."

It is curious to recollect that the predecessor of sulphite as an addition to the developer was the "hydrosulphite," or real "hyposulphite," which Messieurs Lumière have recently brought forward as a developer. A formula for pyro *plus* hydrosulphite was given in the *JOURNAL* by L. O. Sammann about five years before Berkeley's paper, and though it was noticed as being free from stain, this was not a quality in those last days of collodion to bring it into prominence.

Daguerreotype in Embryo.

Under the date of January 29, 1832, there is a letter of Nicéphore Niépce to Daguerre, an extract from which is notable in the voluminous correspondence between the two inventors, as it substantiates Daguerre's claim to be the originator of the process which bore his name. Wrote Niépce: "To the substances which resemble iodine in their action on silver you may add a decoction of thlaspi, vapour of phosphorus, and especially sulphides. It is principally to the presence of these latter that the results are due. . . . I am no longer using iodine in my experiments, except as a means of comparing the relative rapidity of my preparations." Most of Niépce's letters are collected in a book by Victor Fouque, a bookseller of Chalon-sur-Saône, published in 1867. The title is "La Vérité sur l'Invention de la Photographie. Nicéphore Niépce, sa vie, ses essais, ses travaux, d'après sa correspondance et autres documents inédits." The author's attitude is strongly pro-Niépce, but there seems no reason to doubt the authenticity of the letters which were published in 1867, after having lain in a granary for thirty years.

The Talbot Process.

On January 30, 1839, the first intimation (at any length) of Fox Talbot's process of "photogenic drawing" was made

to the Royal Society. It was a preliminary announcement and gave no particulars of the actual method employed. It is somewhat of a reflection on the Royal Society that the paper should have been read at all, as descriptions of secret processes are not accepted by scientific societies, the Royal Society least of all. In 1828 a very similar kind of note by Niépce on his process was offered to the Royal Society and declined; but no doubt it was understood that Fox Talbot's paper would be followed—as it was—by a disclosure of the process. The paper is entitled, "Some Account of the Art of Photogenic Drawing, or the Process by which Natural Objects may be made to delineate themselves without the Aid of the Artist's Pencil. By H. F. Talbot, F.R.S." It does not appear in the "Philosophical Transactions," but is abstracted on pages 120, 121 of the "Proceedings." The paper in full was printed in "The Athenæum," page 114, 1839. Talbot prepared the paper immediately on hearing of the discovery of Daguerre (see "The Week in History," January 20), but the work which he describes had been done some years before.

The Letters of Niépce.

Seventy-eight years ago Nicéphore Niépce was groping among the problems of photographically engraved plates and cautiously receiving the overtures of M. Daguerre as to a partnership. Writing to his friend Lemaitre on February 2, 1827, he asks: "Do you know one of the inventors of the Diorama, M. Daguerre? This gentleman has been informed—how, I cannot say—of the object of my researches. In January last year he wrote informing me that for some time past he had been at work on the same problem, and asking if I had been more fortunate than himself. It appears that he has already obtained some astonishing results, and yet I am surprised at his inconsequential request for me to tell him if I think it possible. I have been extremely reserved and discreet in my reply, though I wrote him frankly and courteously in order to encourage him to write again. His second letter arrived to-day, after a year's interval of silence, and now he only writes to know if I am still here. He asks me to send him a print, as he doubts whether it is possible to reproduce shadows entirely by this process of engraving, for which reason his own experiments have been made in another direction, whereby he aims at one perfect result instead of a number of copies. . . . Kindly say if you know Daguerre personally, and, if so, what your opinion is of him? . . . I send you five plates. The largest is the copy of an engraving of the Virgin, the Infant Jesus, and St. Joseph. The other four smaller ones are copies of a portrait and a landscape. These images, as you see, are not in varnish, but are very feebly engraved on the plates with acetic acid, no stronger than wood vinegar. The engraving is very slight in the case of the landscapes. I believe I have met with fair success in the case of the portrait."

Replying to Daguerre on this same February 2, Niépce wrote: "I have received your letter of January 25. I have done nothing for the past four months as the weather has been bad, yet I have improved my process of engraving on metal, although I cannot accede to your request, as the method has not yet given me sufficiently correct copies. I regret this course more for myself than for you, since your process is quite different, and offers a degree of superiority to which engraving cannot approach. This, however, does not prevent me from wishing you every success."

HISTORICS.

PROFESSOR ERNST ABBE.

The Story of Zeiss Lenses and Practical Philanthropy.

IN reviewing the work of Professor Ernst Abbe, whose death it was our painful duty to record last week, we are conscious of the difficulty of refraining from superlatives in speaking of a man who was first a great scientific investigator and afterwards became even more distinguished for his practical philanthropy. Professor Abbe was born at Eisenach, on January 23, 1840, so that had he lived a few days longer he would have celebrated his sixty-fifth birthday. His student days were spent at Jena and Göttingen, and he afterwards established himself in the former town as tutor in mathematics, physics, and astronomy. In 1866 he entered into those relations with Carl Zeiss which were to determine the whole course of his career. Twenty years previously Zeiss had founded a small optical workshop in Jena. Microscopes were among his manufactures, and, like other opticians of his day, he designed them by a tentative method of trial and error. But he was convinced that he could base his designs on scientific principles and could work by calculation alone instead of by the laborious processes which were then adopted. He found himself unequal to the theoretical part of that task, but in 1866 he associated himself with Professor Abbe, who, in consequence thereof, turned his scientific work in the direction of the microscope. Of Abbe's researches in microscopy it is out of our province to speak at length, revolutionary though it were. Its present interest for us was the fact that it was the beginning of great developments in all branches of optical industry.

It was not long before Professor Abbe found that for certain lens combinations he required entirely new descriptions of glass. "For years," he wrote, "we carried on, in addition to our actual work, investigations of combinations of imaginary and non-existent glasses and discussed the progress which might become possible if the producer of the raw glasses could only be made to take an interest in higher optical problems." A report on the state of microscopic optics drawn up by Professor Abbe on the occasion of the exhibition of 1876 of a loan collection of scientific instruments in London fell into the hands of Dr. Otto Schott, of Witten, in Westphalia. Dr. Schott was a chemist and established in the glass industry. The force of Professor Abbe's appeal to the glass makers led to his associating himself with the work, and in 1881 he commenced at Witten the preparation of glasses which Professor Abbe and his assistant, Dr. Riedel, at Jena, proceeded to subject to optical examination. This

first series of tests were on a small experimental scale, and were made to determine the relationship between the chemical composition of a glass and its optical properties. In two years very promising results had been obtained, and the experimental work was then continued on a large scale with the aid of monetary grants from the Prussian Minister of Education. These further researches led, in the autumn of 1884, to the establishment of a glass factory, and the "Glastechnisches Laboratorium Schott und Genossen" is now as famous as the Carl Zeiss Optical Works, the progress of which it has advanced as it has that of optical factories of all descriptions. The Jena glasses have opened new fields, not in photographic lenses only, but in telescopes, microscopes, and other optical instruments. The story of anastigmat lenses which we had occasion to tell when recently interviewing Dr. Rudolph's work is one only of the immense developments which have followed in the train of Professor Abbe's researches.

Apart from his scientific work, Professor Abbe led an uneventful life. He lived within a stone's throw of the Carl Zeiss factory, in a small, old-fashioned house, and his habits were the simplest. Soon after the death of Carl Zeiss he became the sole proprietor of the optical factory, until 1891, when he took a step which gave to the works a character unlike that of any other industrial undertaking. He resigned all his proprietary rights in the optical works and the glass factory. By this act he created the Carl Zeiss "Stiftung," or trust—the translation is not the happiest one, but it is the best English equivalent—and in 1896 its laws were confirmed by the Kultus Department of the Grand Duchy of Saxe-Weimar, and profit sharing was introduced to commemorate the fiftieth anniversary of the founding of the business. The constitution of the "Stiftung,"

the crown of Professor Abbe's life, provides a complete system of pensions, sick benefits, and profit sharing for all those employed under it. No profits accrue to individuals. The "Stiftung" devotes the surplus which remains after the payment of the above charges to the endowment of Jena University, and the sums which have been granted for this purpose amount, we believe, to more than £100,000. Professor Abbe's salary as director of the optical works could not be more than ten times the wages of a standard workman, and on his retirement in 1903 he drew the pension provided by the "Stiftung." Thus it is that the world is poorer by the loss of a man who laid the foundations of a great industry, who saw his work multiplied in a hundred ways, and who passed the last years of his life in securing to those who had shared in his labour the rewards of long and patient work.



THE LATE PROFESSOR E. ABBE.
(Photo. Bräunlich and Tesch, Jena.)

THE Edinburgh Photographic Society has an Art Union in connection with its annual exhibition. Prizes to the extent of at least £11 will be purchased from amongst the pictures exhibited, and that irrespective of the Judge's awards. The winners of prizes shall be entitled to select the pictures they wish; but they must do so and intimate their choice to the Hon. Secretary on or before the closing of the exhibition, after which date the right of choice shall vest in the Council.

WORKMAN'S Compensation.—A Tunbridge Wells man named George Marshall, who for some years had been in the employ of the Photochrome Company, Limited, and did artistic work in connection with picture postcards, met with an accident on June 21 last. A piece of wood fell on his right hand, fracturing one of his fingers. In an action brought by him against his late employers for compensation at the Tunbridge Wells County Court, he obtained a verdict for the payment by the defendant firm of 4s. a week until further notice.

ON THE COMPOSITION OF THE SILVER IMAGE TONED WITH VARIOUS METALS.

It is well known that prints obtained by development may be toned with various metallic salts. The only practical processes are the toning processes with uranium, iron, and copper. Up to the present the composition of the images toned with the said salts has not been determined, and believing that this question has a certain interest, we have analysed the images toned with the salts of uranium, copper, and iron, and also compared the results with the most probable hypothesis of their action.

Of the numerous formulæ for the said toning baths, we have chosen the commercial preparations known as "chromogènes Lumière," which are mixtures of powders, which can be kept without alteration, and which contain the various reagents necessary for toning in the best possible conditions.

The Method of Analysis.

In our experiments twelve ordinary 13 by 18 cm. negatives obtained by development on Lumière's "Blue Label" plates were toned. The negatives were carefully washed to remove every trace of hypo and then submitted for half an hour to the toning bath, in order to obtain as complete a conversion as possible of the silver. After toning, the plates were washed till the whole of the excess of the reagents was removed—that is to say, till the transparent parts were quite free from colour. The film was then removed from the glass, again washed, till all the soluble salts were removed, and finally dried and incinerated. The ashes were lixiviated with water and the potassium estimated as potassium chloroplatinate. The residue was dissolved in boiling nitric acid and the elements estimated after they were separated. The residue, silver chloride, insoluble in nitric acid, was also analysed. Finally, the accuracy of this method was confirmed by the estimation of the pure ferrocyanides.

Certain dubious results were controlled by fresh analysis of the plate images, toned as described above, and also of metallic silver, which was obtained in a very finely divided state by reduction with formaldehyde, and left in contact with the toning baths for several days, and then thoroughly washed to remove the last traces of the toning bath.*

The Composition of the Chromogènes.

The various mixtures which we have called chromogènes contain one common constituent, ferriocyanide of potassium, which is designed to act upon the silver, and to convert it into ferrocyanide; they further contain a metallic salt, which acts on the ferrocyanide, and on which the colours of the toned images depends. This salt is ferric citrate for iron toning, uranium nitrate for uranium, and cupric chloride for copper toning. The two latter toning salts are mixed with an organic acid, the purpose of which is to dissolve the silver ferriocyanide which is formed by the action of an excess of ferriocyanide of potassium on the soluble silver salt which forms in toning. If the precipitate of silver ferriocyanide was not dissolved, the whites would suffer.

The copper toning is mixed with potassium citrate in order to dissolve the cupric ferriocyanide, which is insoluble in water, and which is formed by the mixture of the copper salt with the potassium ferriocyanide. The necessity of using potassium citrate prevents the addition of an organic acid, for the cupric ferriocyanide would not then dissolve in the potassium citrate. For this reason a copper salt, the chloride, is used, as its acid cannot form any soluble silver salt, and consequently no insoluble silver ferriocyanide can be formed.

* The analyses of precipitated silver, which was treated with potassium ferriocyanide as well as with the Chromogènes, proved the interesting fact that only in the former case was there complete reaction; in all other cases it was very incomplete, and there were considerable quantities of unconverted silver.

Analysis of the Toned Images.

Before the analysis of the toned images was undertaken, we estimated the composition of the images which had only been treated with potassium ferriocyanide, in order to determine whether in this operation, which may be considered as the first phase of the three methods of toning, pure silver ferrocyanide or a double ferrocyanide of silver and potassium was formed.

The following results were obtained:—

Percentage of the Metals found in the Mixture.		Reckoned as the Formulæ Below.	
No. 1.	No. 2.	$K_2 + Ag = (CN)_6 = Fe$	$Ag_2 = (CN)_6 = Fe$
Silver ...	79.83 77.35	38.43	88.52
Iron	19.22 20.99	19.93	11.47
Potassium	1.38 1.65	41.63	—

These numbers appear to show that the silver is substituted for almost the whole of the potassium, and that the image is not formed by an estimated definite compound, but is more likely the result of an incomplete reaction.

The product of the reaction of potassium ferriocyanide on very finely divided silver was also analysed, and this had been left for two days in contact with the ferriocyanide. The following results were obtained:—

Silver	88.66 per cent.
Iron	10.57 per cent.
Potassium	0.16 per cent.

These numbers are very near those which may be reckoned for pure silver ferrocyanide. The reaction is in this case also more complete than in the presence of gelatine, which serves as the vehicle. One may thus assume that silver ferrocyanide is formed.

Below are the results of the analysis of the images toned according to the three methods, and the numbers are reckoned for 100 parts of the mixture of the metals. In copper toning, besides the metals in the state of ferrocyanide, a considerable residue was found, which was insoluble in nitric acid, and which consisted of silver chloride:—

	Iron Toning.	Uranium Toning.	Copper Toning.
Iron	67.35	21.89	30.99
Silver ...	31.89	30.0	36.56†
Potassium	0.76	1.22	4.39
Uranium	—	46.89	—
Copper	—	—	28.04
	100.0	100.0	100.0

Conclusions.

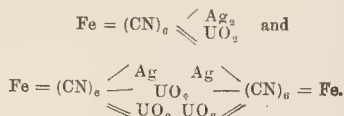
When the numbers thus found are compared with those which correspond to the formulæ of the substances, which can be formed in a normal way by the action of the silver ferrocyanide, which is formed in the first phase of the toning, on the different metallic salts, which are the actual toning agents, there is no agreement. In all cases the numbers found appear to stand between those which correspond to two formulæ; the one, in which the silver is partly substituted

† In the image toned with copper, silver chloride was also found, which remained insoluble on treating with nitric acid. The weight of the silver contained in the silver chloride is somewhat greater than that which was found in the silver ferrocyanide (120:100). No notice is taken of this in the percentage calculation of the above given composition of the image.

by the metal which causes the toning, and the other in which this substitution is complete.

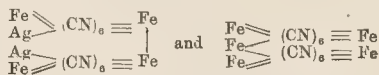
The small quantity of potassium found in the three kinds of images, which is far smaller than would correspond to a formula that would give the smallest quantity of this metal, can be considered from an incomplete conversion.

The images toned with uranium thus contain uranium, iron, silver, and a small quantity of potassium. Their composition appears to correspond to a formula, which lies between the two following:—



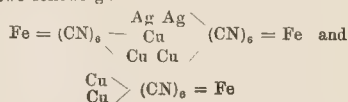
The elements which were found in the images toned with iron are iron, silver, and a small quantity of potassium. Their composition

appears to correspond to a formula, which lies between the two following:—



Finally, in the images toned with copper were found copper, iron, silver, and a small quantity of potassium, and a considerable quantity of free silver chloride.

The result of the analysis permits one to assume, disregarding the free silver chloride that its formula corresponds to one which lies between the two following:—



A. AND L. LUMIERE AND A. SEYEWETZ.

THE PROGRESS OF ORTHOCHROMATIC PHOTOGRAPHY.

DR. KOENIG, whose name will be readily recognised as the discoverer of the isocyanine dyes, which are now so much to the fore, contributes a useful article to the "Deutscher Camera-Almanach," of which the following is an abstract.

Every photographer and amateur, who knows anything at all of photography, understands what is meant by orthochromatic photography and orthochromatic plates, but it is not every one that rightly understands the subject, for some use orthochromatic plates and a yellow screen, whilst others see no advantage in the same. The real truth lies probably between the two, and it is only actual experience that enables one to appreciate the practical results of this scientific advance.

It is well known that, notwithstanding the correctness of the drawing and perspective given by photography, it has two great faults, the one the exaggerated difference between light and shade, and the other that it does not render colours in the same gradation or brightness as seen by the human eye. This false rendering of colour is particularly noticeable with yellows, or bright reds and blues; to our eyes yellows and red appear bright, and blues dark; by photography blue is rendered very light and yellow and red quite dark, because the gelatino-bromide plate is only sensitive to blue and violet and not for red, yellow, and green.

The Discovery of Orthochromatism.

In 1873 H. W. Vogel discovered that many dyes possessed the property of making silver bromide sensitive to red, yellow, and green, or, as it is usually called, "sensitised" for these rays. The first observation was made with collodio-bromide of silver, but other experimenters soon proved that gelatino-bromide of silver behaved in the same way, and now a very large number of dyes are known which sensitise gelatino-bromide of silver for the different regions of the spectrum. All these dyes also stain silver bromide direct, in the absence of gelatine, but it is a remarkable fact that not all dyes which stain silver bromide also sensitise. Whilst it has not yet been satisfactorily explained why only certain dyes possess sensitising properties, yet there is a certain connection between the absorption spectrum of the dye and the band of sensitiveness. The maximum of the sensitising lies at about the same place as the maximum absorption band of the dye solution; thus generally sensitisers for green and greenish yellow are red, and sensitisers for yellow and red are violet or blue.

The most important sensitisers for green and yellow belong to the phthalains, the best sensitisers for red are the cyanines. To the

first class belong eosine (tetrabromofluoresceine), diiodofluoresceine, and erythrosine (tetraiodofluoresceine). The maximum of sensitising lies with eosine in the green, and does not reach the Fraunhofer line D; with erythrosine the sensitiveness extends to beyond D; diiodofluoresceine lies between the two. Erythrosine must be considered as the strongest and best sensitiser for practical work.

The various dyes may be used in one of two ways: they may be either added to the emulsion before coating or ordinary dry plates may be bathed in very dilute solutions of the dye. The amount of dye to be used must be very minute, too much dye lowers considerably the general sensitiveness of the plate, as the deeply-dyed film prevents the penetration of the light. With all dyes the best results are obtained by bathing the plates.

The Yellow Screen.

If a colour chart is photographed with an erythrosine-bathed plate-chrome yellow will appear almost as bright as ultramarine; red, on the other hand, appears absolutely black. If it is desired to drive the orthochromatic action further, and to render yellow considerably brighter than blue, a yellow colour filter must be used, which damps the blue. The action of the colour screen does not seem to be thoroughly understood. If we realise that the so-called orthochromatic plates are always pre-eminently sensitive to blue, and that while on account of the proportion of blue rays in it must always exert the strongest photographic action, we shall easily understand that by the insertion of a yellow screen, which partially absorbs the blue rays, the exposure must be prolonged in order to obtain the same density in the whites. If two exposures are made on orthochromatic plates, one without a filter, the other with a bright yellow filter, and exposes the second twice as long, so that white has equal density in both, the blues will appear much weaker on the second plate than on the first; yellow, on the other hand, will appear much the stronger on the second than the first. By the increased exposure the yellow rays, which are not absorbed by the yellow screen, have acted more strongly on the yellow sensitive film.

It is obvious, therefore, without further explanation that a plate which is only slightly sensitive for yellow requires a darker yellow screen (and therefore a longer exposure) for correct colour rendering than a plate which is strongly sensitive to yellow.

Commercially as a rule, plates sensitive to greenish yellow, and which are usually sensitised with erythrosine, are called "orthochromatic," although they are not sensitive to red. Most of these plates only give a satisfactory orthochromatic action with a dark

yellow screen. The idea has been adopted for some plates of placing the yellow screen in the sensitive film, and the plates thus prepared permit of good colour rendering without a yellow screen.

The Cyanines.

We have mentioned above the second group of sensitisers—the cyanines. To this class belongs cyanine, a beautiful blue dye, which is an excellent sensitiser for yellow, orange, and red. Unfortunately this dye does not give reliable results, as the plates sensitised with it do not keep, and are prone to spots and fog. More important and more valuable from a practical point of view are the violet isocyanines, which are derived from chinaldin, because they not only possess the property of sensitising silver bromide for red, orange, and yellow, but make it also sensitive to green. The isocyanines combine therefore to some extent the properties of erythrosine with those of cyanine. With ethyl red, which was introduced by Professor Miethe, the nearly complete band of sensitiveness extends from the blue to the orange to just beyond the D line, the band of orthochrome T extends further into the red, and that of pinachrome extends even, with a short exposure, to beyond the C line in the red. Practically this means that plates sensitised with pinachrome are much more sensitive to orange and red than orthochrome plates, and more so still than ethyl red plates. Pinachrome must be considered as the best sensitiser known up to the present.

With these dyes the bathed plates are considerably more sensitive to colour than those coated with dyed emulsion.

With the aid of the said isocyanines or of mixture of dyes which supplement their sensitising properties, plates can be prepared which are sensitive to all the colours of the spectrum, even if not to quite the same degree. These "panchromatic" plates have also their maximum sensitiveness in the blue. The principal use of such plates is for colour photography, but their use is absolutely indispensable when orange and red have to be reproduced; for such work the interposition of an orange filter, to damp the blue and green, is always essential. It may be mentioned that up to the present no plate exists which is even approximately as sensitive for red as for blue.

The Use of Orthochromatic Plates.

Very different opinions as to the use of orthochromatic plates are held generally. Undoubtedly ortho-plates in conjunction with a colour filter are useful in innumerable cases, and frequently absolutely essential. It does not appear, however, correct to the author to recommend the universal use of ortho-plates for all landscape, and especially for mountain work, for it makes the photographer think that it is actually impossible to take ordinary landscapes with an ordinary plate. When yellow and yellowish green tones predominate, as in autumn or spring, or evening scenes, the ortho-plate can always be used with advantage, and in portraiture their use saves much retouching. Ortho-plates are absolutely essential in the reproduction of all coloured objects. The frequently described great advantages of the orthochromatic process in the taking of summer-green landscapes, of mountain peaks and distance, the author denies, although he is convinced that this heretical opinion will be frequently disputed.

As regards landscapes in summer, we ought not to forget that every kind of plate is very little sensitive to the dark green of summer leaves, and further that in a bright light, and much more in sunshine, it is the white light reflected from the leaves much more than the green that produces the photographic image. As a matter of fact, the author has never succeeded in confirming a difference between orthochromatic and ordinary plates for ordinary landscape work.

It is just the same with mountainous and distant scenery; with these the yellow screen and ortho-plates should work wonders. The author certainly believes that many amateurs obtain better results with the aid of these two, but the pictures are only better because

the true exposure is mostly involuntarily rendered shorter by the yellow screen, or, what comes to the same thing, the ortho-plates are frequently less sensitive than the ordinary. If the ordinary plate is only exposed for a sufficiently short time the cloudless blue sky will also appear darker in the print than the snow peaks glistening in the sun; and if the sky during the exposure is whitish, so that the mountain is visually almost impossible to detect, then no orthochromatic plate and no yellow screen is of any avail to obtain a difference.

It may be argued that the use of orthochromatic plates can at least do no harm. Opposed to this are the facts that ortho-plates are mostly dearer than ordinary, and frequently are inferior as regards keeping properties and sensitiveness, though, as we have already seen, this last may be an advantage under certain conditions. Finally, the exposure is considerably lengthened by the yellow screen which must generally be used.

The photographer will do well to consider in every case whether the use of ortho-plates appears advantageous or not. As a guide to this point a few short rules may be useful, which embody what we have said.

When to Use Ortho-Plates.

1. According to the prevailing method of speaking we differentiate between orthochromatic and panchromatic plates. The former are only sensitive for yellow and yellow-green; the latter are also sensitive to orange and red.

2. The commercial orthochromatic plates only permit of an absolutely correct colour rendering, as regards yellow and blue, when used with a yellow screen of more or less dark shade.

3. The use of orthochromatic plates is above all things necessary when the reproduction of yellow and yellow-green is in question. For bluish green and dark green the plates, even with a yellow screen, are very slightly sensitive, so that for ordinary landscape work, further for mountain and distant scenery, the ortho-plates offer no important advantages.

4. Panchromatic plates are certainly necessary when orange and red are to be reproduced, and in this case the use of colour filters is absolutely essential.

5. Bathed plates are always more sensitive than plates dyed in the emulsion.

Formulæ for Bathing.

Always use perfectly clean working plates, and bathe them in the dark, keeping the solution continuously on the rock. After bathing, the plates should be washed in running or frequently changed water for two or three minutes, and dried in a well-ventilated place free from dust.

Erythrosine Bath.

Water	...	...	...	...	...	100 ccm.
Ammonia	...	...	...	...	...	2 ccm.
Erythrosine solution (1:1,000)	...	...	...	...	...	6-8 ccm.

Bathe for 2-3 minutes.

Pinachrome Bath.

Water	...	...	...	...	...	100 ccm.
Ammonia	...	...	...	...	...	1 ccm.
Pinachrome solution (1:1,000 alcohol)	...	...	...	...	...	2 ccm.

Bathe for 3-4 minutes.

Ethyl red and orthochrome plates are prepared in exactly the same way as the pinachrome plates.

At Brentford, on Friday last, Herbert Meek, a photographer, of Staines Road, Hounslow, was remanded on his own bail, charged with embezzling £2 9s. 7d., and further, with obtaining by false pretences a camera and stand of the value of £21, the property of Mr. Francis Crichton Temple, a son of the late Sir Richard Temple, M.P. for the Kingston division of Surrey, and managing director of the Phototype Company, Hounslow.

Photo-Mechanical Notes.

A Convenient Reducer.

THE reduction, or "cutting," or "clearing" of wet plate negatives is usually done by first bleaching the negative in a solution of iodine in potassium iodide, afterwards flowing over with weak cyanide of potassium solution, and when reduction is complete, blackening the negative with ammonium sulphide, or sodium sulphide. This has the merit of enabling the operator to work on a white bleached image; on the other hand, since iodine (and iodide of potassium) costs upwards of ten shillings a pound, it is an expensive method. Sometimes the iodine solution is added to the cyanide solution and that flowed over the plate. This "cuts" without bleaching, and so saves the necessity to subsequently blacken; but the reducer is just as expensive, in fact more so, for the bleaching method may be performed with the iodine in a dish, used over and over again, whereas with the iodine added to the cyanide it goes straight down the sink. There is, however, no necessity to use iodine at all, as instead of adding iodine to the cyanide, a few drops of 10 per cent. solution of ferricyanide of potassium will do just as well, and the cost of this chemical is only about 1s. 6d. per lb. This reducer also does equally well for dry plates as the common "Farmer's reducer" of hypo and ferricyanide; in fact, it seems to keep much better. The cyanide of potassium solution should be very weak; even 1 per cent. of good 30 per cent. cyanide cake will be found fairly energetic. Usually, wet plate operators in process houses do not work to definite proportions, but if one takes, say, 4 oz. of 1 per cent. cyanide of potassium solution, then $\frac{1}{2}$ oz. of 10 per cent. ferricyanide of solution will be found to work well.

Another method of reducing wet plates is to take some of the copper bromide intensifying solution, dilute to half strength with water, flow over the negative, wash, and afterwards flow with weak cyanide solution. This requires careful manipulation, but it will be found that even a lead-intensified negative can be reduced by this means.

Focussing in Three-colour Work.

It is necessary to focus for three-colour with the filter in position, and where liquid filters are used it is usual to replace the coloured fluid by plain water for convenience. Sometimes, however, it is impossible to get a sharp image under these conditions, and this will be found generally to be due to the fact that the cold water causes the moisture from the atmosphere to condense upon the sides of the glass cell, scattering the light coming from the subject, just as a piece of ground glass would do. It may happen, too, that water is spilled over the sides of the tank, and the collection of little globules distorts the image. The very simple remedy in both cases is merely to carefully clean the tank; focussing can generally be finished before a second condensation of moisture occurs.

Colotype without a Presse.

In the current number of the "Photographisches Wochenblatt," Herr Franz Hofbauer describes a simple process of colotype with gelatine dry plates which seems suitable for amateurs. By yellow light an ordinary dry plate is immersed in a 3 per cent. solution of potassium bichromate or a 4 per cent. solution of ammonium bichromate; it is then dried in the dark and exposed under a reversed negative, well washed in ordinary water, fixed in a 20 per cent. solution of hypo, and again washed and dried. The dry plate is now laid in a mixture of equal parts of glycerine and water to which 5 per cent. of alcohol has been added and allowed to thoroughly soak, and again superficially dried. It should now be laid on a soft bed—the author recommends a book of about 1,000 pages, opened in the

middle—and the plate is inked up with colotype ink, and a sheet of damp paper placed on it, and the book shut and placed in a copying press. The book is then removed and the paper carefully pulled from the plate. It is stated that from fifty to seventy prints can thus be made, and perhaps more after some experience. This recalls Balaguy's old process.

Enamel Formula.

In answer to a query received this week as to the best formula for the enamel process on copper and zinc, we may state that formulae for this are almost as numerous as the sands on the sea shore, and the best happens to be just the one which suits the operator. The following, however, we know to be in use by a good operator:—

Le Page's liquid glue	8 oz.
Egg albumen	2 oz.

Mix thoroughly, and then add the sensitiser, which is composed of

Ammonium bichromate	1 oz.
Water	16 oz.

To the above quantity of albumen and glue add

Bichromate solution	5 oz.
Water	16 oz.
Ammonium citrate	50 grs.

This may be used for both copper and zinc.

Transferring Newspaper Drawings.

A method of transferring printed drawings for photographing is of occasional service to the photo-engraver, and though the following process is not new, it may be worth while to quote it from the "Inland Printer":—"Dissolve $\frac{1}{2}$ oz. of common yellow soap in 10 oz. of hot water. Cut the soap into shavings to dissolve more easily. When it is cold, add 2 oz. spirit of turpentine and mix thoroughly. Pour this solution into a shallow dish and float the picture you wish to transfer on it, face down, on the solution. When the paper has taken up all it will, lay it, face down, upon a blotter to absorb all the surplus moisture. Now, to transfer, lay the damp print face down on a piece of Bristol board with a piece of thin tracing or Manila paper over it; fasten one side of the print with its cover paper securely; then rub the cover paper hard with a burnisher in lines away from the side fastened. The ink will leave the print and go over to the Bristol board wherever the burnisher has passed. The danger to be avoided is the shifting of the print during the burnishing operations, but this will be guarded against with practice."

The immense saving of time to printers by the use of carefully prepared overlay cannot be overestimated, and Mr. C. W. Harness, of Wolverhampton, is supplying to every one who orders a block from him an "Alrevo" overlay, which, it is stated by the "Inland Printer," is to be prepared as follows:—"A sheet of very thin and transparent celluloid is coated with bichromatised gelatine, exposed to light under a negative, and the soluble parts then washed away, the whole process being very similar to the carbon process. The inventor lays great stress on the value of the transparency, which, he claims, enables the pressman to see exactly where to place it upon his make-ready."

THE death of Mr. Silas Daniel, photographic chemist and dealer, of Swindon, Wilts, took place on January 15.

THE death by suicide is announced of Mr. William Fryer, of Terry and Fryer, photographers, Worcester. The deceased gentleman retired to rest on Wednesday night, January 18, apparently in the best of health, but was found in the morning suspended by a strap at the foot of the bed.

Exhibition.

GRANTHAM INDUSTRIAL AND ART EXHIBITION.

THE following were the awards in the photographic section (open to amateurs in the United Kingdom) of the above exhibition, the judges being Messrs. H. Preston and A. W. Anderson:—

Class 54.—Landscapes, Seascapes, and Interiors, half-plates and under, in sets not exceeding six: 1, Rev. E. T. Clark; 2, Mr. A. W. Walburn; 3, Mr. H. N. Rainbow.

Class 55.—Landscapes, Seascapes, and Interiors, over half-plate, in sets not exceeding six (open): 1, Mr. J. E. Latham; 2, Mr. P. T. Deakin; 3, Rev. E. T. Clark.

Class 56.—Portrait and Animal Studies, half-plates and under, in sets not exceeding six (open): 1, Mr. A. W. Nicholson; 2, Mr. J. Smith; 3, Mr. N. O. E. Meade-King.

Class 57.—Portrait and Animal Studies, over half-plates, in sets not exceeding six (open): Mr. J. Smith.

Class 58.—Enlargements (open): 1, Mr. R. N. de Pinto; 2, Mr. J. Wilmore.

Class 59.—Figure Studies, Plants and Flowers, or Lantern Transparencies, in sets not exceeding six: 1, Mr. L. C. Wilson and Mr. J. H. Miller; 2, Mr. H. N. Rainbow.

FORTHCOMING EXHIBITIONS.

January 14-28.—The Scottish National Salon. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

January 20-21.—South Essex Camera Club. Hon. Secretary, T. Mitchell, 180, Browning Road, Manor Road, E.

January 23-28.—Lancaster Photographic Society. Hon. Secretary, R. T. Simpson, 21, Cheapside, Lancaster.

January 28-February 12.—Photographic Society of Marseilles. Secretary, M. Astier, 11, Rue de la Grand-Armée, à Marseille.

January 31-February 4.—Cardiff Windsor Amateur Photographic Society. Hon. Secretary, Mr. G. Gallon, 37, Hamilton Street, Cardiff.

February 6-11.—Blairgowrie and District Photographic Association. Hon. Secretary, Wm. D. M. Falconer, James Street Cottage, Blairgowrie.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club, Largerplatz No. 3, Vienna III., 3.

February 16-18.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earlham Road, Norwich.

February 21-March 7.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 7; for pictures, February 17. Hon. Secretary, E. J. Felce, 85, Adam's Avenue, Northampton.

February 25-March 4.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

February 25-March 11.—Edinburgh Photographic Society. Entries close February 11; for pictures, February 15. Hon. Secretary, J. S. McCulloch, 3A, North Saint David Street, Edinburgh.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-14.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 20-25.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between January 9 and 14, 1905:—

SHUTTERS.—No. 433. "An improved time valve for photographic shutters." H. A. Crabb, 23, Southampton Buildings, Chancery Lane, London.

COLOUR EFFECTS.—No. 559. "Improvements in the production of colour effects on photographic paper." A. C. Ponton and W. C. Horne, Rylestone, Bromley Road, Catford, London.

TRIPDS.—No. 561. "Improvements in tripods and stands, and means of attachment between tripods and stands and cameras, telescopes, surveying and other instruments." H. Major, 24, Canholme Road, Forest Hill, London.

PRINTING FRAME.—No. 606. "An improved photographic printing frame." J. G. Pratt, 100, Wellington Street, Glasgow.

FLASHLIGHT.—No. 628. "Improvements in flashlight apparatus." F. F. Payne, 27, Chancery Lane, London.

PROTECTING PHOTOGRAPHS.—No. 639. "Means for beautifying and protecting the surfaces of photographs." F. E. Blaisdall, 22, Southampton Buildings, Chancery Lane, London.

SINGLE-PICTURE STEREOSCOPY.—No. 706. "An improved stereoscopic lens for viewing single pictures stereoscopically." W. Brierley, 52, Claylands Road, South Lambeth, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

FOCAL-PLANE SHUTTER.—No. 28,319, 1904. "The patentee claims protection for certain special mechanisms (which cannot be

described here in the absence of the drawings) for obtaining and showing the tension of the driving spring in revolutions, the width of the aperture between the blinds, and the speed at which the shutter is set, the tension width and speed being capable of being adjusted and set at will." C. E. Pollard, 120, Victoria Road, Woodstock, Cape Town.

FIRE PREVENTION IN CINEMATOGRAPHY.—No. 1,211, 1904. "Automatic mechanism to prevent a fractured film remaining in the rays of the projecting light, or being fed further towards it. By the closure of an electric circuit, on the film breaking, the light is extinguished or a shutter interposed between it and the film. The action is as follows:—By the action of two rotary sprocket wheels, working in conjunction with an intermittent motion between them, a loop of film is made, which is fed forward and then automatically taken up by various approved means, this action going on continuously. Two pieces of metal, electrically insulated from one another, are shaped to the loop of film above mentioned and fixed concentrically to one another and the loop of film, in such a way that, when the machine is working normally, the film clears the inner piece of metal, but immediately the film breaks, it (that is the loop of film) ceases to be taken up, and as the feeding sprocket wheel continues to feed the film forward, the loop immediately increases above its normal size and instantly presses against the inner piece of metal before mentioned, which is so constructed that the slightest pressure brings the latter in contact with the outer piece of metal, thus closing the electric circuit." C. C. Schiller and S. J. Roxblade, St. Albans Chambers, 17a, Long Row, Nottingham.

MULTIPLE TISSUE FOR COLOUR PHOTOGRAPHY.—No. 4,941, 1904. "The compound tissue is designed to produce single or double transfer prints in colours at one operation from ordinary negatives. The tissue consists of layers of pigmented gelatine arranged in the order, from back to front of the paper, of blue, yellow, green, red, and black; the most transparent being uppermost, and the more opaque underneath. This arrangement is recommended for landscape negatives, but in order to prevent the blending of the colour of adjacent films, other layers of contrasting colours are interposed, and the series of films may run as follows, from top to bottom:—Blue, greyish pink, yellow, red, green, and black, with a deep red non-actinic film below this to prevent the picture adhering to the paper. To form the printing surface, the paper or other support has applied to it the different gelatine solutions in succession, each layer being allowed to set and dry before the next is applied, so that the adjoining layers will not mix. In making a printing paper, for instance, the strip of paper is carried on rollers and is run successively through baths of different coloured gelatine solutions. The thicknesses of the layers may be adjusted by varying the speed of the paper, and the temperature of the bath. Thus with a quick speed of the rollers and a low temperature a thick coating will be obtained and vice versa. The colours employed are of the usual kind for colouring pigment or carbon papers." W. Adolf Heseckiel, 2, Lützowstrasse, Berlin.

SENSITIVE LEUCO DYES.—No. 4,994, 1904. "Protection is claimed for (1) the manufacture of sensitive surfaces for photography by applying the leuco body from an organic dye in admixture with a compound containing one or more loosely combined nitro groups. (2) The use of a carrier of oxygen to enhance sensitiveness. (3) Sensitive surfaces prepared according to (1) and (2). (4) A photographic process on these lines; the image being fixed in a solvent of the leuco-dye; and (5) and (6), the application of the process to three-colour photography. Suitable nitro bodies are the nitro acid esters of carbohydrates such as the so-called nitro-cellulose,

nitro-glucose; also nitrosamines, such as those of methyl-phenyl, and diphenyl. The solvents of the leuco bodies, which serve as fixing agents, are hydrocarbons of the benzene series, chloroform, carbon tetrachloride, and weak organic acids, particularly monochloroacetic acid. The carriers of oxygen mentioned by the patentees are platonic chloride, aniseed oil, turpentine oil, and quinoline and its homologues. By this process leucaniline yields a red image, hexamethyl-para-leucaniline, a blue-violet image, the leuco-bases of the malachite green series a green to blue image and the leuco bodies of flavaniline, uranine and the like, yellow images. The examples of the process given in the patent need not be quoted, as the process has already been described at length in THE BRITISH JOURNAL OF PHOTOGRAPHY, October 14, 1904, page 886, and October 21, 1904, page 908." O. Imray, Southampton Buildings, London, acting for Meister, Lucius, and Brünig, of Hoechst-on-Maine, Germany.

STABLE HYDROSULPHITES.—No. 7,397, 1904. "The method of obtaining the solid hydrosulphite—or hyposulphite, as it is termed by chemists—consists in heating the hydrosulphite with a liquid which is able to take up water. The hydrosulphite is afterwards dried in a vacuum over sulphuric acid." J. Y. Johnson, 47, Lincoln's Inn Fields, London, for the Radische Anilin und Soda Fabrik, Ludwigshafen-on-Rhine, Germany.

DAYLIGHT DEVELOPMENT AND FIXING.—No. 7,492, 1904. "The patented apparatus consists of a chamber of about the shape and size of a dark slide. On one side is a ruby window, on the other a window of plain glass. This latter is covered by a shutter, which is withdrawn after the operator has inserted his head in a hood which screens this side of the apparatus." O. Zwieback and Sydney Hall, 22a, Escherheimer Landstrasse, Frankfurt-on-Maine, Germany.

ROLLER SLIDES AND SHUTTERS.—No. 23,518, 1904. "Improvements on the mechanism of a shutter and roll-holder working in conjunction, as described by the present patentee in specification No. 4,392, 1902." F. Pascal, 7, Chemin Montbrillant Prolongé, Lyon-Monplaisir, France.

X-RAYS and Bankruptcy.—In the London Bankruptcy Court last week it was stated by an X-ray expert and skin specialist, that his business had been crippled by newspaper allusions to the injurious effects of X-ray treatment at the hands of certain operators.

A PHOTOGRAPHIC record of the great hoard of Roman coins discovered at Croydon in 1903 has been made by Mr. G. H. Baldock, F.C.S., who contributes a few notes on his work to the report on the coins by Mr. G. F. Hill, of the British Museum. Mr. Baldock, whom we congratulate on this valuable work in the interests of a branch of photographic survey, writes:—"I asked the Croydon Council to allow me to do it; this request they cordially granted, and placed the whole collection and also a spare room at my disposal. In this room I spent all my spare time for six weeks, and photographed some 250 coins on 50 plates. The object I had in view was to represent as many types as possible; in some cases there were a large number of coins of the same type; of these I selected the best; in other cases there was but one coin, and that in none too good a state of preservation, consequently two plates had to be used for these, one for the obverse and one for the reverse. From my series of photographs, a selection has been made for reproduction in this pamphlet in fifteen plates, of those which show most distinctly and of the rarest coins. Photographers will know that, perhaps, the best way of copying coins is first to make a plaster cast of them, and from that cast another in relief, but as that is obviously a long process, I simply used the coins themselves, rubbing them up a little to remove some of the verdigris and dirt adhering to them."

New Books.

"The Zeiss Works and the Carl Zeiss Stiftung in Jena." By Felix Auerbach. Translated by Siegfried F. Paul and Frederick J. Cheshire, F.R.M.S. Published by Marshall Brooks, and Chalkley, Ltd. Price 2s. 6d.

It is fitting that this history of the Carl Zeiss Works should reach our table when we are reviewing the life of him who was the founder of the now famous "Stiftung." In Herr Auerbach the Zeiss Works have a sympathetic historian and the translators have excellently done their work with an eye to the preservation of the spirit of the original, rather than to the literal transcript of the German edition. The whole history of how the two great allied factories at Jena—the glass works and the optical establishment of Carl Zeiss—sprang from the humblest beginnings reads like a page of romance. Herr Auerbach likens the progress of the Zeiss industry to that of Siemens and Halske. "In both cases," he says, "the gigantic development can be traced to the fact that a man who, until that time had no practical experience of the particular line of business became connected with the concern: in the first case, it was the artillery officer, Werner Siemens, who joined Halske; in the second, it was the university don, Ernst Abbe, who joined Carl Zeiss." Herr Auerbach traces and very fully illustrates the history of Zeiss from the time of his establishment in a small workshop in the Neugasse at Jena. His association with Abbe and the enterprises of the latter with Schott, which led to the new Jena glasses, are considered at length, until we come to the highly-organised optical works with its 1,500 workpeople, its twenty scientific collaborators, and its varied products in optical instruments. The later achievements of the Carl Zeiss works in the construction of microscopes, telescopes, photographic lenses, and other instruments are treated in detail, and the last third of the book is devoted to the foundation of the "Stiftung"—that conception of Professor Abbe's which has proved perhaps the most remarkable and successful experiment in social problems made within the memory of the present generation. Herr Auerbach's volume will be read with equal interest by photographers and political economists.

"Photography for the Sportsman Naturalist." By L. W. Brownell. Published by Macmillan and Co. Price 8s. 6d. net.

The author's title accurately describes this bulky volume of over 300 pages, which concerns itself with photographic ways and means to be pressed into the service of a hunter with the camera. Nevertheless, if we except the chapters on photographic processes pure and simple, there is scarcely a page which will not interest lovers of birds, beasts, and reptiles. The author has lived among the animal life of America for the purpose of depicting them and their customs as the Kearton Brothers and others have done in this country. Perhaps his work is not equal photographically to the Keartons', but he has hunted all kinds of game with his lens, from the elk to moths and dragon-flies. If he says less about natural history, he is more explicit on photographic methods than his compeers. The earlier chapters treat of the outfit of the sportsman-photographer, are commendably free from technical language, and full of the writer's practical experience. In the later portions the photography of the different classes of subject is dealt with—the larger and smaller animals, birds, and their young, insects, fishes, wild flowers, trees, and fungi. The volume contains a number of half-tone illustrations selected from the author's collection of 3,000 negatives, and if they are not printed as well as might be we must set this to the account of the paper, and be thankful that a dead surface makes for pleasant reading.

New Materials.

A dark-room lamp specially designed to take the seven Flexoid filters recently reviewed in this column is now being supplied by Messrs. A. E. Staley and Co., 19, Tavies Inn, London, E.C. The construction of the lamp is such that any or all of the filters can be at once put in position. Messrs. Staley will be pleased to show the apparatus to any one who will give them a call.

The Rotary Stripping Pigment Film. Sold by the Rotary Photographic Co., Ltd., 12, New Union Street, Moorfields, London, E.C.

This new film for the carbon process considerably simplifies a process which is already very simple and easy to work, but which to many presents some difficulty on account of the necessity of the double transfer. The pigmented gelatine of this film is coated on very thin celluloid, and printing is effected through this, thus doing away with the necessity for the safe edge, transfer before development, and the double transfer.

The film is sensitised in a 3 per cent. potassium bichromate bath, rendered alkaline with ammonia for normal work, though of course this may be adjusted to the negative as usual, the time of immersion being one minute. Drying is effected in the usual way, the film being temporarily fastened to cards. When dry, the back of the film must be carefully cleaned, and is then placed in contact with the negative, and the necessary insolation determined by a photometer. In the instructions issued by the makers attention is drawn to the fact that certain colours are more sensitive than others, and considerably more sensitive than P.O.P.

Development is effected by merely placing the exposed film in a dish of water between 85 and 105 deg. Fahr., no rocking or laving of the surface being necessary; in fact, this would be prejudicial, as likely to injure the delicate half-tones. When completely developed, which it will be in from five to ten minutes, the film is placed in cold water for a few minutes, and then allowed to dry. To mount the print on paper, the paper and film are soaked for a short time in lukewarm water, brought into contact, laid on a sheet of glass, air bubbles pressed out, and then squeegeed and placed under pressure, such as can be obtained between two pieces of glass in a printing frame for half an hour, and then removed and allowed to dry. When perfectly dry the celluloid can be stripped off without the slightest difficulty; the print is then lightly rubbed with benzine, and may be hardened by alum or formaline. If a matt surface is desired, the print can be squeegeed to ground glass and stripped whilst still moist. Rough paper may be used, but a little modification of the mounting process is essential, and greater pressure must be employed.

Lantern slides, stereo and window transparencies, can of course be made by the aid of these films, and a much wider range of colours is opened up for this work, as the stripping film is made in twelve colours.

This new introduction should certainly induce many to adopt the carbon process, and the ease and simplicity of working are very striking. We note also that special stripping films are made for three-colour printing.

J. MARTIN AND Co., the well-known trade printers and enlargers, of New Southgate, have sent us an attractive postcard which they have titled "The Frozen-out Spider," and which represents a spider's web covered with hoar frost. They also send us their latest price-list, which may be obtained on receipt of trade card.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
30.....	South London Photo. Society...	<i>Stereoscopic Work.</i> Mr. J. T. French.
30.....	Wakefield Photo. Society.....	<i>Ruined Abbeys of Yorkshire.</i> Rev. J. W. Beaulaud, M.A.
31.....	Luton Camera Club.....	Annual Exhibition Opens.
30.....	Camera Club.....	<i>The Magic Carpet.</i> Illustrated. Mr. Edw. Rimbaud Dibben.
30.....	Southampton Camera Club.....	<i>Our Chapter Houses.</i> Illustrated. Mr. E. W. Harvey Piper.
31.....	Nelson Photographic Society..	<i>Still Life Studies.</i> Mr. R. Barrett.
31.....	Birmingham Photo. Society....	Composition. Mr. W. J. Morgan, R.B.A.
31.....	Glasgow Southern Photo. Assn.	Entries close for Championship Cup Competition.
Feb.		
1.....	G.E.R. Mechanics' Institution	<i>Some Notes on Medieval Architecture.</i> Mr. A. Woolford.
1.....	Windsor Camera Club.....	<i>Tabloid Development, &c.</i> Messrs. Burroughs, Wellcome, & Co.
1.....	Boro' Poly. Photo. Society.....	Members' Night.
1.....	Rodley and District Ph. Soc....	<i>In the Kenil Hopfields.</i> Mr. W. H. Atkinson.
1.....	Everton Camera Club.....	Annual Snoker.
1.....	Edinburgh Photo. Society.....	<i>The Capacity of Different Printing Processes for Rendering Gradations.</i> Illustrated. Mr. Wm. Goodwin.
1.....	North Middlesex Photo. Society	Lantern Slide Competition.
2.....	Hull Photographic Society.....	<i>Isoschromatic Photography.</i> Mr. T. E. Keridge.
2.....	Liverpool Amateur Ph. Assn.	Competition Pictures on View.
2.....	L.C.C. Sch. of Pho.-Engraving	Lettering. Mr. E. F. Strange.
2.....	Richmond Camera Club.....	<i>Various Tones on Papers by Development.</i> Demonstrated. Mr. Ernest J. Smith.
2.....	London and Prov. Photo. Assn.	<i>Photography with a Microscope.</i> Mr. A. E. Smith.
2.....	Batley and District Photo. Soc.	<i>Rising to the Occasion.</i> Mr. Walter C. Woolford.
2.....	Southport Photo. Society.....	<i>New Method of Toning Bromide Prints and Lantern Slides.</i> Dr. Bradley.
3.....	West London Photo. Soc.	<i>Some New P.O. Processes.</i> Mr. E. Walker.
3.....	Walford Camera Club.....	<i>Photographic News 1904 Prize Lantern Slides.</i>
3.....	Wakefield Photo. Society.....	Y.P.U. Prints and Lantern Slides.
3.....	Aberdeen Photographic Assn.	Enlarging Demonstration.
3.....	Nelson Photographic Society..	Visit to Colne Camera Club.
3.....	Watford Photographic Society	Members' Lantern Slides.
3.....	Boro' Poly. Photo. Society.....	Development. Mr. G. Wytne.

ROYAL PHOTOGRAPHIC SOCIETY

MEETING held January 24.—Major-General Waterhouse in the chair. Mr. William Taylor, of Leicester, read a paper on "Some Problems of Shutter Design" in which he emphasised the need of a commercial shutter which would work with reasonable closeness to the marked speeds, and which would also possess a high degree of efficiency. The focal-plane shutter, he admitted, had efficiency of 100 per cent. and there were several excellent shutters of this type on the market, but he was in agreement with Mr. Chapman Jones in objecting to this shutter when one "between the lens" could be used. In a shutter of the diaphragm type a double action took place as it opened; the rate at which the moving parts worked increased and at the same time there was acceleration of the light effect on the plate. In every shutter of this type it was necessary to distinguish between the durational and the effective exposure, and the lecturer was not certain to which of these photographers attached greater importance. To obtain great efficiency the shutter had to open fully, and close completely, as rapidly as possible, and to that end the mass of the moving parts and the distance through which they moved must be reduced to the smallest possible quantities. In constructing a shutter on the principle of the Iris diaphragm a reduction of weight was obtained by making the Iris of four leaves only, each weighing, in the specimen exhibited, only thirteen grains. In proof that a shutter of this light construction could be made strong enough to withstand continued work, the lecturer stated that he had submitted one to movements corresponding to 25 years' use at the rate of six gross of exposures per annum. Distinguishing between the two kinds of exposure, it was suggested that the terms "hand" and "automatic" should replace the time-honoured but inaccurate "time" and "instantaneous."

In considering the mechanics of a shutter the lecturer said that the control of the speed of automatic exposures by frictional methods had proved unsuccessful through a wide range of speeds, and he therefore fell back on the methods of pneumatic control, first employed, he believed, by Newman and by Adams. But it was greatly preferable to work the air in compression instead of in extension, and to reduce the capacity of the air reservoir according to the time interval to be controlled. The pneumatic accessory should perform the single duty of controlling the time, and should not be used also to arrest the moving parts. Mr. Taylor dwelt also on the advantage of springs in compression, not in extension, in shutter construction, and after describing the arrangement of springs to give a fixed motion to a certain part, showed how a variable motion could be obtained from it by a simple system of links. A specimen of a shutter, constructed on the above principle but not yet ready for the market, was shown, and was stated to open fully in 1-200th second, and to give exposures of 1-100th, 1-50th, 1-25th, 1-12th, $\frac{1}{8}$, and 1 second. The construction of the shutter permitted of automatic exposures being accurately given, and the position of the adjusting cam having been fixed for the two extreme speeds, the intermediate ones were obtainable by calibration.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE annual meeting of the members of this association was held on January 19, in the rooms of the Artists' Club, Eberle Street, Mr. F. A. Schierwater presiding. The reports of the secretary and treasurer, which showed the society to be in a satisfactory condition, were adopted. An important alteration of the rules defining the amateur status was moved by Dr. Thurstan Holland, seconded by Dr. J. W. Ellis, and adopted. Another alteration in the rules, providing that members under the age of twenty-one pay no entrance fee, was carried with few dissentients. The following were appointed officers for the ensuing year:—Dr. Thurstan Holland, president; Messrs. J. Marples and J. Appleby, vice-presidents; Mr. A. C. Batty, hon. secretary; Mr. W. Lockier (in place of Mr. P. H. Phillips, resigned), hon. treasurer; and Mr. W. A. Taylor, librarian. Nine vacancies occurred on the Council owing to resignations and retirements through rotation, and the following were elected:—Dr. Ellis, Rev. W. Smith, Lieutenant-Colonel Pilkington, and Messrs. Stuart, Newton, Schierwater, Petrie, Gregory, Jones, and Phillips. The President, on behalf of the association, presented to Mr. E. Simmet a beautiful Chippendale cabinet on his retirement from the secretaryship. The results of the annual competition were declared by the President as follows:—Class A, gold medal and trophy, Mr. C. F. Stuart; special medal, Mr. J. D. Johnston; class B, Mr. J. D. Johnston and Dr. Holland; class C, Lieut.-Colonel Pilkington and Mr. W. A. Taylor; class D, Mr. H. R. Heap; class E, Mr. F. A. Pendlebury and Mr. H. H. James; President's plaque, Mr. J. Smith; excursion prize (Lange plaque), Mr. Canevali; Mr. Taylor's prize, Dr. Ellis; and scientific class, Dr. Holland. Among the lantern slides, class F (gold medal) was won by Mr. H. Holt, class G by Mr. Richardson and Mr. W. A. Taylor, and class H by Lieut.-Colonel Pilkington and Mr. Prince. The bi-monthly competition was won by Mr. H. E. Cubley and Lieut.-Colonel Pilkington, and Mr. H. R. Heap's lecture prize by Mr. Taylor.

DERBY PHOTOGRAPHIC SOCIETY.

ON January 23 Mr. J. Page Croft demonstrated before a large number of the members of the Derby Photographic Society the possibilities of the gum-bichromate process. Mr. Croft, who was assisted by Mr. Howell, of Leicester, coated, sensitised, and developed a number of prints. The lecturer recommended that the paper be first coated with gum solution (1 oz. to 3 oz. water), and sensitised afterwards, in preference to it being performed in one operation, as is sometimes

recommended, and the following is the amount of colour he used to the drachm of 10 per cent. bichromate solution:—For a dead black, lamp black, 1 grain; for a warm black, vegetable black, $1\frac{1}{2}$ grains; for browns, brown colour, 2 to 3 grains; for reds, red colour, 4 to 5 grains. The ground colour was incorporated with the bichromate solution in a pestle and mortar, laid on with a hog-hair brush, and afterwards smoothed down with a badger softener. After the prints had been soaking in a cold bath for about five minutes to discharge some of the bichromate, Mr. Croft proceeded to develop with warm water, and said that if the prints had been under-exposed a piece of caustic soda (about the size of a pea to the pint of water) would quicken matters. He demonstrated the amount of control which would be obtained by the use of a brush in local development, but said that if the print, after being roughly developed, were dried and then re-soaked, at some future time of course, not being exposed to the light in the meantime, the surface became much tougher, and there was less risk of spoiling the print. He also said that it was not advisable to take the print out of the water too frequently during development, as if this were done there was a danger of washing some of the half-tones away.

Mr. Croft said that any good paper could be used as a base, but recommended Hollingsworth's Turkey Mill or Whatman Hot Press. If the paper used was very rough, or of a porous character, a preliminary sizing was an advantage, but this was not necessary with either of the two kinds mentioned.

The lecturer claimed that by modifying the coating, exposure, and development the process would give a much more varied range of texture, colour, and gradation than is possible with any other printing process, and the large quantity of gum prints made by himself, Messrs. Hill, Mummery, Gale, and Miss Warburg, which were passed round, fully justified his contention. The lecture was much appreciated, and the vote of thanks accorded to Messrs. Croft and Howell was very hearty.

BOWES PARK AND DISTRICT PHOTOGRAPHIC SOCIETY.

At the annual general meeting of this society on January 16 the retiring president (Mr. W. T. P. Cunningham), in presenting the report of the Council for the past year, stated that great improvement had been shown in the photographic work of the members during that time. The membership remains about the same, but is more active. With regard to finances, it was stated that there was a balance in hand on the year's work. The resignation by Mr. Kernon of the secretaryship was received with regret and thanks for his able services during the past two years. The following were elected to fill the various offices:—President, Mr. R. Gore Gardner; vice-presidents, Messrs. A. J. Craston and E. H. Young; treasurer, Mr. A. Bird; hon. secretary, Mr. H. C. Bird, 91, Whittington Road, Bowes Park, N.; hon. assistant secretary, Mr. F. W. Slater, jun.; librarian, Mr. C. S. Carr; Council, Messrs. W. E. Hughes, F. C. Hornsey, A. Kernon, A. Hawes, J. T. Smith, H. Oliver, and W. H. Drifill. Votes of thanks were passed to the retiring officers and Council, lanternists, auditors, and scrutineers.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

On January 18, at the Hanley Hall, Crouch Hill, Mr. M. Fraser Black lectured on "Gaslight Papers." As a standard of this class of paper, without making any invidious distinctions, Mr. Black took Velox, pointing out the adaptability of the various brands to the different classes of negatives. For the purpose of demonstration, Mr. Black exposed negatives of varying densities by means of magnesium ribbon, taking for an average negative on to Art Velox 1 in. and 2 ft. distance. He developed with the M.Q. prepared developer and fixed in an acid bath. In order to ensure the even flow of the developer he put his prints into a preliminary water bath. As an alternative developer

he recommended Rodinal of the strength 1:20 and fixing in a plain hypo. bath. He recommended quick development. The print is to be taken out of the bath as soon as an image becomes visible and carefully watched for correct density, and as soon as this stage is reached is plunged into the fixing bath.

CROYDON CAMERA CLUB.

JANUARY 18.—Mr. F. C. Wardall, representing Messrs. Zeiss, gave a most instructive lecture entitled "A Large Aperture." The lecture, as a matter of fact, went considerably beyond what the title indicated, and resolved itself into a very complete exposition of the principles underlying the constructions of lenses, their various aberrations, and the methods employed for correcting such. The important advances rendered possible by the labours of Professor Abbe and Dr. Schott, leading to the introduction of the Jena glasses, were clearly explained, and it was pointed out that lenses could now be obtained, for all intents and purposes, free from spherical aberration, astigmatism, and the secondary spectrum, together with a high intensity, great covering power, and a flat field. With a perfectly corrected lens, Mr. Wardall said, stopping down would not improve the definition, though this might be necessary to obtain sufficient depth, and by means of diagrams he showed that with a large aperture a photographer of necessity was working under restricted conditions, owing to the so-called depth of focus being so limited. Under these conditions, for optical reasons, a short-focus lens was an advantage. The lecture terminated with a series of lantern slides showing the various scientific instruments manufactured by Messrs. Zeiss, and the magnificent premises and works of the "Carl-Zeiss Stiftung" in Jena. Its great originator, Mr. Wardall said, with evident feeling of sorrow, was no more, Professor Abbe having died on the 14th inst.

In the short discussion which followed, Mr. E. A. Salt said he doubted whether the suppression of the secondary spectrum was of any material benefit in ordinary landscape and similar work. He would also like to have Mr. Wardall's opinion as to whether the theoretical objections to correction by air spaces were borne out in practice.

Mr. C. E. Kenneth Mees paid a warm tribute to the late Professor Abbe, and alluded to the scientific and social scheme worked out by him for Zeiss as a remarkable achievement and a model for the whole world.

Mr. Wardall, in reply, thanked Mr. Mees for his kind words. As to the correction of the secondary spectrum, he agreed with Mr. Salt so far as he went. Its suppression was, however, of the greatest importance in copying and process work, for here the fringes of colour in a lens not so corrected would undoubtedly impair definition. In landscape work it was a case of great reduction, and was not of importance. The possible disadvantages in lenses having three or more separated components were the creation of extra-axial foci and flare, with a small stop. Both of these objections rarely became apparent in practice.

SOUTHAMPTON CAMERA CLUB.—The principal item in the meeting of the members of the above, held on Monday, the 23rd inst., at the club-room, was the exhibition of the prize slides in the "Photographic News" competition. These received the warm appreciation of the members, which they merited. An exhibition of members' slides followed, and the transaction of club business concluded the meeting.

HILLSBORO' and District Photographic Society spent a very enjoyable evening on January 11, when Mr. W. F. Slater, F.R.P.S., gave a very interesting and instructive lecture on "Photographic Lenses," and demonstrated Messrs. R. and J. Beck's novelties, among which were "The Unofocal Anastigmat Lens," "The Zambex," "Dai-Cornex" and "Telephoto Hand Cameras," and the new shutter-testing apparatus.

News and Notes.

A REJECTED Whistler Picture.—The International Society of Sculptors, Painters, and Gravers have just heard by cable from their representative, now in New York, that he has secured for the forthcoming Whistler Memorial Exhibition at the New Gallery "The Large White Girl," owned by Mr. Whittemore, of New Haven. This is the picture painted by Mr. Whistler in the early sixties and rejected at the Salon of 1863, but later shown in the Salon des Refusés, along with works by Manet, Fantin Latour, Bracquemond, and others. At the close of the exhibition the picture was sent to the United States, where it has since remained. It was lent for some time to the Metropolitan Museum, New York; since then it has scarcely been seen.

An interesting function took place on Thursday, January 18, at the Wellcome Institute, Dartford. On the invitation of Messrs. Burroughs, Wellcome, and Co., a convention of continental and district managers of the National Cash Register Co., journeyed to Dartford to inspect the club houses, gymnasium, baths, and sports-fields, etc., which form part of the scheme for the social and physical advancement of the employees at Dartford, provided by Mr. Henry S. Wellcome. The National Cash Register Co. in America is distinguished by similar philanthropic activities, and after dinner in the club house an illustrated lecture, showing the work now being done at the N.C.R. factory, was delivered to an audience of over 500 staff and employees of Burroughs, Wellcome and Co., in the club assembly rooms. The visit, like the movement, is one of good omen for the happier relations of employers and employed throughout the civilised world.

THE Photographic Exhibition at Earl's Court, to be held from March 16 to 30th, has already been announced in our columns. The full preliminary prospectus has now appeared, and is obtainable from the organising managers, 119-125, Finsbury Pavement, London, E.C. As stated in the prospectus the president of the exhibition is the Hon. H. L. W. Lawson, J.P., and the vice-presidents, James Cadett, E. Sanger Shepherd, J. T. Ashby, Carl Hentschel, and Georg Fritz. The exhibition will be divided into the following sections:—(1) Photographic Appliances and Material. (2) Pure Photography (Professional and Amateur). (3) Photographic Appliances for Reproductive Processes. (4) Art and other Illustrations having a Photographic basis. (5) Picture Postcards in real Photography and by Phototype Processes. (6) Some Methods of Reproduction (Printing) demonstrated. A series of competitions have been planned by Mr. H. Snowden Ward, and will be judged by him in collaboration with Mr. A. Horsley Hinton. The scheme of these competitions will be as follows:—Classes open to all Photographers: (1) Landscapes and Seascapes. (2) Architecture (interior and exterior). (3) Portraits. (4) Figure Studies and Figures in Landscapes. (5) Any other class of subject. (6) Set of six Prints suitable for Pictorial Postcards, with title for each card, and title, with or without short descriptive note, for the set. The terms for picture postcard rights of reproduction to be stated on entry form and in catalogue. Professional Classes: Open only to Professional Photographers in business for themselves, or assistants who have been engaged in bona fide professional work for at least two years. (7) Portraits. (8) Technical Photography (machinery, workshop interiors, photography for advertisements, etc.). (9) Studio group. (10) Outdoor group. (11) Set of half-dozen Local Views not larger than whole plate. An entrance fee of one shilling will be charged for exhibits in each class, and all parcels must be sent, carriage paid, to the Organising Managers, Photographic Trades and Art Exhibition, Earl's Court, London, S.W., on any day in the week previous to the opening, but not later than March 14. A series of lectures and demonstrations are arranged for, among which are Mr. Sanger Shepherd, on Colour Photography, Mr. William Gamble, on Process Engraving, and Mr.

A. J. Newton, on the work of the L.C.C. School of Photo-engraving and Lithography, of which he is principal.

Commercial & Legal Intelligence

CONTINENTAL Warwick Trading Company, Limited.—The above company has been registered with a capital of £5,000 in £1 shares. Object, to acquire and deal with patents and inventions, to develop and turn to account the same, and to carry on a business not particularly described. No initial public issue. The subscribers are to appoint the first directors. Qualification, 100 ordinary shares. Remuneration (except managing director) £50 per annum, divisible. Registered office, 4 and 5, Warwick Court, High Holborn, W.C.

SARONY AND Co., LTD., has been registered with a capital of £5,000, in £5 shares, to acquire the Sarony Studio, Scarborough, and other businesses. The subscribers are:—S. W. Fisher, photographic artist, Scarborough; F. P. Reifenedy, artist, Harrogate; A. O. Fisher, photographer, Scarborough; V. Fowler, J.P., Scalby; J. Linn, art dealer, Scarborough; J. W. Bailey, York; J. Tonks, J.P., Scarborough—one share each. No initial public issue of shares; £4,000 6 per cent. mortgage debentures are offered for public subscription. The first directors are S. W. Fisher (chairman and managing director), S. M. Hudson, A. O. Fisher, and F. P. Reifenedy. Trustees for debenture holders, J. Pirie, J.P., 105, Castle Road, Scarborough. Registered office, Sarony's Studio, Sarony Square, Scarborough.

A COPYRIGHT Photo of Sir Henry Irving.—In the Court of Session, on the 19th inst., Lord Ardwall closed the record in two actions brought by William Crooke, photographer, 103, Princes Street, one against the Scots Pictorial Publishing Company, Ltd., 180, Hope Street, Glasgow, and the other against W. Hodge and Co., 34 and 35, North Frederick Street, Glasgow, and North Bank Street, Edinburgh, the publishers and printers respectively of the "Society Pictorial." In April, 1904, the pursuer took a photograph of Sir Henry Irving, and registered it in his own name as proprietor of the copyright, and he complains that on November 12 there was published in the "Society Pictorial" a picture of Sir Henry, which was a copy or colourable imitation of the copyright photograph. Damages to the extent of £2,000 are claimed in each action. The defenders state that the photograph of Sir Henry Irving by the pursuer was taken at the request of "The Sphere," in which it was subsequently reproduced, and that an advance agent of Sir Henry Irving's company supplied the defenders with a copy.

RE FRANZ BAUM.—This debtor, a photographer in Deansgate, said he started business in 1872. He had a deficiency of £322 on liabilities of £347. All his furniture and photographic apparatus was assigned to his wife in consideration of an advance of £75. The debtor said his wife had formally taken possession of everything. The debtor said that he was now using the apparatus as the agent of his wife. He spoke of very bad trade during the last four years. At first the war was to blame, and afterwards the depression in the cotton trade, and later still the weather. "People will not come out to have their portraits taken in such weather as we have been having lately," he said. "It is no use telling them that we use the electric light; they won't come out." Because of bad trade the gross takings last year were only £502, one quarter of what they had been in some years. The debtor denied that there was any real value in the goodwill of a photographer's business. The renewal order on old negatives did not pay for storage. He once gave £150 for 100,000 negatives, and it was the worst bargain he ever made. He would have been glad a month later to sell the lot for £5. In the last two years Stock Exchange speculations had involved him in a loss of £300. The examination was adjourned.

Correspondence.

- * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*
- * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE ROYAL PHOTOGRAPHIC SOCIETY.

To the Editors.

Gentlemen.—I have much pleasure in handing to you the enclosed report of a meeting held in the library of the R.P.S. on Friday last, when the members present expressed a hope that you would kindly assist them in making known the result of their deliberations.

Your good services in this direction will be greatly appreciated.—
Yours truly,

C. CHURCHILL.

180, Victoria Road, Old Charlton, Kent.

Appended is the report of the meeting. In asking us to publish it, Mr. Churchill, we fear, exposes himself and others to criticism, because, if we are correctly informed, a number of those for whom support is asked were present at the meeting. That fact, however, need not prevent R.P.S. members from supporting any or all of the nominees on the ground of their past records of service to the society or their promise of future usefulness.

"The election of President and Council of the R.P.S. appears to be causing more than the usual amount of interest on the part of the members, so much so that on Friday last a meeting was held, at which the question was discussed at some considerable length. The unanimity of those present was remarkable, and it was decided to promote the candidature of the following gentlemen for office. President: General Waterhouse. Vice-Presidents: Sir W. Abney, The Earl of Crawford, T. R. Dallmeyer, J. S. C. Mummery. Council: A. W. W. Bartlett (late secretary of society), H. W. Bennett*, St. L. Carson, C. Churchill*, Leslie Clift, Douglas English*, T. E. Freshwater*, F. Ince, Dr. Lindsay Johnson, G. Lamley*, Furley Lewis, Southcomb May, J. S. C. Mummery*, J. Borthwick Panting*, C. H. Oakden*, Leslie Selby, Sanger Shepherd*, C. W. Somerville*, B. Gay Wilkinson*. Note:—The * denotes Fellows of the Society, of whom half the Council must be formed.

The reference to the re-establishment of the office of hon. secretary, made in the late Presidential address, came in for very keen criticism, and the meeting recorded their opinion that the resuscitation of the honorary office was undesirable, and that the secretary should be directly responsible to the Council by whom he is appointed.

From the tone of the meeting there is no doubt that any proposal to appoint an hon. secretary will be strongly opposed at the annual meeting.

It was incidentally mentioned that the Council had very considerably strengthened the office staff during the past two years, to enable it to efficiently cope with the large amount of work it had to perform.

It appears that although the Reform Committee of 1902 has given no sign of existence during the past two years, it needs but little to bring it again into activity, and make its force felt in endeavouring to raise the status and membership of the parent society."

THE FOCAL PLANE SHUTTER, ETC.

To the Editors.

Gentlemen.—At page 45 of current issue, re "Focal Plane Shutters," the argument dealing with efficiency I consider to be untenable. The author says that "between F and G the plate receives the full action of the lens." That is quite right. On the adjacent portions EF and GH he says, "the action is incomplete," thereby implying that the light falling on FG is spread out, and thus reduced in intensity. But these portions do not receive the image of the central part, but the vanishing images of those portions of the view that adjoin it, and therefore cannot lower its light value. Thus I think that the argument is wrong.

For years I have been endeavouring to combat the idea in Process Work that the dot under any one screen opening is due to any light other than that derived solely from that minute portion of copy which it represents. The case in question is very similar, as is proved by the first formula quoted.—Yours etc.,
J. A. C. BRANFILL.
West Dulwich, S.E.

THE MARKING OF APPARATUS.

To the Editors.

Gentlemen.—We should like, through the medium of your journal, to bring before the manufacturing portion of your readers a subject which we think must be considered a matter of some importance. We were asked within the last week to fit an Iris diaphragm to a photographic lens bearing the name of one of the oldest of our English lens manufacturers. The mount had been cut through for a "between lens shutter," and our estimate for the cost of fitting "Iris" and preserving the old mount was considered too high by our customer. We were told that we had better make a "new mount," as it would be cheaper. We explained that this would entail the engraving of the maker's name on the new mount and we declined to do this.

Our customer (who is a well-known photographic dealer) seemed to consider our scruples very absurd, and stated as a positive fact that he could get done what we had declined to do by a most respectable man having business relations with all the best houses in London.

We should like to ascertain the opinion of the manufacturers as to what they think of this statement of the existence of a man who is prepared to place the name of anyone on a piece of work executed by himself.

There is no need for us to dilate upon the facilities thus afforded to unscrupulous traders to create two expensive instruments out of one. The possibilities are enormous if it is to be considered a recognised thing in the trade that a man has a right to engrave or mark apparatus with any other name or trade mark than his own, except, of course, with the special permission of the owner or owners of such name or trade mark.—We are, yours faithfully,

PERKEN, SON AND CO., LTD.,

E. T. Perken,

Director.

THE EXHIBITION OF THE BELGIAN AMATEUR PHOTOGRAPHERS' CLUB.

To the Editors.

Gentlemen.—The annual exhibition of the Club d'Amateurs Photographes de Belgique will be held at their club-house, 12, Rue Aux Choux, Brussels, from 18th to 30th March, 1905.

This is one of the important exhibitions of photographic art in Belgium, and any English amateurs visiting Belgium during the exhibition time will be heartily welcomed.

Will you kindly bring this matter before the notice of your subscribers.

Thanking you in advance and always at your service, I remain
yours faithfully,

HERBERT J. HIGGS.

LOSS OF GOODS.

To the Editors.

Gentlemen.—We find as the result of the interchange of several telegrams with one of our Scottish customers that the reason for the non-delivery of a parcel of negatives which he posted to us on the evening of the 18th inst. is that the mail basket containing the parcel was destroyed by the fire which followed the regrettable accident to the Midland Scotch Express on the morning of the 19th inst. Fearing that the parcels of other friends in Scotland and the North of England may have been thus destroyed, and thinking also that the information may be of service to other London business houses, we venture to ask the favour of the insertion of this letter in the columns of your valuable Journal as the readiest means to communication with the profession and the trade generally.—Yours faithfully,

RAINES AND CO.

Ealing, W.

Answers to Correspondents.

* * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.

* * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

* * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

A. Lamb, 18, Gowthorpe, Selby, Yorkshire. Photograph of W. Ozley.

W. R. Fergus, Anworth Villa, Dumoon, Scotland. Three Photographs of Canon A. Taylor.

H. Dunning, Bridge Street, Usk, Mon. Photograph of Brynderven House, Bettws Newydd.

J. B. S.—See Photo-mechanical Notes, p. 71.

STUCK.—See answer to Arthur Griffiths.

A. L. K. (Leeds).—Thank you, but the offer is not one we can accept.

E. A. CARNELL.—Many thanks for the cuttings and your kindly offer, but we cannot avail ourselves of the latter.

D. G. THOMAS (Wrexham).—The firm is still at the address you name. We should advise you to write again.

H. B. BOYD.—Possibly the Aerograph Company, 30, Memorial Hall Buildings, Farringdon Road, E.C., would do the job for you.

A. W. RICHARDSON.—We cannot answer questions on publishing matters. Better write to one of the journals which offer aid to literary aspirants.

RADVOUS HANNA (Assiout).—We have asked a publishing firm to supply you the book, as our own publishers do not supply books. We are obliged for your suggestions, which we will bear in mind.

ALPHA.—A camera of the make you name will answer well for the special work, but we think you will be wise to choose a lens of greater covering power. This you may select from the numerous anastigmats of the leading makers.

WORKING UP ENLARGEMENTS.—Please tell me where I can obtain a book on working up enlargements (bromide) with crayon or pencil—a book suitable for beginners.—L. B. H.

The best book is the "Art of Retouching Negatives and Finishing and Colouring Photographs," by Robert Johnson. Price 2s. from Marion and Co.

REGISTERING TRADE MARKS.—Will you please inform me of the name of a firm which undertakes to register trade marks? I cannot find one in the ALMANAC. G. H.

You should apply to the Patent Design and Trade Marks Office, 25, Southampton Buildings, Chancery Lane, London, at which you can effect the registration by post.

GLAZING PRINTS.—Could you also inform me through your medium a good preparation for glass previous to glazing prints?—G. H. M.

Beeswax, 20 grains in turpentine, 1 ounce; or spermaceti wax, 20 grains in benzole, 1 ounce. A few drops of either solution are rubbed over with a bit of flannel, and the glass then polished with a piece of silk rag.

MAKING BLOCKS.—I shall esteem it a favour if you will kindly let me know the name of book which gives instructions for producing designs on copper for engravers' use, and where to obtain same. APROPOS.

We presume our correspondent means half-tone blocks. If

so, the half-tone process by Julius Verfassser, price 5s., published by Iliffe and Son, is the best work.

P.O.P. NEGATIVE.—Will you kindly tell me if it is possible to wax a negative made on P.O.P. paper (gelatino chloride)? I want it for the purpose of improving the results of a bad negative. Have tried beeswax and turpentine, also beeswax and benzol, rubbed on, but the results are not uniform, and printing through the opaque paper this weather is very slow.—PRINTER.

As nearly all gelatine P.O.P. is coated on paper which bears an emulsion of barium sulphate, it is almost impossible to render it transparent. We would suggest that albumen or a plain paper be used, as there would be no difficulty in making these transparent. Very thin bromide paper could also be used.

RETOUCHING BROMIDES.—I should esteem it a favour if you would kindly give me a little further information on "The Rapid Retouching of Bromides" article in B.J.P. January 13, 1905. (1) To what dealers should I apply for the pastels, etc.? (2) How is the picture glazed? Could you advise me as to whom I should go for lessons in this method of working up bromides? Thanking you in anticipation.—ARTHUR GRIFFITHS.

(1) Messrs. Reeves and Son, 53, Moorgate Street, E.C., supply soft French pastels suitable for working up enlargements. (2) The word "glazed" refers to placing the picture under glass—i.e., framing. We believe lessons are given in similar methods of working up at the Polytechnic, and there is also postal instruction available.

FLASHLIGHT.—Would you kindly advise me the easiest method for taking a flashlight photograph of a large room with a party of about 100 heads; also quantity of powder used, and how many lots used for each exposure; and if an ordinary outdoor camera, would do for same; and what lens, wide angle or landscape; or any other particulars you may suggest?—A. WALKER.

The flash powder should be arranged in a train, being laid in a shallow trough of thin sheet iron. The higher it is placed (with due regard to the safety of the ceiling) the better. It is not easy to prescribe quantities, but try $\frac{1}{2}$ to 1 oz. of powder laid in two lines of 18 in. wide, and using an extra rapid plate and lens at $f/11$. Your ordinary camera and lens should answer.

OLD LENS.—Can you kindly inform me, re lens enclosed herewith, (1) Size picture it will cover, say C.D.V., Cabinet, 1.1, etc.? (2) What would be the present value of it? (3) Is it a very old-fashioned one, and the probable make? (4) The glasses of the lens being concave one side and convex the other seems quite different to some in use now. Why is this, and what is the advantage.—LENS.

(1) The lens is about 15 inches in focal length, and will cover a very large plate of about 30 by 20 inches. (2) Its value at the present time is practically nil. (3) The lens is the old globe lens of Harrison and Schnitzer, New York, and dates back to 1862. (4) The outside deep curves, which, as mounted, form a sphere, gave great covering power, but the construction suffers from spherical aberration and flare.

LENS.—I have a cheap Euryscope that gives a double image of any bright object, as a window in interiors, further down on the plate, or else in the roof. What is this fault? No hole in bellows. Also, in focussing a gas jet, with Euryscope on one side of the focus screen, a weak, ghostly image of the jet is seen on the other side. An R.R. shows the same trait, and when the eye is placed at the point where the ghostly image appeared on the screen (screen removed) the whole lens seems

lit up like a lantern condenser. Is this natural or faults in lenses.—OTHELLO.

It is almost impossible to do away with the secondary images, which are technically known as "ghosts," but they should not be so distinct as to form real images at the plane of the plate. Frequently, when a rectilinear lens is focussed on a candle flame, eight ghosts may be seen. Our advice would be to dispose of the lenses and purchase one of the newer and more costly, and also more perfect, anastigmats.

FIXING WORKED-UP ENLARGEMENT.—What is the best method of fixing an enlargement after it has been worked up in chalk? I have noticed in cases of chalked enlargements a beautiful gloss. Is this caused by any fixing medium? Of course, I do not refer to fixing the photograph, but the fixing of the chalk, so that it may not rub off or otherwise be spoiled.—CARBON.

A special varnish known as fixative may be obtained from most artists' colourmen, but a somewhat similar varnish may be made from—White lac (fresh), 1 ounce; methylated spirit, 4 ounces; absolute alcohol, 2 ounces. The enlargements should be placed face upwards on a table or other flat surface and the clear solution of the above sprayed over it with an ordinary scent spray diffuser, which must not be held too near the paper. It is quite possible also to "fix" the chalk or crayon by holding the enlargement over a dish of boiling water so as just to soften the gelatine, but it is a ticklish job.

BROMIDE PAPER.—In furtherance of some experiments I am making I have some bromide photographs in black and white (i.e., there are no half tones). Is there any method by which I can remove the emulsion in the high lights, leaving the bare surface of the paper exposed? Thanking you in anticipation.—H. SEYMOUR.

The best plan would be to adopt Howard Farmer's method, which was suggested by him in 1894. If a plate or paper, after developing, fixing, and washing, be immersed in a 20 per cent. solution of ammonium bichromate, the gelatine in contact with the bichromate becomes absolutely insoluble, and the gelatine, where there is no silver, can be washed away just as in a carbon print. Farmer used ferrous oxalate as a developer, and for the success of the process it is obvious that the developer used must have no tanning effect on the gelatine; but as practically pyro is the only developing agent that does tan this should not present any difficulty.

THE H. and D. SYSTEM.—I should be greatly obliged if you would kindly give me any information concerning the Hurter-Driffield system of testing the speed of dry plates. Should I be making too much demand upon your valuable space, perhaps you would kindly tell me where I can get such information.—ARROW.

Briefly, the Hurter and Driffield system consists of exposing a plate to a constant light for definite periods of time each of which is exactly double the preceding one, developing with a standard developer at a standard temperature, fixing, washing, and drying, and then reading the densities in a photometer and plotting the same on a chart, and from this finding the inertia, which by a simple calculation gives the speed of the plate. The whole of the necessary apparatus can be made at home or bought commercially, and a detailed description of the process by Mr. Driffield will be found in No. 56 of the "Photo Miniature," price 6d.

WORKING UP ENLARGEMENTS.—Will you please let me know if the black and white stumping chalk used for working up enlargements is the most favoured method employed by photographers? I shall be pleased if you will tell me this, or of any improved method.—J. R.

(1) Artists in finishing enlargements employ many methods and mediums. Chalks, crayons, water colours, pastels, and oils are all brought into requisition according to the nature of the order. (2) For quick finish the Aerograph is being widely used, and a free demonstration of its rapid effects can be seen at the office of The Aerograph Co., Ltd., 30, Memorial Hall Buildings, Farringdon Street, London, E.C. The Aerograph has rendered possible the cheap finishing of enlargements that previously could not be done by hand labour at anything like the same cost. The highest-class enlargement artists use the Aerograph sparingly at present, for the hand wielded brush, crayons, etc., must always be the most artistic. The Aerograph is necessarily more mechanical, but for quick finishing and beautiful effects of gradation it is unsurpassed, and the machine has "come to stay." If your knowledge is limited you should take lessons in B. and W.—our miscellaneous columns contain the names of several teachers—and also you will find some other announcements on page 28 in "The British Journal Almanac," 1905.

P.O.P. TONING AND ENAMELLING.—Some time ago I copied out of the B.J. the following: Dr. Liesegang's toning bath—Chloride of gold, 1 g.; carbonate of soda, 15 g.; chalk, 5 g.; water, 1 litre. After twelve hours the bath is perfectly clear and colourless, when it is ready for use. It is very durable, and gives fine tones. Please to say if the above bath is for P.O.P., and what colour tones it gives. Will you also kindly say how to properly enamel P.O.P., not merely squeegeeing? H. GREEN.

The above bath may be used for P.O.P., and it gives from brown to purplish blue tones, according to the duration of toning. The prints must not be left in too long, otherwise they become quite blue, and as they turn rather colder as a rule after fixing, this must not be lost sight of. The bath is really very strong; about four times the ordinary strength. To enamel P.O.P. prints, take a sheet of glass and clean well and polish with French chalk, then coat with enamel collodion, such as: Pyroxline, 7 gr.; alcohol, $\frac{1}{2}$ oz.; ether, $\frac{1}{2}$ oz. As soon as the collodion has set, slide into a dish of water and rock till all greasy marks have disappeared, then transfer to another dish containing a solution of gelatine in water, 5 gr. to 1 oz., this must be just warm enough to be fluid. Immerse the prints face downwards, and after a minute or two soaking bring the print and glass into contact, squeegee well, and then rear up to drain and dry; when thoroughly dry, lift by one corner, or cut round the edges and strip.

NOTICE.

A number of "Answers to Correspondents" are crowded out of this issue, and will appear next week.

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EX CATHEDRA.

Accessions to the Scottish Federation. We are glad to hear that one outcome of the exhibition of the Scottish Salon has been the addition of two more societies to those enrolled under the Scottish Photographic Federation. Crieff Photographic Association and Edinburgh Photographic Club are the new-comers, and the latter should strengthen the ranks of the Federation as its membership includes such leading workers as Crooke, Moffat, and Patrick, and others.

* * *

The French Salon. They still order some things better in France. The Photo Club of Paris, for example, holds its annual Salon in the height of the season and in the Palais des Beaux Arts in the Champs Elysées. The tenth exhibition will be opened on May 10, and will remain open every day from 10 to 6 until June 19. Lest these dates may deceive would-be exhibitors we would hasten to say that no exhibits are received after April 10, and that entry forms should reach the Photo Club at 44, Rue des Mathurins, Paris, as early as March 1. No prizes, medals, or commemorative plaques are offered, and no charges are made for wall space. But the committee take the wise course of limiting the works of any exhibitor to six, though a greater number, of course, may be submitted.

* * *

The R.P.S. Election. A correspondent calls attention in this week's issue to what is, we hope, but an accidental omission in the list of candidates recommended in the report forwarded to us, and which appears on p. 78 of our last issue—namely, the omission of any pro-

fessional photographer's name. It has been frequently pointed out in the past that the R.P.S. has neglected its professional members, and we cannot quite see why they should not be represented on the Council, considering that they have as big a stake in the success of the Society as its amateur members. If we are correctly informed, fifteen of the specially recommended candidates were present at the meeting in the library, and there were only three or four outsiders, so that the truth is that the pronunciamiento is practically a personal canvas by these members. We have nothing to say against the candidates, only the report may give a much stronger colour to the agitation than it deserves.

* * *

Chemical Action on Gold.

The reputation which gold enjoys as the most unalterable of metals is being undermined by the researches of a number of chemists. A review of recent work, and a description of some new experiments appear in a paper by Victor Lenher, in a recent issue of the Journal of the American Chemical Society. The chemicals which attack the noble metal run into quite a long list. They cannot be said to suggest any direct photographic applications, but it may be well to mention the chief of them in the hope that use may be found for them in gold-toning or in the reduction of over-toned prints. It is probable that many of the re-agents which the chemists have found to attack ordinary metallic gold only with the aid of heat or in a very concentrated solution would have action on the finely divided metal as it is found in a toned print under possible photographic conditions. The metallic perchlorides, perbromides, and periodides, hot selenic acid, and even alkaline sulphides and thiosulphates are distinct solvents of gold. In the case of selenic acid, auric selenate is formed, and it has been found that a similar action takes place in the case of the analogous telluric acid. Both these bodies probably obtain their solvent powers from the disengagement of oxygen when their solutions are heated, and this fact has led to the discovery that a number of mixtures capable of supplying oxygen possess action on gold. Among these are manganese dioxide and sulphuric or phosphoric acid, and potassium permanganate with either of these acids. Lastly, electrolytic oxygen formed as an anode of gold in presence of sulphuric acid, or an alkaline electrolyte rapidly effects the solution of the metal.

* * *

Studio Construction.

If one policy more than another has been pursued by the best photographers it is the re-modelling of the studio in a way to rob it of all resemblance to the conventional bare apartment littered with obvious "accessories," and suggesting the want of comfort, if not actual discomfort, on the first

entrance. In this revolt from the old order of things the photographer has received powerful aid from makers of plates, lenses, and artificial light, yet it may still be doubted whether half of the power thus afforded them has been applied to the reform of the studio. Make your studio like an ordinary room and you have gone half way to putting the sitter at ease. In that task attempts have been made to oust the strong top-light from the scheme of lighting, or rather to place it so that it will not seem anything out of the ordinary. In many cases these designs are forced upon the photographer by the premises in which the studio is to be, but none the less they have had the desirable result of disguising the studio as a salon. We are reminded of this movement towards the perfect studio by the reproduction in a German year-book of the atelier of Grainer, of Munich, which is lighted chiefly by a row of windows down the right-hand side of a spacious apartment. The ceiling is flat, and contains a large glazed space which can be curtained or uncovered at will, though it is stated that, except for groups and full-length figures, the side-lights alone are used. The room can thus be furnished from floor to ceiling strictly to carry out a given scheme of furnishing, and if it is possible to instal artificial light as the provider of the illumination overhead, the photographer may prepare to descend from the inaccessible heights of the fifth or sixth floor to the ground level or the first floor.

* * *

A New Mercury Lamp.

Dr. O. Schott recently exhibited and described before the Society for Natural Science at Jena a modification of the old form of Aron's mercury lamp, to which reference is made by Mr. Gamble in his paper on page 85. In Aron's original lamp, which was something like an inverted U, the mercury itself formed the arc, as each arm was nearly filled with mercury, and the lamp was tilted till some ran from one arm into the other, and so formed connection between the two poles, which were platinum wires sealed into the bottom of the arms and covered by the mercury. In the new lamp, the poles are ordinary carbon, but the most important improvement is in the nature of the glass of which the lamp is made. The old glass, even when only 0.1 m.m. thick, absorbed the ultra-violet, but the well-known Jena glassworks with which Dr. Schott is connected have succeeded in making a glass that is transparent to the ultra-violet even to λ 235 μ . The new lamp, which has been called the Uviolamp, is specially suitable for photographic work and for all purposes in which the ultra-violet rays are important, as in testing new dyes as to their fading properties and also as a substitute for the expensive Finsen light. For special optical work Gumlich in 1897 employed a mercury-cadmium amalgam instead of pure mercury, but from some unknown cause this lamp was extremely liable to fly to pieces. Now Lummer and Gehecke have succeeded in making a lamp of amorphous quartz in which the mercury-cadmium amalgam can be used without so far any apparent liability to sudden fracture, but it does not yet seem practical, as, either from occluded gas or other cause, it was found necessary to again exhaust the lamp after some use. Cadmium gives several bright red and orange lines which modify the ghastly effect of the pure mercury lamp, and it is quite possible that other amalgams might be found useful in this direction.

* * *

Fallacies of Photography by Rule.

Among the cases of false counsel which follow from the inconsidered application of a general law there are none more frequent than those involving the well-known law of in-

verse squares which governs the diminution of light. This law, that the illumination of a surface varies inversely as the square of its distance from an illuminant, holds good only when that illuminant is a point. If a light is spread over any considerable area, the illumination ceases to follow the law, and as the illuminants, lamps and gas flames, commonly employed by photographers, are usually large compared with the surface they illuminate, the law is more often honoured in the breach than in the observance. In instructions for printing on bromide or "gas-light" paper, for example, it is often advised that the exposures should be timed in accordance with the law regardless of the fact that the source of light is a gas flame, perhaps two inches in diameter, and is only a few inches from the sensitive paper. But it will be found that under these conditions the exposure at double the distance will not need to be nearly as much as the full four times deduced on false premises from the law of inverse squares. The latest instance we have noticed of this oft-repeated fallacy is the attempt of a German writer to systematise flashlight exposures, or rather the weights of flashlight powder, which should be used for subjects at different distances from the light. It is suggested that the powder should be weighed out on the basis of the law of inverse squares. Even setting aside the differences between a small dose of powder and a large one as regards its complete combustion—which is a considerable disturbing factor—the fact of the illumination proceeding from a source of the area of a flashlight will upset any calculation based on the "inverse squares" rule. And flashlight photography of subjects which differ enormously in the actinic value is a particularly unfortunate sphere in which to look for success in reducing correct exposure to a rule-of-three sum.

THE "ANCIENT LIGHTS" QUESTION.

A CASE that may prove of considerable interest to photographers who at some future time find their studio lights interfered with by the erection of new buildings came before the Law Courts a week or so ago. A brief report of the case will be found on another page. Until quite recent times it was recognised in law that windows that have had an uninterrupted light for twenty years enjoyed what is known as "ancient lights," and that the light coming through them must not be obstructed by any new buildings that may be erected in the neighbourhood. This question in the past has been settled over and over again in the Law Courts. In fact, the subject of ancient lights has always been a fruitful source of litigation. The chief points, however, have usually been with regard to the angle at which the light was interfered with. So far as we can remember, no question was ever raised as to whether, notwithstanding the obstruction, there was still sufficient light left for the owner's business. It was always understood that, whether he actually required it for his business, or not, he was entitled to the whole that he enjoyed as his "ancient lights," and we know of more than one or two cases where photographers have received very substantial compensation for their light being obstructed by new erections. Within the last three or four years we know of a case in which a provincial photographer recovered considerably over a thousand pounds by way of compensation for obstruction of light from his studio.

It has just been said that up to quite recently the dictum that ancient lights must not be interfered with by new buildings has always been upheld; but last year this was somewhat modified in the case of the Home and

Colonial Stores v. Colls. In this case the plaintiffs sought to have some new buildings the defendant had put up pulled down. The case was tried by Mr. Justice Joyce, and it was not contended that the new buildings did not obstruct some of the plaintiffs' light, but that the amount of light left was sufficient for the plaintiffs' business. This contention the learned Judge upheld and decided against the plaintiffs. The plaintiffs then took the case to the Court of Appeal, and here the judgment of Mr. Justice Joyce was overruled, and the appeal allowed. Next the defendant appealed to the House of Lords, and here the judgment of the Court of Appeal was reversed, and that of the lower Court upheld. The Lord Chancellor, in delivering judgment, remarked that if the respondent could restrain in the way he thought he could, and the Court of Appeal had decided he could, towns could not grow, and expansion would be unduly restricted. In the end judgment was given for the appellant with costs, and costs in the Courts below. This is the first case, we believe, in which such a judgment has been given, and as it was given by the House of Lords, of course it stands as a precept in all future cases.

The case referred to at the beginning of this article is perhaps one of still more importance to photographers than that just quoted, inasmuch as it involves the question as to whether a person is entitled to any greater amount of light for the purpose of carrying on his business than another person. It appears that the plaintiff, a Mr. Ambler, of Leeds, sought damages from the Bishop of Leeds on account of light obstructed by the new Roman Catholic Cathedral. After some negotiations arbitration was resorted to by the parties. In the result the arbitrator

found that, in spite of the building, there still remained sufficient light for all ordinary purposes, and that the plaintiff was not entitled to damages for interference, but, if a Court of Law found that he was entitled to an extraordinary amount of light, he assessed the damages at £600 odd. In the course of the hearing of the case in Court, it was argued for the plaintiff that user for twenty years and the nature of his profession entitled him to a special amount of light. This the learned judge, Mr. Justice Bray, ruled was not so, and held that a person carrying on a delicate trade was not entitled to a greater enjoyment of light than other persons, and therefore he gave judgment for the defendant.

It will be noted that, according to the report of the case as it appeared in the daily papers, no one person, whatever his profession may be, is entitled to more light than another, although he may enjoy "ancient lights." In the case of the Home and Colonial Stores, it was ruled that enough light was left them for their business—that of provision dealers. Of course, architects require a good light for their work, particularly as some employ photography for reproducing their drawings—say, by the blue process. In the case now under notice it is clear that the architect's light had suffered very materially by the new building, otherwise the arbitrator, subject to the question of law, would not have awarded the substantial damages he did. It is needless to say that photographers require far more light for their work than do architects. In face of these two recent judgments we cannot but congratulate those photographers who in the past have obtained substantial compensation for obstructed lights, as we fear that in the future their confrères will not fare so well.

NOTES ON THE RE-DECORATION OF PREMISES.

Just now, during the very worst bit of slack season the professional experiences, he will do well to look round and furnish up his premises. Only too often does he make "press of business" an excuse for excess of litter, rubbishy specimens, and dilapidated rooms, but this excuse is of no avail at this season. To begin at the specimens most seen, show cases should receive attention, and any prints damaged by wet should be removed, instead of being left month in and month out, to the general lowering in tone of the display. In towns where many view these specimens daily, a constant change of photographs should be kept up, for remember that you not only wish to attract intending sitters, but also wish to create a desire to be photographed in as many other folks as possible. Any event of local interest, if photographically recorded, makes a good draw. Those cases which are distant from one's premises should receive constant inspection just now, for the fog and sticky atmosphere soon take the polish off the glass. The shop window, if you possess one, is subject to much the same remarks as the cases. Only too often does the photographer keep up a good display when trade is brisk, but gets slovenly when a slack time arrives. If anything, this should be vice versa, for to attract business is the thing.

The Receptionist in the Colour Scheme.

The porch with its display cases must, of course, be kept well swept and clean. If you are having the place redecorated use self-coloured wall papers, with perhaps a frieze; the case itself should be quiet and subdued, the better to show off its contents. The newer decorators and designers are supplying most artistic doors. One in leaded glass and fumed oak would probably create a favourable first impression. The walls of the shop or reception-room must be so treated as to be absolutely unobtrusive, and so as to show pictures to

the best advantage. The newer ways of treating walls with panelling, etc., give an artistic air to the place, but much can be done at small expense by use of a frieze and picture rail. The wall paper may be of any plain dark colour—say dark green, dark brown, or dark blue. We recently looked round a prominent provincial's reception-room treated in this latter colour. The walls were covered with the dark blue paper and the floor with a carpet of mixed blues and greens, the darker green predominating. There was a dark green picture rail and a plain white frieze above, with a stencil peacock with fan-shaped tail at intervals of about a yard. The chairs and tables were of old English oak. We were much pleased at the quiet yet perfectly satisfying effect of the whole; but judge of our surprise when the receptionist came, and we saw how perfectly she filled the setting. The lady's eyes were deep violet-blue, and she wore a blue dress. Certain it is that such small details make for the perfection of the whole.

Harmony in Colours.

If you cannot afford to have the assistance of a skilled decorator, remember, as in mounting, to go for harmony, and cut out as many colours as possible. If you wish to have more than one colour, use variations of shades rather than another tint.

A good carpet has a wonderfully refining effect. Let it be quiet in appearance, but also let it feel good to the tread. If you cannot afford really good old furniture, a set of chairs in the newer style of applied art will do excellently. Have nothing tawdry or gaudily upholstered.

The Dressing Room.

The same remarks as to furniture and carpets apply equally to the dressing-room, which, since it is used chiefly by the

fair sex, should have the appearance of a boudoir; therefore the furniture must be lighter and daintier. Since exhibition of pictures is not the chief requirement here, a light wall covering is to be recommended. One or two pictures on each wall of the best you produce will be quite sufficient. You will of course provide dressing tables and full toilet requisites. Do not be stingy with the latter. The brushes need not be silver mounted, but the difference between poor and good bristles is most marked. Do not forget the powder and a stick or two of black for the eyebrows. If cost is a consideration, the floor of this room may be covered with linoleum, with a large thick rug in the middle.

An Arrangement in Cream and Red.

If we may be allowed to give an example of general treatment, we will describe one dressing-room of a large establishment in the North. The proprietor explained as a start that he had a theory that rooms facing south and west, which caught the sun, should be treated with the cold colours—greens, blues, white, etc.—whilst those facing north and east should be finished in warm tones—reds, pinks, yellows, etc. This being so, and the room facing north, he wanted to use the warm tones, but also to keep the scheme light. Reds for this were impossible, though his carpet and fireplace, as well as mahogany furniture, were of this colour. He therefore decided to have cream walls, and if any of you have tried it you will know that this is the only colour to go well with rich deep red. The walls are done in a deep cream paper, plain but for faint perpendicular lines and bands of similar tone, giving height to the room. The picture rail, with all woodwork, is deep cream, whilst the ceiling is cream, and, separating it from the paper, the plain frieze is done in lemon yellow. The whole, with half a dozen suitable water colours on the walls (no photographs), is charming, the deep red carpet giving the necessary warmth.

Studio Matters—Walls and Floor.

Coming to the studio, it is difficult to treat of it, very few lending themselves to decorative handling. The same idea as to making draperies, carpets, and woodwork harmonise should be carried out here, having great regard, of course, for the work to be done under the skylight. Perhaps, again, we cannot do better than give a short description of another large studio, either for imitation or inspiration. Green is used as the predominating colour, chiefly on account of its non-actinic properties, for the modern photographer requires no reflected light other than that over which he has control. The walls are light green, whilst that part of the roof not covered with glass is a very dark shade of the same colour. The doors are dark green picked out with the lighter green. The glass sashes are also light green. The walls, where the background stands, are papered, the one in light green with skirting board the same, whilst the other is in dark green. There is a picture rail and frieze on each. These walls make a splendid background either for single figures or groups. Another cute arrangement that struck us was that for a distance of 8 ft. from each end the floor was covered with dark green cork carpet. This is a perfectly plain material, and makes a splendid ground for full-length figures, interior or exterior. This leaves about 20 ft. between the two ends uncovered. A plain patterned green linoleum is used for this, since the camera runs so much better on it than on carpet. The cork carpet was not used, since it is apt to show scratches, and it would be rather monotonous. You may think that mere dark and light green would have the same effect, but that is not so, for the camera and accessories supply plenty of other notes of colour.

Perhaps exterior painting is rather outside our province, but we cannot help reminding the reader that the skylight should receive a coat of good paint at least once a year, if leakage is to be guarded against.

W. FOSTER BRIGHAM.

ENLARGEMENTS IN SEMI-TINT.

THERE is nowadays a great demand for coloured pictures, as is witnessed by the many chromo-lithographs which flood various magazines, and yet photographers generally have been slow to appreciate the public taste in catering for it. The carriages of our various railway companies are adorned with coloured photographs effectively, and these to the ordinary travellers are much more attractive than the more sombre platinotypes, and albums, which they have displaced. Undoubtedly many of these are coloured too vividly, and we can imagine the disappointment of the pleasure seeker who visits Brightmud-on-Sea in squally weather, guided thither by a sunny-south-looking photograph of the place exhibited in the city train of the railway company interested in the place.

Enlargements in Colours.

But there are two sorts of coloured photographs, and I think if professional men directed their attention to the more sombre variety in connection with their enlargements, an increased revenue would result therefrom. Of course, to colour delicately an enlargement is a matter of time and skill, so that the price of the finished production is too great for the ordinary purse. But there is a method of colouring not commonly known, which to the initiated passes under the name of "semi-tint," and to the ordinary black and white artist the process is simplicity and speed.

Materials Needed.

Assuming that the reader has read a previous article on the "Rapid Retouching of Bromide Enlargements" in THE BRITISH JOURNAL OF PHOTOGRAPHY for January 13, let us imagine he

is about to work up an enlargement in semi-tint. Having provided a set of best quality water colours (cheap colours are unsuitable), the flesh, background, hair, draperies, accessories, etc., are washed over with the respective tints of colour necessary for correct rendering. This, at first, is perhaps easier said than done, as it is not always easy for a tyro to select either suitable colours or to wash over evenly, and although neither of these points is so imperative as when the picture has to be finished entirely in colour, yet both are in a way quite essential.

Speaking generally, the following colours will form a suitable selection, viz.:—Reds: Madder carmine, burnt carmine, pink madder. Browns: Vandyke brown, bistre, madder brown, brown pink, sepia. Yellows: Aureolin, yellow madder, or gall-stone. Blues: French ultramarine, cobalt, Payne's grey. Greens: Sap green, olive green. I have excluded some beautiful colours from the above list on account of their fugitive nature (most of the above are fairly permanent), and also others which have not a transparent nature. Opaque colours are undesirable.

How to Colour.

Now as to the method of procedure. First work out any blemishes in the enlargement and clean up the grain and retouching with lead pencil. Speaking personally, my next step would be to colour the background, and if it is vignettied, some harmonious tint, such as sap or olive green, cobalt or bistre, would be washed over with a large (No. 8) sable brush. In doing this the top of the enlargement might be slightly

raised from the horizontal position, but in making the other washes it should be level, to prevent the colours running downwards, and so giving a deeper tint at their lower extremities. Next the hair, draperies, and accessories should be tinted, and finally the flesh. If this is tinted first, it is most difficult to judge the correct depth of colour. Bistre is a most useful colour for brown hair, and very weak washes of the same, with perhaps a faint dash of aureolin or yellow madder, for the fairer shades, or stronger washes mixed with Payne's grey or Vandyke for darker brown. Pink madder will form a useful wash for clear, fair skin, or mixed with burnt carmine, madder brown, brown pink, or yellow madder, for other shades. The tinting must be done more heavily than if the picture is to be finished completely by colours. The cheeks, lips, eyes, jewels, etc., should be coloured sufficiently, but no attempt is to be made in shading.

Semi-tint versus Oil Enlargements.

Having tinted all parts needing colour, the enlargement is then finished (when perfectly dry and placed upon an easel) in black pastel, similar to the method described in the article previously referred to, only that it will not need so much work, and also that the wholesale tinting is not required.

The finished result should be very effective, and much superior to cheap oil enlargements, especially as the likeness is quite easily retained, whereas in the latter it is generally lost. And in reality the enlargement appears to be effectively coloured, as in ordinary colouring much of the shadow work is done in neutral tones, and this is well represented by the more rapid and velvety finishing in pastel. Of course, it must be borne in mind that the stump work materially subdues the tone of the colours, and this advantageously, as it allows of a bolder and more rapid treatment.

ARTHUR WHITING.

A NEW LIGHT FOR PHOTOGRAPHY.

I.

It is a singular circumstance that whilst process workers have almost wholly abandoned any dependence on daylight for their exposures, the portrait photographer still clings to the faith that there is nothing like daylight for his work. Thus he lies dormant for practically six months in the year, and in many cases almost starves. He has led the public to believe that portraits can only be taken in good daylight, and the public, taking him at his word, only go to him when the sun shines. A few of the more enterprising in the profession have, certainly, installed various forms of artificial light, but it has always seemed to me that they handle it half-heartedly, looking upon it merely as a makeshift, and using it only when there is no alternative but to do so or turn away prospective sitters. Some, no doubt, are using it as a means for getting up a little evening business, and a few in the metropolis and large provincial towns are using artificial lighting because of the impossibility of getting a skylight, or even a large slant side light. But under whatever circumstances electric or other artificial light is being used, so far as I can gather no one employing the same seems very happy with it.

Existing Methods of Artificial Lighting.

I have spoken of artificial lighting in the sense that there are other forms of it than the electric light—for instance, incandescent gas, acetylene, magnesium—but none of these latter means need be seriously considered, for I think it is generally admitted they are more of less of a nuisance. The umbrella arc lamp is perhaps the most generally used form of electric lighting for portraiture, but it is troublesome at the best of times to get even illumination and uniform exposures, a difference in the length of arc making considerable variation in the light. Then, again, it is expensive to run now that most of the public electric supply stations are serving current at 200 volts or over. This means that all voltage over about 45 has to be absorbed in resistance, and if the lamp is running with a current of 25 amperes, it is consuming five units per hour. As the price may be often as high as 6d. per unit, it is not pleasant for the consumer to know that his light is costing him 2s. 6d. per hour. The exposures may be short, but there is the time for focussing. If half a dozen plates are exposed on a sitter one may soon use up several units, especially when it is remembered that hand-fèred lamps draw more than their normal current when the arc is too short. Multiple carbon arcs have been introduced to deal with high voltages, each arc in series taking up forty-five volts, and a less current being taken, but the difficulty of equally regulating the arcs makes the advantage of such lamps doubtful. Incandescent electric lamps

in large clusters are even more expensive than arc lamps, and they are subject to the disadvantage that the bulbs gradually blacken with prolonged use.

Enclosed and Open Arc Lamps.

Enclosed arc lamps have been adopted to a certain extent, but whilst they consume less current and give a more actinic light than the open arc, their general illumination is uneven, and several lamps have to be used to get a sufficiently diffused light, so that the cost of current soon equals, and possibly exceeds, that of the open arc. For example, four enclosed arcs run in parallel on 200 volts, with a current of ten amperes each, will consume eight units per hour. The exposures may, however, be shorter than with the open arc, and all the lamps need not be put on at the time of focussing, so that perhaps there may be nothing to choose in the end between the open and enclosed arcs.

The Mercury Vapour Lamp.

However we look at the matter there would appear to be a distinct need for some form of lighting free from the disadvantages of the present systems, and cheaper to run. The Cooper-Hewitt mercury vapour lamp appears to fulfil this desideratum, and some notes upon it, drawn from actual experience of the writer in connection with an installation recently made by Penrose and Co., should prove interesting to the photographic fraternity.

The Hewitt light is not at the present time of any particular novelty, its peculiar features being pretty well known since 1903, when Mr. P. Cooper-Hewitt, of New York, first demonstrated his lamp in Europe. Moreover, Mr. Howard Farmer described one of these lamps at the Royal Photographic Society on May 12, 1903, and enlarged upon its advantages for photographic work. An experimental form of the lamp was then shown. Dr. von Recklinghausen also lectured on the lamp, and demonstrated it at the Camera Club on January 21, 1904. However, it did not come into regular photographic use in this country until last November, when the installation under notice was completed.

The Mercury Lamp in America.

In New York, however, the light had come much earlier into commercial use for photography. Pirie Macdonald, a well-known portrait photographer, so early as August, 1903, spoke in enthusiastic terms of the new light. He said: "For artistic portrait work it is all that I can desire; it is ideal. It is so soft that it does not affect the expression of the face, and yet so powerful actually that it is equal to daylight. I am enthusiastic about it, and believe that nothing which has been

discovered since the advent of the dry plate twenty-five years ago will so revolutionise photography, especially portrait photography, as will this light. It is an epoch-maker."

De Witt C. Wheeler, photographer and lantern-slide maker, of New York, writing on October 8, said: "I have now been using one of your Mercury lamps for about eight months for lantern-slide making, and am more than pleased with the results. A careful test resulted in the fact that, compared with the north light, the Hewitt lamp is three times as fast, and the quality of the slide is much finer both in grain and projecting quality. For photographic purposes of all kinds, from studio lighting down to photographic printing, it is a boon to the photographer, and no photographic workshop is complete without one."

Such positive opinions as these naturally aroused great attention, and the result is that the Hewitt light for photography is now quite common in the States. That it will soon be as commonly used in this country when once its advantages are realised, we do not doubt.

Some Historical Notes.

A few words on the history of the mercury vapour lamp will be interesting. In the first place, although it is commonly associated with the name of Mr. P. Cooper-Hewitt, the idea of producing light from incandescent mercury vapour is not his. So far back as 1860 the first experiments for the production of electric light by means of mercury electrodes was made, and there is a story that an English experimenter named Way lost his life from inhaling the mercury vapour whilst experimenting. It has, however, been shown that this is a fiction, that Way died from natural causes without acquiring much honour for his pioneer work. Rapieff in 1879 took out an English patent for a mercury vapour lamp, and in 1892 Aron followed, producing a workable mercury lamp which is in use on the Continent for scientific purposes, being regarded as an effective source of light for spectroscopic work and for optical measurements. The intense brightness of the line spectra of mercury and the separation of the lines over the

whole visible spectrum renders the lamp very adaptable for the calibrating of prisms, etc. It is said that the Aron lamp has several faults in the matter of convenience of handling, which prevent its coming into general use. Another form of mercury lamp is that of Dr. Gumlich, which is very similar to Aron's. Recently also an English-made lamp has been designed by Bastian, but chiefly with the idea of using it for street-lighting purposes. It is far too small and feeble for photographic work. An ingenious feature of it is a magnetic device for tilting the tube to start the lamp.

Patentable Features.

It will accordingly be gathered that there is no form of mercury lamp for photographic purposes that can be considered other than the Cooper-Hewitt, the patentable features of which consist, not in the actual principle of the mercury vapour lamp, but in the character of the lamp and its arrangements for working. Cooper-Hewitt must have the credit of teaching us how we can control the physical characteristics of the mercury vapour so as to enable lamps to be built which are practicable and commercially profitable.

An Incombustible Light-giving Element.

The mercury vapour lamp, as its name implies, derives its light from the gas or vapour of mercury, in which the passage of an electric current causes a high state of incandescence. In this respect it will be seen that it differs from all other forms of artificial light now in practical use, because they are usually dependent on the incandescence of a solid—usually carbon, either in the form of a filament or a rod, as in the ordinary glow lamp or arc, or in a finely-divided state as in gas and in paraffin lamps. In all such illuminants, moreover, there is a consumption of the light-giving element, but in the mercury lamp the vapour being enclosed in a vacuum, no consumption takes place, and no trimming is required.

In my next article I shall speak of the construction and working of the lamp.

WILLIAM GAMBLE.

THE WEEK IN HISTORY.

Pictorial Photography at the R.P.S. in 1853.

On February 3, exactly fifty-two years ago, the first ordinary meeting of "The Photographic Society" was held at the Society of Arts. If anybody at Russell Square is searching for precedents to justify the Society's active interest in pictorial photography, they need not look further than the report of this meeting in the first number of the "Journal of the Photographic Society." A paper was read by Sir Wm. J. Newton, "Upon Photography in an Artistic View, and in its relations to the Arts." Probably the audience who listened to it did not perceive in it the germs of endless controversies. Sir William sought to establish "that photography can only be considered as a science to those who investigate its properties, but that to the Public, its results, as depicting natural objects, ought to be in accordance (as far as is possible) with the acknowledged principles of Fine Art." A study of this paper will show how old is the artist's protest against photographic truth—as old as the photographer's against those methods of the artist which he holds to be illegitimate.

The Second Step in the Carbon Process.

Every carbon printer has cause to celebrate the third of February, though it is not the anniversary of any basic discovery in pigment printing. But that day in 1869 marks the point at which carbon stepped out from the leading strings of the adepts and became a process which anybody might take up. The date is that of the patent of J. R. Johnson, then director of the Autotype Company, wherein it was shown that

a rigid surface used as a temporary or final support needs no cement to fix the exposed tissue to it, "all that is necessary," says the patent, "being the perfect exclusion of air between the moistened surface of the tissue impressed by light and the impermeable surface to receive the picture as its support. . . . To effect perfect and permanent adhesion, the surface of the glass or metal forming the support must be chemically clean, particularly when such surface is polished. To avoid the necessity of thus cleaning the surface, I occasionally cover the surface with a very thin layer of plain collodion, using for this purpose a collodion containing one or two grains of cotton to the ounce of ether and alcohol forming the solvent. When the collodion is set, but not dry, I plunge it into water to wash off the solvents until the greasy appearance has ceased. I then lay upon the plate thus prepared the wetted tissue; when the picture is completed it adheres to the glass with great tenacity by surface adhesion only."

If the rigid surface was to be the temporary support of the tissue, which was to be re-transferred to paper, the glass or opal was coated with a fatty or resinous body of melting point above the temperature of the water used for development. It could then be transferred, correct as regards right and left, by applying a piece of transfer paper to the wet picture, or leaving the whole to dry. The image then separates spontaneously from the prepared plate in adherence with its final paper support.

I might mention here that Johnson introduced a flexible temporary support based upon his invention. He coated plain paper with an aqueous solution of shellac—ammonia, if I remember rightly—being the alkali used to get it into solution. The surface of the lac coating was waxed in the same way as the metal plates, and then used in a similar manner. The paper was known at the time as lac paper.

It was only one further step from the process of that date to carbon as worked at present, and that was taken five years later, when Mr. J. R. Sawyer introduced the "flexible temporary support."

The Calotype Process.

It will be shown in a later issue of these notes at what point Fox Talbot introduced the development of a latent image into his methods. As pointed out by the Editors last week, he did so subsequent to Daguerre's process becoming known. I share the view that there is nothing in any of Talbot's writings ante-dating Daguerreotype, to show that the conception of a latent and developable image originated with him. The first heard of that was the patent of his "Calotype" process, which he took out on February 8, 1841. Calotype, to describe it briefly, consisted in treating paper first with silver nitrate and then, after drying, with potassium iodide. This iodised paper could be kept indefinitely, but it was scarcely sensitive to light. Talbot imparted sensitiveness to it at the time of use by the mixture of silver nitrate, gallic and acetic acids, which he called "gallo-nitrate of silver." This "Calotype" paper was exposed, dry or moist, within an hour or two of its preparation, and an image obtained which might be faintly discernible or quite invisible. In either case, it was brought to full strength with the gallo-nitrate of silver. As fixing agent Talbot used potassium bromide, by which the excess of silver in the paper was removed. It might be thought that such a process would not give permanent results, but Mr. C. H. Talbot still has in his possession a number of negatives made in this way during the forties. Until the use of hyposulphite of soda became clearly understood, bromide or chloride as a fixing agent was preferred by Talbot and other early workers.

Talbot's Patent Claims.

In this patent (No. 8,842, 1841) Talbot claimed a number of things, viz:—

The use of gallic acid, or tincture of galls, in conjunction with silver nitrate, to render iodised papers more sensitive.

Development, or, as he describes it, "the making visible photographic images upon paper, and the strengthening such images when already faintly or imperfectly visible by washing them with liquids which act upon those parts of the paper which have been previously acted upon by light."

Obtaining portraits from the life by photographic means on paper.

Fixing with potassium bromide or other soluble bromide.

Printing from photogenic pictures on to a different kind of sensitive paper.

In 1854 Talbot took action (Talbot v. Laroche) in support of this patent, which he alleged was infringed by workers of the collodion process, then newly introduced by Scott-Archer. The chief ground for action was that a sensitive collodion film developed with pyrogallic acid was an infringement of his sensitised iodide paper developed with gallo-nitrate of silver. But verdict was given for the defendant on the finding of non-infringement. The case is the most notable of any in the annals of photography, for it liberated inventors from the trammels with which they were threatened in Fox Talbot's patent. The Calotype process was almost immediately superseded by wet collodion.

Fox Talbot's Sun Prints of 1835-6.

As bearing on Fox Talbot's process of fixation with bromide and other haloid salts, it may be interesting to note that Mr. C. H. Talbot has in his possession a print fixed in this way which is sixty-five years old, for, according to the note on it in Fox Talbot's handwriting, it was made by him on February 6, 1836. It is a copy by contact of a fern print, and was probably fixed with common salt. A still earlier example, a negative made in the camera in 1835, also exists, and though it is probable that neither are in the same state as when first made, their present condition is a proof of the efficacy of this method of fixing.

HISTORICUS.

PHOTOGRAPHING THE INTERIOR OF THE EYE.

A Paper in "The American Inventor."

To get behind the curtain of the living eye, to put an X-ray, as it were, upon the diseases back of that impenetrable barrier, has been the aim of every scientific oculist for over a century.

In a long series of experiments with photographic apparatus I have been successful in designing a camera which is partially successful in photographing the delicate interior structure of the human eye.

In photographing behind the hitherto impassable curtain to secure a picture of the net-skin, or the skin over which extends the interlaced network of nerves of the background of the eye, there are a number of difficulties to be overcome before success can be achieved. It is necessary while taking such a photograph that the patient obtain a perfectly restful position of the eye, without which a photograph is of no use, for it will not show a correct condition of sight, muscle or nerve. Movement of the eye during the photographing so blurs the picture that it is impossible to ascertain the nature of the disease.

The Difficulty of Long Exposure.

Now, in all past attempts the photographic apparatus used necessitated an exposure of some minutes' duration with a strong outer light, and no patient could hold the eyes perfectly still in a normal position for the necessary length of time without the result being a

strain which would develop momentary trouble not natural to the subject. Few persons possess the physical control over the muscles of the eye to keep perfectly quiet during the time required for photographing by this method. Later there was an apparatus brought forth in which vivid flashlight powder was used in order to make the picture instantaneous, but the shield for the eye could not be made strong enough in this instance, and the machine was a failure.

I knew that could the camera be invented which would overcome these two obstacles many now totally blind persons could be made to see. Very frequently a physician is obliged to pronounce the sight of a patient entirely gone because of the fact that he cannot examine the background of the eye.

A Cat's Eye.

My experiments in developing a camera adapted for viewing the eye's interior met with many failures, and an occasional partial success. In the early attempts at eye-photography I found that a cat was the most satisfactory subject, because the eye of the cat throws out from fifty to one hundred times more light than does that of a human being, even when in normal condition. In a cat's eyes there is a particularly strong light, perfectly shielded back of the net skin, which enables the animal to distinguish in a dim light objects which would be unseen by the human eye. In the cat family, the

rays of light are thrown back, and pass a second time through the net-skin. This condition was a great aid in my experiments. I knew that the device which would successfully photograph the interior of a cat's eye would lack many degrees of power necessary to achieve the same result with the human eye.

Placing the Patient

The invention which I designed for this work is arranged with a light, but strong, chin-rest attached to the right-hand side of the camera. This enables me to obtain the necessary restful pose of the head without any effort or undue strain on the part of the patient. Opposite where the eyes are focussed when resting at normal or when the patient is looking straight in front in an easy position, is placed an adjustable eye-glass or lens. This has a special finder placed sideways to bring to a correct focus the eyes of the subject without obliging him to move his chin from the rest or making it necessary for him to shift his eyes from front, in which position a more complete photograph can be secured. A petroleum lamp fixed back of the adjustable lens makes it possible to light up the background of the eye by rays that are neither too strong nor irritating for even a badly-diseased eye. The photographic camera is attached to the observation tube or eye-glass lens. This consists of a short tube which is attached to the bulb which regulates the shutter of the camera. Attached to the back of the camera is a tin-covered slide which protects the operator and also the patient being examined from the dust of the flash powder.

All my early experiments were made on animals, for their eyes are much stronger than a person's, and I could try various combinations without fear of sending the subject blind. Not until I knew that I had at last evolved a perfect apparatus did I photograph the background of a man's eye.

Illumination by Flashlight.

The method of securing these valuable interior photographs is simple in itself once the manner of operating the apparatus is comprehended. The pupils of the patient are enlarged by the injection of "drops." He then places his chin on the rest and the lamp is swung into position and lighted. It is then possible to see in the special

eye-finder and in the glass slide at the back of the camera a good, sharp picture of the eye. The special focus, or searcher, is turned and regulated until the eye is brought in exactly the right position for a properly focussed picture taken with an ordinary camera. This accomplished (it takes but a few moments to make these arrangements) the subject can remove his chin from the rest and retire to some other part of the room, if he so desires. While he is resting the especially prepared plate, or negative, is put in the camera, the flash powder prepared, and everything put in readiness for the squeezing of the bulb and the taking of the picture.

Exposure.

The patient then returns and places his chin in the rest, the indicator marking the identical spot he had it in when the first focus was obtained, and the position of the eye is also indicated, so that there need be no second focussing. Now comes the simultaneous discharge of the flash powder and the opening and closing of the shutter, which completes the operation. The photograph is secured inside of fifteen minutes after the camera is brought out, and nearly all this time is used in setting up the apparatus. In getting the proper flash powder it was necessary to make a number of experiments before securing the kind which would do the work without hurting the eye even momentarily. I also had to construct a special machine for exploding the powder, so that the jar should be done away with and the most powerful light attained. Great care must also be taken in selecting photographic plates, for the background of the human eye presents an appearance of red on red, which is a particularly trying combination. red in itself being a colour unfavourable for photographic purposes. At last, after careful search, I found a satisfactory make of plates, and my prints came out clear and sharp.

A perfect picture of the interior of the eye does not consist of but one photograph, but of a series, the specially desired part of the eye being brought right in the centre of the composite picture if desired.

The invention is as yet too new for all its possibilities to be realised; but much relief can now be given to those suffering from optical troubles which have always been pronounced incurable.

DR. WALTER THORNER.

NEW EXPEDITIONS FOR THE OBSERVATION OF THE TOTAL SOLAR ECLIPSE OF AUGUST 30, 1905.

THE great astronomical event of the present year (1905) will doubtless be the total solar eclipse of the sun, August 30. Plans are now being formed, writes the "Scientific American," with regard to eclipse expeditions, the choice of observing stations being specially favourable. Several well-equipped expeditions will probably be sent from this country and Europe.

Mr. William H. Crocker, of California, has generously offered to defray the expenses of expeditions to be sent from the Lick Observatory to Labrador, Spain, and Egypt, and the provisional programme for the three stations is, in the main, as follows:

In Labrador, a photographic search will be made for intramercurial planets, in a region of the sky $8\frac{1}{2}$ deg. wide, extending in the direction of the solar equator from 4 deg. below the sun to 15 deg. above it. It has been thought likely that there may be one or more planets between the orbit of Mercury and the sun, and during a total eclipse they would become visible, if ever. On the whole, however, the observations so far made negative the existence of any body of considerable size in this region, though in 1878 Prof. Watson and Mr. Swift, it was thought, had discovered one, if not two, such planets.

Observation Centres.

In an article contributed by Prof. W. W. Campbell, of the Lick Observatory, to the "Popular Science Monthly," for June, 1904, he

writes: "The eclipse of August 30, 1905, will occur when the earth is seven degrees from the plane of the solar equator. It will therefore be advisable to search over a region of considerably greater width than was the case in 1901. Inasmuch as increased area means increased instrumental equipment, expense, and difficulty, a corresponding shortening of strip to be observed would perhaps be justified. It is to be hoped that observing parties well equipped for the intramercurial search will be located in Labrador, Spain, Tunis, and Egypt. If clear weather prevails at any of the four stations, very valuable results may be secured. Should a new planet be observed at three such stations, the enormous interest attaching to its discovery would be heightened by the fact that its approximate orbit could be determined at once. If no planets are revealed on first-class plates, the negative result would be scarcely less valuable, though certainly less interesting, than positive results; and the intramercurial question would cease to be a pressing eclipse problem."

The Photographic Equipment.

Owing to the generosity of Mr. Crocker, a photographic search for intramercurial planets will be made not only in Labrador, but in Spain and Egypt as well. In Spain the photographic intramercurial search will cover a region of $9\frac{1}{2}$ deg. wide, extending in the direction of the solar equator from 14 deg. below to 14 deg. above the sun. In Egypt the photographic intramercurial search will cover a region

of $8\frac{1}{2}$ deg., extending in the direction of the solar equator from 4 deg. below to 15 deg. above the sun.

Photographs of the corona by means of a camera of five inches aperture and forty feet focus, of the form first used by Prof. Schaeberle at the eclipse of 1893, will be made at Labrador, Spain, and Egypt. The large-scale coronal photographs made by Schaeberle at that eclipse opened a promising way for determining an explanation of the changing form of the corona, and whether the coronal streamers are moving in or out, or both, or neither, a question that has not yet been satisfactorily answered. Photographs of the corona should be secured for this purpose at widely separated stations, and the circumstances of the widely separated stations in Labrador, Tunis, Spain, and Egypt seem admirably adapted for solving this most important problem at the coming eclipse.

In Spain, a study will be made of the polarised light in the corona. These observations with the polariscope are for the purpose of determining the relation between the reflected and intrinsic light, and perhaps the size of the reflecting particles which are distributed through the corona.

Photo-Spectrographic Records.

The expedition in Spain will also be provided with spectrographs with moving plate-holders, which will be used to obtain a continuous record of changes in the spectrum of the sun's edge at the time of second and third contacts; and other spectrographs for determining the wave-length of the green coronal bright line, and, if possible,

the wave-lengths of the bright and dark lines in the isolated spectrum of the sun's edge, as nearly as possible at the time when the dark lines give way to the bright ones, and vice versa, and of a spectrograph for recording the general spectrum of the corona.

This is merely an outline of the programmes for the three eclipse expeditions to be sent from the Lick Observatory, California, to Labrador, Spain, and Egypt respectively. The details of the programmes have not yet been fully worked out, but will be announced later.

The Yerkes Observatory will not send any expedition to observe the total eclipse next August, but the Naval Observatory, Washington, D.C., will probably send three expeditions, one of which may be located near Burgos, in Spain.

Prof. E. C. Pickering, of the Harvard College Observatory, Cambridge, Mass., states that there will be no official expedition from the observatory. However, Mr. L. W. Ripley, of Hartford, Conn., intends to conduct a party under the auspices of a local amateur scientific society.

An expedition composed largely of amateurs will go to Burgos, Spain, which is probably one of the most desirable stations along the route of anticipated darkness. A programme is being arranged for covering the minor details of an eclipse, such as observations of the diminishing sunlight and the peculiar shadows cast by the foliage on the ground when the sun is nearly eclipsed.

MARY PROCTOR.

FOREIGN NOTES AND NEWS.

Testing Collodion for Collodion-Chloride Emulsions.

HERR WANDROWSKY gives in the "Photographische Mitteilungen" the following method of testing collodion for making printing-out collodion emulsion. It should be free from alkali, as shown by addition of a few drops of a 1 per cent. solution of phenolphthaline; if it becomes reddish violet, even if only faintly, hydrochloric acid should be added drop by drop till this reaction no longer occurs, and the collodion remains colourless. If the proportion of alkali is very great the collodion should be rejected, as it would otherwise give a coarse granular silver chloride. The collodion should be free from sulphates. These may be tested for by the addition of a small quantity of barium chloride—if a white precipitate is formed the collodion should be rejected. In making a collodion, care should be taken to filter the alcoholic solution of citric acid immediately before using it, as the little fibres may cause the separation of silver citrate. Careless addition of glycerine may also cause precipitation of the emulsion, and therefore it should always be diluted with three times its volume of alcohol, and added in a fine stream and with constant shaking

Under-exposure.

In Liesegang's Almanac for this year, Dr. Georg Hauberisser, of Munich, states that he has found that by the use of an edinol developer, followed by uranium intensification, he can compensate for an eight times under exposure as compared with hydroquinone. His method of experimenting was to use a stereo camera with identical lenses, the one stopped down to $f/11$, the other to $f/31$, the plate was then cut in two, and one half developed to full density with hydroquinone, and the other developed with edinol, and subsequently intensified with the uranium intensifier. Comparative half-tone illustrations are given, but one may reasonably doubt the practical value of such experiments, and question whether precisely the same results could not have been obtained by only developing for a short time with hydroquinone and then using the uranium intensifier.

A Bathing Formula for Panchromatic Plates.

Professor Valenta, in the above-named almanac, gives his latest formula for the making of a panchromatic plate, with the aid of ethyl violet, which he first suggested for use with collodion emulsion. His first trials to sensitise gelatine plates with this dye were a failure, because he used too strong a bath; the tinctorial properties of ethyl violet, like all the other aniline violets, being very great. Finally, he found that bathing a dry plate with a 1:250,000 solution with a little ammonia for three or four minutes gave a strong band of sensitiveness extending from C to D, with a fainter band extending from D to E. This obviously gives a minimum about E, and to fill this up he now suggests the use of monobromofluoresceine; and erythrosine to strengthen the yellow-green. He prepares a stock solution of:

Ethyl violet solution (1:5,000)	100 parts.
Erythrosine solution (1:500)	20 parts.
Monobromofluoresceine solution (1:500)	30 parts.

Fifteen parts of this are diluted with 500 parts of water and 2 parts of ammonia added. The plates should be bathed in the dark in this for three minutes, and then washed in a similar solution strongly diluted and dried at a moderate heat.

A New Developer.

Rudol is the name of a new developer which has just been introduced on the Continent, and for which some extraordinary claims are made. In the first place, it is not a developer of the ordinary kind; by its use very much under-exposed negatives show more details in the shadows than with all other developers, and this it is stated to be due to the fact that besides the ordinary process of chemical development there is also a physical development, and the excess of silver remaining in the film is used up to intensify the image produced by chemical development. Over-exposure is also compensated for without any alteration of the developer, halation is done away, and a negative exposed on a subject with very great contrasts, as, for instance, the interior of a room, including a brightly-lit scene in-

cluded by a window, shows details in the high lights and details in the shadows. It is sent out as a concentrated solution, which must be diluted with five times its volume of water, 0.02 per cent. carbonate of potash, or 0.06 per cent. of carbonate of soda added. The duration of development is stated to be from three to ten minutes, according to the exposure; 0.006 per cent. of potassium iodide is stated to be a powerful restrainer. The concentrated solution is said to keep indefinitely.

Solubility of Developing Agents.

M. Gravier has determined the solubility of the principal developers in water and in solution of sodium sulphite, with the following results:—

Developing agent.	Solubility in 100 parts of water.		Solubility in 100 parts of 10 p.c. solution of sodium sulphite at 15° C.
	15° C.	45° C.	
Adurol	100	more than 100	65
Amidol	30	33	28
Eikonogen	7.8	17	4
Glycine	0	0.2	Traces.
Hydroquinone	6	14	4
Metol	5	9	2
Ortol	36	52	0.75
Paramidophenol Hydrochlorate	7.4	11	0.8
Pyrogallol	59	more than 100	59

Cobalt and Lead Toning of Bromides.

MM. Lumière and Seyewetz have suggested the following as a method of obtaining green tones on bromide and other development papers. The prints must be very much over-developed, as they lose considerably in toning, and they must be thoroughly freed from all traces of developer or fixing solutions. Bleach the print in:—

Ferricyanide of potassium	60 g.
Lead nitrate	40 g.
Water	1,000 ccs.

Then wash thoroughly and immerse in

Cobalt chloride	100 g.
Hydrochloric acid	300 ccs.
Water	1,000 ccs.

for one or two minutes, when it will at once assume a brilliant green tone. A thorough washing afterwards is essential.

Cyclopædism at Work.

In 1902 the "Revue Belge de Photographie" appealed to its readers for aid in forming a bureau for photographic information, for prints and negatives, photographic books and journals, and the collection thus formed was placed at the disposal of subscribers; now, however, it has grown so much that it has moved to central and more commodious premises, Rue du Musée, Brussels, and has blossomed out into the Institut International de Photographie. Its principal object is the popularisation of photography, and the Institut has, with this object in view, collected and classified everything concerning the theory, practice, and art of photography. It is divided into two sections, the first comprising (a) a collection of trade catalogues, rules of societies, exhibition rules, and notices of the latest trade novelties; (b) bibliographic section, a collection of all French books and periodicals, lists of works, and articles on every subject; (c) tourists' information, list of dark-rooms and dealers, details of tours, choice of routes, what to photograph in every district (100,000 examples can be seen); (d) a permanent exhibition of the most beautiful specimens produced by the leading firms of the world; (e) a collection of all photographic magazines and journals of the world, facilitating the choice of subscription; (f) information and

advice as to the purchase of apparatus, accessories, works, etc. The second section is, we gather, extremely important, and may be summed up as the archives, and great stress is laid on the fact that by its aid one can ascertain the various schools in photography, follow up their evolution and that of each "master" in pictorial photography, the works of every painter, the effects of light and shade in the works of Rembrandt, the discovery of Gainsborough in posing the hands, etc., etc. The only thing wanting to make it perfect is a button that can be pressed, and which will enable the visitor to obtain anything and everything without search or trouble.

Sensitive Silver Compounds.

Dr. Gunther recently described before the Society of Natural Philosophy at Basle his experiments on the so-called photo-haloids of silver, and had made these of different compositions by mixing a solution of colloidal silver with estimated quantities of chlorine and bromine water; precipitates were obtained which the author considers as solid solutions of silver in the silver haloids, and not as solutions of the sub-haloids in colloidal silver. Some of them are very colour-sensitive, and good spectra have been obtained on them, but they are of no practical importance, as the images are very weak.

Photo-Mechanical Notes.

The Angle of Three Colour Screens.

Some people have an idea that where two cross line screens are used in three-colour work to avoid pattern, one make of screen may give less objectionable pattern than another. Whether this arises from the soft insinuations of those desiring to dispose of screens, or from the prejudice of those using a particular make, we are unable to say, but certainly, after having used the screens of Max Levy, Haas, and Johnson for three-colour work, the pattern formed does not seem to be in any case more or less obvious than in the others.

To obtain the minimum of pattern in three-colour, it is necessary that the lines should meet each other to make the widest possible angle at crossing. Now, there are six lines in any three-colour print (two for each colour), so that if we take the diameter of a circle as our base line and draw six lines from its centre, it will be found that they are spaced at the greatest possible distance from each other when the angle of each line is 30 degrees from the one next to it. If, therefore, for one colour, the normal screen is taken, one of its lines will give an angle of 45 degrees to the right, and the other 45 degrees to the left, or counting round, 45 degrees and 135 degrees. The second screen must, therefore, have lines ruled so that each component is 30 degrees away from the lines of the normal 45 degree screen, as, for example, one component at 15 degrees from the base and the other at 75 degrees, so that turned round they will read 105 degrees and 165 degrees. It will be found that we now have lines at 15, 45, 75, 105, 135, and 165 degrees, each of which is exactly 30 degrees from the preceding line. If any other angle but 45 degrees is taken for the normal screen with the cross lines at right angles to each other, then, of course, the colour screen would have to be at other angles than 75 degrees and 105 degrees, in order to get the 30 degrees to afford the minimum of pattern, but the final result cannot possibly be better than that obtained with screens ruled in the usual way.

The use of one large circular screen seems quite common on the Continent, the screen itself being turned to the different angles for the different colour negatives. Max Levy, who formerly advocated the pair of screens ruled as indicated above, in an article in the current "Process Year Book," modifies his previous opinion, and points out the advantages of the circular

screen, and he is making a fitting for it to be placed in the back of the camera, which will enable the screen to be turned to the correct angle with ease and exactitude.

Rotary Intaglio Processes.

Reviewing current reproduction processes in the "Jahrbuch des Photographen," Walter Ziegler comments on the rationale of the process which is well known in this country as the Rembrandt. It can be easily seen, he writes, that an exceedingly fine screen is used to get the grain. The printing portions of the plate being in intaglio, the fineness of screening which can thus be introduced is almost unlimited, as there is no danger of undercut. Printing on a suitable rapid press can be done in conjunction with inking by rollers: this latter becomes practicable on adjustment of the etching to the correct degree of shallowness and preparation of the non-printing portions to repel the ink.

All of which we would say is perfectly true, but is not much help to anybody who is struggling with the problem of commercial rotary intaglio printing. But Herr Ziegler's reticence may have something to do with his announcement that recent experiments in Germany in this branch of printing have met with good success.

Process Man and Artist

The same writer dwells on the importance of bringing together the creators of artistic works and their reproducers, and points out that this end is kept prominently in view by schools. The Munich School of Photography, he states, has specially set itself to this task, and has proved the good results which spring from such close association by a number of exhibitions. Too often the reproducer has no means whatever of learning anything of the aims and feelings of the artist, and if the photo etcher can be brought into sympathy with the painter and draughtsman there should be less need for artists' criticisms of reproductions of their work. Under present conditions, when so much of the work falls upon the etcher, such education of him is all the more desirable.

A Stable Albumen Solution.

The difficulty of keeping albumen solution is well known, and, whilst there are many preservatives, they are not capable of being used, as they would precipitate the albumen. However, Franz Novak, in the "Photographische Korrespondenz," states that he has kept for a month in a loosely-closed bottle a solution of dried albumen to which carbolic acid was added. The actual method of making it is as follows:—Two grammes of crystallised carbolic acid are mixed with 980 ccs. of water and 140 grammes of dried albumen added, the mixture well stirred, and allowed to stand for about three hours till the albumen has softened; it should then be rubbed up in a mortar till complete solution is effected and then filtered through cotton wool.

The Half-tone and Photography.

"The use of half-tones in advertisements is responsible for the enormous progress made in commercial photography during the last ten years, and all signs point to a continued elaboration and extension of this branch of industry. Whatever may be said of the relations or divergencies of art and photography, there can be no doubt that the commercial photograph is more effectively convincing than any amount of sketching and drawing. The catalogue, prospectus, price list, folder, or magazine advertisement which is now printed without a photographic illustration is the exception."—H. Bentley in the "Chicago Tribune."

A subject of importance to process workers and printers is fixed for Monday next, the 6th inst., at the Society of Chemical Industry, when a paper on "The Fading of Inks and Pigments" will be read

by Mr. J. W. Lovibond. The meeting is held at Burlington House, Piccadilly, London, W., at eight o'clock, and visitors are admitted on introduction by members, on application to the secretary of the society.

The exhibition of photo-engraving at South Kensington is still without a definite date for its opening, but we understand that an announcement will be made shortly. The exhibition is to be held in the Victoria and Albert Museum, South Kensington, and inquiries with reference to exhibits should be addressed to the Secretary, Exhibition of Process Engraving, Board of Education, South Kensington, London, S.W.

The International Photo-Engravers' Union of America have adopted "The Illustrator" as their official organ. In the current issue, President Louis Flader reports, among other matters, that the council has adopted a plan by which apprentices in small cities in which no union exists can be registered, thus enabling the Union to keep track of their term of apprenticeship. Under the new law, and with provisional membership laws in existence, there is no excuse for any man working at the photo-engraving trade anywhere in the country not being affiliated with the I.P.E.U.

Exhibitions.

WEST HARTLEPOOL AMATEUR PHOTOGRAPHIC SOCIETY.

THE second annual exhibition in connection with the West Hartlepool Amateur Photographic Society was opened on January 19 in the Victoria Hall. The pictures on exhibition numbered over 200, and included examples of the work of many of the most eminent exhibitors in the kingdom. Mr. T. Fitzgibbon Forde, of Sunderland, acted as judge, and his awards were as follows:—Silver medal for best picture in competitive sections: A Foster, Bishop Auckland, "The Hour When Daylight Dies." Open classes—Landscape—Bronze medals: H. Lincoe, Sunderland, "Old Durham," and A. Marshall, Nottingham, "Hauling Sail"; certificate, J. Turner, Sunderland, "In the Harbour." Architecture and portraiture—Bronze medals: Miss H. Stevenson, Birkenhead, "Her Eyes are with Her Heart, and that is Far Away," and A. Marshall, "The Rose"; certificate, W. A. Clark, Moseley, "An Old Cottage." Any subject not included in previous classes—Bronze medals: E. Seymour, Watford, "Flower Study," and A. W. Walburn, West Hartlepool, "Ivy Geranium"; certificate, Dr. F. Ward, Ipswich, "Aquilegia." Lantern slides—Bronze medals: Rev. H. W. Dick, Manchester, and H. Wornleighton, Leicester; certificate, W. Farren, Cambridge. Members' classes—Landscape—Bronze medals: J. J. Herbert, "Woodlands," and J. W. Walker, "Murky Tees"; certificate, J. T. Stanley, "When Trees are Bare." Any other subject—Bronze medals: A. Gibb, "Narcissus," and J. T. Stanley, "Rydal Water"; certificate, E. F. Jones, "An Old Fisherman." Hand camera class—Bronze medal: M. Willis, "Ebb of the Tide"; certificate, Geo. Welch, "Through the Wood."

BRIERLEY HILL CAMERA CLUB.

ON January 28 the tenth annual exhibition organised by the Brierley Hill and District Camera Club was opened in the Town Hall. The open section is numerically a little weaker than last year, but the quality quite reaches the average. In strength the members' exhibits are about the usual number, but there is a distinct improvement noticeable in the work. An attractive feature in the exhibition is the loan collection from the Birmingham Photographic Society. In the open section there are sixty-five entries and the awards of the judges (Messrs. W. R. Bland and J. Page Croft) are as follows:—Silver

medals, E. J. Jarvis (Plymouth), W. Clayden (Plymouth), C. F. Grindrod (Malvern); bronze medals, William Northwood (Brierley Hill), and A. W. Cooper (Preston); certificates, F. G. Tryhorn, Alfred Roffery, and E. Seymour. Members' Section: Silver medals, H. B. Cookson, Mrs. A. M. Wallington; bronze medals, Hugh Price, Herbert Whitford, William Northwood; certificates, Mrs. Walter Cochrane, J. C. Bunce, A. Gordon Smith. Lantern slides: Silver medal, J. Stabb; bronze medal, S. G. Kimber; certificates, William A. Clark and T. G. Tryhorn. Altogether there are nearly 280 exhibits.

FORTHCOMING EXHIBITIONS.

January 28-February 12.—Photographic Society of Marseilles. Secretary, M. Astier, 11, Rue de la Grand-Armée, à Marseille.

February 6-11.—Blairgowrie and District Photographic Association. Hon. Secretary, Wm. D. M. Falconer, James Street Cottage, Blairgowrie.

February 14-15.—Royal Albert Institute, Windsor. Hon. Secretary, Mr. Jas. W. Gooch, 9, High Street, Windsor.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club, Largerplatz No. 3, Vienna III., 3.

February 16-18.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earlham Road, Norwich.

February 21-March 7.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 7; for pictures, February 17. Hon. Secretary, E. J. Felce, 83, Adam's Avenue, Northampton.

February 25-March 4.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

February 25-March 11.—Edinburgh Photographic Society. Entries close February 11; for pictures, February 15. Hon. Secretary, J. S. McCulloch, 3A, North Saint David Street, Edinburgh.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-14.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 16-30.—International Photographic Exhibition, Earl's Court. The Organising Managers, 119-125, Finsbury Pavement, London, E.C.

March 20-25.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between January 15-21, 1905:—

FLASHLIGHT.—No. 828. "An improved photographic flashlight apparatus." Marwood Short, 21, Chapel Road, Anfield, Liverpool.

PENDANTS.—No. 1,042. "Improvements in and relating to lockets, photograph pendants, or the parts thereof." Thomas Wilcox, 111, Spencer Street, Birmingham.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PORTABLE DARK ROOMS.—No. 5,586, 1904. "A portable photographic dark room comprising a framework adapted to be folded up and raised or extended at will, enclosed in a double thickness of black cloth, having apertures for the passage of the hands and a larger aperture for the introduction of the framework and the plates or apparatus, and capable of being hermetically closed, said cover being provided with two frames with red glasses substantially as described and shown." Annet Meunier, 10, Rue Victor Hugo, Lyons, France.

SENSITISED PLATES FOR COLOUR PHOTOGRAPHY.—No. 25,718, 1904. "The present invention relates to improvements on an invention for which application for British patent was made on October 25, 1904, No. 22,968" (see B.J. January 6, p. 10), "and has for its object to explain that the coating of coloured particles interposed between the sensitive coating and the glass which serves for its support is not necessarily formed of two superposed elementary coatings, as indicated in the specification of said former application for patent; and that, on the other hand, the result sought may be obtained, not only by the six colours—red, yellow, blue, orange, green, and violet—but also by any given number of colours, distributed as equally as possible over the entire coating, and covering as far as possible the entire surface without superposition." A. Lumière et ses Fils, Lyons-Monplaisir, France.

SELF-TONING PAPERS.—No. 26,247, 1904. "Protection is claimed in a self-toning printing-out paper, the use of a new vehicle or medium, consisting of a mixture of agar-agar and arrowroot, or other suitable starch, in lieu of gelatine or collodion, the vehicles or mediums now in common use. The paper or other suitable material is coated with a warm, sensitive emulsion made as follows:—To 24 ounces of water add 1½ ounces of arrowroot or other suitable starch and boil. Dissolve in this mixture when cool: Sugar, 6 drachms; citric acid, 5 drachms; ammonium chloride, 64 grains; Rochelle salt, 4 drachms; and mix thoroughly. Add slowly 9 drachms 36 grains of nitrate of silver dissolved in 8 ounces of water. Next add slowly 11 grains of chloride of gold dissolved in 6 ounces of water. Finally take agar-agar 2 drachms boiled till dissolved in 18 ounces of water, and add warm to above mixture. Dry the coated paper, or other suitable material, in a dark chamber. The sensitive paper or material may then be printed by exposure to light under a photographic negative in the usual manner until a visible image of sufficient strength is obtained. If a print of a purple-brown tone is required the printed paper, or other material, is first washed for about ten minutes in running water, and is then

fixed and toned in one operation by immersion for about fifteen minutes in a bath of hyposulphite of soda solution containing about 20 ounces of hyposulphite of soda to 100 ounces of water. If a deeper purple-toned print is required, before washing or using the hyposulphite of soda bath the print is immersed for 15 minutes in a bath containing chloride of sodium 20 ounces, water 100 ounces. The reason for using agar-agar and arrow-root or other suitable starch as a medium in which to carry the light-sensitive salts instead of the usual vehicles, which are gelatine or collodion, is because when gelatine is used the gold salt is not so easily reduced, and will not give such satisfactory tones by immersion in hyposulphite of soda solutions only, while collodion as a vehicle is more costly." E. C. Morgan, Kew Foot Road, Richmond.

ROLLER-BLIND SHUTTERS.—No. 5,522, 1904. "According to the description, an endless cord is passed round the two blind rollers beyond the edge of the blind, and secured thereto in such a manner that a pull on the cord (or on the rollers or blind) will rotate both rollers in unison, and wind the blind on to one or other of the rollers, according to the direction of the pull on the cord. There is also a device for imparting movement in either direction to the cord, or to either of the rollers or the blind." J. E. Thornton, Rokeby, Altrincham.

New Book.

"Jahrbuch des Photographen, 1905." Edited by G. H. Emmerich. Published by Gustav Schmidt, Berlin. M. 3.50.

A review of technical progress, formulæ, tables, and industrial statistics occupy almost one half of the 500 closely-set pages of this "Jahrbuch." German patents of the year, and addresses of photographic schools, societies, and the trade make up the other half. The mass of facts is clearly arranged.

BEFORE the Society of Arts on Wednesday, 8th inst., at 8 p.m., Mr. R. Child Bayley, F.R.P.S., will lecture on "Time Development in Photography, and Modern Mechanical Methods of Carrying it out." Mr. George Davison will preside.

BRITISH Astronomical Association.—At the monthly meeting of the British Astronomical Association, held at Sion College last week, Mr. A. C. D. Crommelin, F.R.A.S., the president, who was in the chair, said that they had had an astronomical disappointment. Announcement had been made of the discovery of a sixth satellite of Jupiter, far distant from the others; and after the discovery of Phoebe, the ninth satellite of Saturn, it was thought to be very probable that this was a genuine discovery. Since the original announcement was made it had been suggested that the object might be an asteroid; but it was observed for a month at the Lick Observatory before being announced, and it was very improbable that an asteroid would hang about Jupiter for so long. However, last Tuesday they learned by telegraph that at Heidelberg Professor Wolf had discovered by photography a minor planet near Jupiter; and on that day a further telegram had been received giving the motion of the planet relative to Jupiter. It seemed probable that this was the same object as that seen at Lick; if so, the idea of the object being a satellite of Jupiter was impossible, for its motion was too rapid. It was evidently a minor planet. Should this identity be established it would be a great disappointment, because the retrograde motion of the ninth satellite of Saturn was quite a new feature in the solar system; and a distant satellite of Jupiter would have either confirmed or contradicted, as the case might be.

New Materials.

The "Wellington" Plates. Made by Wellington and Ward, Elstree, Herts.

In placing upon the market a series of plates Messrs. Wellington and Ward take a step which lays upon them the weight of new responsibilities. For ten years past they have appealed to photographers as specialists in the manufacture of flexible sensitive materials—paper film, bromide, P.O.P. and gaslight papers, celluloid film, and carbon tissues. It is no exaggeration to say that in this field they have shown themselves manufacturers of products which are not only of high and uniform excellence, but in many instances possess distinctive qualities. Hence it is that their entrance upon a new branch of manufacture forces upon them the obligation to maintain a notably high standard, as it raises expectations among those who are already familiar with their wares. Our readers will doubtless have these facts in mind, as we had in making trial of the new plates.

The "Landscape" brand is a plate of medium rapidity, marked at 100 H. and D., and sufficiently rapid for a large proportion of ordinary work. We do not hold the view that a slow or medium plate should be chosen in preference to a more rapid one, for that rule of the ancient authorities has been robbed of its value by the modern achievements of the emulsion-maker, but those who take this position ought to be satisfied with the clean working of the "Landscape" plate, which is rapid enough for hand-camera work in good weather.

The "Speedy" is a plate of extreme rapidity, marked by the makers as 250 H. and D., and fully as sensitive, in our judgment, as this figure indicates.

For these, and for the other plates, the developers recommended by Messrs. Wellington and Ward are pyro-ammonia and pyro-soda, the latter according to the following formula:—

No. 1.

Pyrogallie acid	1 oz.
Sulphite of soda	2 oz.
Citric acid	40 gr.
Water to	10 oz.

No. 2.

Carbonate of soda	8 oz.
Sulphite of soda	8 oz.
Water to	80 oz.

For studio work take 1 oz. of No. 2 and $\frac{1}{2}$ dr. of No. 1, with water 1 oz. For normal work take 1 oz. of No. 2 and 1 dr. of No. 1, with water 1 oz.

The "Iso Speedy" should prove the most interesting of this group of plates, as it bears an emulsion which possesses notable orthochromatic properties. It is customary to describe the quality of a colour-sensitive plate in somewhat vague terms, such as describing the rendering of a landscape in full foliage on a plate exposed under unspecified conditions. In the absence of foliage at the time of writing, and in order to give a degree of definiteness to our description, we give the results of tests of the "Iso Speedy" made by Mr. C. E. Kenneth Mees, B.Sc. The measures of sensitiveness found behind Eder's blue and yellow screens are:—

$$\frac{\text{Blue sensitiveness}}{\text{Yellow sensitiveness}} = \frac{1.75}{1}$$

An average ratio, Mr. Mees writes, for a good erythrosine plate is $\frac{15}{1}$; for a good panchromatic plate $\frac{5 \text{ to } 6}{1}$. The ratio of 1.75:1 of the "Speedy Iso" thus shows it to possess extremely high yellow sensitiveness, and this quality is plainly seen in photographs of the arc-light spectrum which we have made. The region of maximum density falls in the yellow to yellow-green part of the spectrum between D and E. The improvement in yellow sensitiveness effected

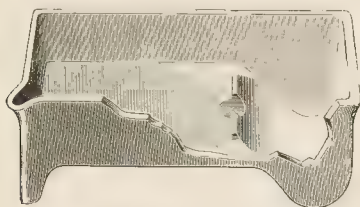
by the sensitising dye as measured by Mr. Mees is to increase it about seventy times.

Another property of the plate, which is plainly shown from Mr. Mees' series of tests, is the speed with which the plate develops. The figure, measuring its speed of development (with ferrous oxalate), is very high, as high as one usually obtains with slow landscape plates, with the result that with a development factor of 1 the time of development is 2min. 50sec., whereas the average time for a plate of this kind is from six to eight minutes. These results, we think, may be taken as showing that Messrs. Wellington and Ward offer a material which has distinctive qualities of its own, its character—to sum up in a few words—being the conjunction in one plate of intense orthochromatic quality, general sensitiveness, and great speed of development.

We must add that all the above brands of plates are sold at prices uniform with the popular shilling per dozen in quarter-plate size. The notice of a photo-mechanical and a lantern plate must be deferred until next week.

The "Well" Developing Dish. Made by Taylor, Tunnickliff and Co., Ltd., Hanley, Staffs.

By providing, at one end of the dish, a well large enough to hold developer for about one dozen plates, the makers obviate the return of the solution to the cup or graduate as each plate is developed. The plate, it will be seen from the figure, is most easily removed from the dish. To keep it evenly covered with liquid during development it



is necessary to rock the dish gently during the whole time, that is to say if only enough developer to fill the well is employed. But if development has to be prolonged, enough solution should be added to cover the plate when the dish is level. In handling a batch of plates which develop up quickly we have found the dish most convenient, and, with the precaution we have mentioned, it is just as suitable when patience is called for in dealing with under-exposure. The dish is made in quarter, 5 by 4, half, and whole plate sizes, the respective prices being 1s. 6d., 2s., 2s. 6d., and 3s. 6d.

The Sinnox Daylight-Loading Camera for Glass Plates. Sold by Marion and Co., 23, Soho Square, London, W.

A system of transferring the purchased box of plates directly into the camera for exposure may be reasonably sure of a warm welcome from a large class of amateur workers. Old hands may not regard the dark-room in the light in which our young friends—young in photography, if not in years—look at it, as the bugbear of an otherwise delightful recreation. The fact remains that "without a dark-room" is a phrase to conjure with, and Messrs. Marion can therefore claim attention for the system under which the photographer thrusts the box of plates into his camera as he leaves the dealer's shop, and is straightway ready for his exposures.

The "Sinnox" camera achieves this in a very simple way. Each plate is supplied in a cover of black paper, and when the packet of half a dozen is placed in position in the camera (fig. 1) it is only necessary to insert a pin into the first of six holes (fig. 2) and to draw off the outer case of the packet under cover of the chamber marked T

in fig. 3. Plate No. 1 is then ready for exposure, and in the same way, inserting the pin in holes 2 to 6, the remaining five plates are exposed. The packet is now removed, and can be sent off for development or developed like any other plate—in a dark-room.

The changing device, in our experience of it, has proved most reliable, and, altogether apart from daylight-loading, seems to possess the elements of regular working. The cameras at present embodying the "Sinnox" system are four in number, two for plates $3\frac{1}{2}$ by $2\frac{1}{4}$, and two for quarters. The prices range from 31s. 6d. to 60s., whilst plates of H and D 200 cost 1s. per half dozen in the quarter-plate size. The "Sinnox" price list fully specifies the cameras, and is obtainable from Messrs. Marion.

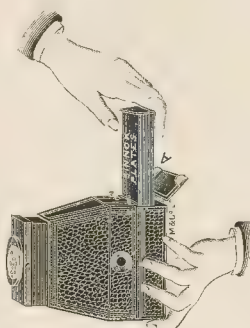


Fig. 1.

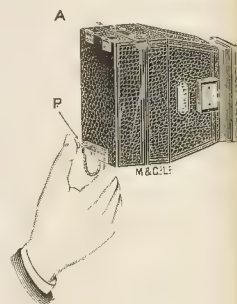


Fig. 2.

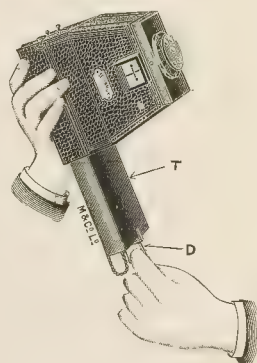
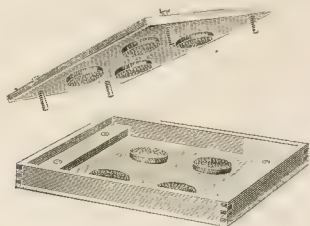


Fig. 3.

Messrs. Raines and Co., Ealing, London, W., send us their 1905 list of prices for enlargements and all other kinds of trade work. Though it runs to but forty-eight pages, it catalogues an immense variety of products, for Messrs. Raines are ready to do anything in the way of printing—from stamp photos to enlargements in life size, from a single carbon miniature on ivory to the entire printing of a studio; also to half-tone blocks and frames of all kinds. The list itself, excellently illustrated in half-tone, speaks for their work, though their reputation, as it is known to us and many others, stands in no need of such testimonial. Nevertheless, when much trade printing is of a kind to bring discredit on photographers, there is cause for satisfaction in the high standard which is maintained by the more scrupulous firms. If we could, we would show our readers a piece of carbon enlargement by Messrs. Raines which comes to our notice as we write. Apart from financial success, there may be legitimate pride in producing such work.

The Holborn Negative Posting Box. Sold by Houghtons, Limited, 88-89, High Holborn, London, W.C.

A box specially designed to secure safe transit of negatives through the post is now supplied by Messrs. Houghton, and ought to be

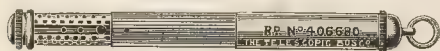


found useful by professionals in their dealings with enlargers and printers. The box is provided with felt pads, between which the negative is pressed when the lid is screwed down. As the screws work in brass bushes, the box can be used over and over again. In half-plate size the box costs 1s. 8d.; in quarter-plate, 1s. 4d.

W. Butcher and Sons, of Farringdon Avenue, have placed on the market a neat little printing gauge or actinometer, consisting of a numbered and graduated scale of densities, at the price of 1s. 9d. for three, so that one may be affixed to every printing frame. P.O.P. is the sensitive paper recommended for use with it.

A Pocket Gas Lighter. Sold by Townson and Mercer, 89, Bishopsgate Street Within, London, E.C.

Workers in dark-rooms ought to appreciate this convenient pocket edition of the old Dobereiner's lamp. No larger than a pocket pencil-



case, it may be carried on a key-ring or chain, and is stated by the makers to last for six or nine months without recharging. Applied to a gas burner, ignition takes place very rapidly. We can imagine that one of the lighters, which costs 1s. 6d., hung by a string in the dark-room, will render needless the question: "where are the matches?"

THE death took place at Inverness on January 20 of Mr. David Whyte, photographer, after a prolonged illness. Mr. Whyte carried on an extensive business in Inverness for about thirty-five years. He had the honour of photographing the late Queen Victoria and the present King and other members of the Royal Family. The deceased was 62 years of age, and is survived by a widow and family.

A CAMERA for Architectural Photography.—In the current "Journal of the Camera Club," there is a report of the paper by Professor Flinders Petrie, an abstract of which appeared in our issue of November 4, 1904. Professor Petrie uses for his architectural work in Egypt and elsewhere, a pattern of swing-lens camera, in which the lens can be tilted through an angle of 45 deg., while the plate is kept parallel with the architectural elevation. The camera was designed chiefly for telephoto work, and among the points of novelty claimed for it are:—Tripod attachment of the lens to the plate. Free motion of a base arm to 45 degrees vertically and horizontally from the normal. Use of a single clamp screw to secure (1) the lens carrier upon the base arm, and also (2) the ball and socket rods for fixing the tilt and skew. Use of compound spirals of wire and covering bag, instead of bellows. Use of plate box under the camera; and feed by putting flat films into the grooves of the ground glass, without any carrier. Graduations of the base rod into scale of proportion of the image to the object, as well as distances.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
6.....	Camera Club.....	Exhibition of Members' Lantern Slides.
6.....	South London Photo. Society...	<i>Home Sensitized Rough Surface Drawing Paper.</i> Mr. G. H. Moss.
6.....	Southampton Camera Club	Lantern Slide Competition. Subject.— <i>Landscape.</i>
6.....	Bowes Pk. and Dis. Ph. Soc.	Competition "Lectures." <i>Negative in Architectural Photography.</i> Demonstrated. Mr. H. W. Bennett.
7.....	Royal Photographic Society ...	Annual "At Home."
7.....	Aberdeen Photo. Association .	<i>Flowers of the Month.</i> Mr. Alex. Keighley, F.R.P.S. (Y.P.U.).
7.....	Sheffield Photo. Society.....	Record Work. Prints by Members.
7.....	Brentford Photo. Society	<i>Novelties in Hand Cameras.</i> Mr. W. P. Slater.
7.....	Border City Camera Club	Camera Notes Prize Slides.
7.....	Glasgow Southern Ph. Assn.....	Lantern Night.
7.....	Thornton Heath Photo. Society ..	<i>Amateur Photographer 1904 Prize Slides.</i>
7.....	Nelson Photographic Society ...	<i>The Production of a Newspaper.</i> Mr. C. Coates.
8.....	Everton Camera Club	<i>Five Days in the Walloon Country.</i> Mr. J. W. Cook.
8.....	North Middlesex Photo. Soc.	<i>How Illustrations are Made.</i> Mr. Chas. R. Fogwell.
8.....	Boro' Poly. Photo. Society	Exhibition of Prize Lantern Slides.
8.....	Windsor Camera Club.....	<i>Various Tones on Paper by Development.</i> Demonstrated. Mr. E. T. Smith.
8.....	Wimbledon and Dis. Cam. Club ..	<i>Mounting and Framing Prints.</i> Photography 1904 Prize Slides.
8.....	G.E.R. Mechanics' Institution ..	<i>The Use of the Figure in Landscape.</i> Illustrated. Mr. G. E. Mellor.
9.....	Richmond Camera Club.....	<i>Amateur Photographer Prize Slides.</i>
9.....	Liverpool Amateur Ph. Assn.	Conversations in conjunction with the Southport Society of Natural Science.
9.....	Rugby Photographic Society ...	<i>Printing and Toning Silver Prints.</i> Mr. W. H. Atkinson.
9.....	Southport Photo. Society.....	<i>Negative Faking.</i> Mr. T. Lee Syms.
9.....	Batley and Dis. Photo. Soc.	<i>Photography for the Press.</i> Mr. Snowden Ward.
9.....	Leigh Photographic Society	<i>Hand Camera Work.</i> Mr. T. F. Brogden.
9.....	London and Prov. Photo. Assn.	<i>Making Illustrations in India.</i> Major-General Waterhouse.
9.....	Hull Photographic Society	<i>Our South Country Rivers and their Origin.</i> Mr. Aubrey Strahan, F.R.S.
9.....	L.C.C. Sch. of Ph.-Engraving ...	
9.....	Camera Club	

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

MEETING held January 26, 1905, at the White Swan, Tudor Street, E.C.; Mr. A. E. Smith in chair.—Mr. R. J. Kindon exhibited a lens named the "Ocular," the peculiar feature of which is the fact that on pressing the bulb to open the shutter one of the lens components is set in motion. It was claimed that in portraiture this motion does away with the need of retouching. The movement of the lens is adjustable to the shutter exposure requisite for the time required to give a fully exposed plate.

In the "Stigmat" lens for landscapes, etc., the whole of the lens moves, and this motion renders possible the use of the full aperture f/6.2 for all purposes, the depth of focus obtained being marvellous.

Messrs. Zimmermann, 9 and 10, St. Mary-at-Hill, have the lenses fitted to cameras for the inspection of any one interested in what is quite a new departure.

Mr. Freshwater gave an exhibition of microscopic objects projected by means of the optical lantern worked by his son. The chairman remarked that he had seen such exhibitions on previous occasions, but never of such a high degree of perfection. In reply to questions, Mr. Freshwater stated that the apparatus used was the same that he made all his micro enlargements with, and handed round and explained various parts.

CROYDON CAMERA CLUB.

JANUARY 25.—The annual general meeting was held, and passed off in peace and quietude, a condition of affairs which by no means prevailed at the annual meeting preceding it. This was not due, as had been somewhat unkindly suggested, to the fact that a cautious Hon. Secretary had engaged a police constable as caretaker, for this

guardian of the law had, for reasons best known to himself, left shortly prior to the meeting. The real explanation of the general harmony is that there was nothing to quarrel about. Every one agreed that in Mr. H. M. Bennett, the Society had an ideal Honorary Secretary, and that the retiring President, Mr. S. H. Wratten, might in future be equalled, but not bettered. A large influx of new members have characterised their joint reign, and there is no doubt the general standard—if one may use such an expression for want of a better—has steadily risen. Certainly no individual members should be in want of authoritative information and guidance, for among the roll are plate makers, photographic paper manufacturers, research workers (two of whom, Messrs. Mees and Sheppard, have already made a name for themselves), practical technical photographers of ability, and last, but by no means least, advanced pictorial workers, firm on "gum" and warm on "boiled bromides." The fixture list has been a strong one, members largely contributing, in many cases, original papers and descriptions of new processes. The move to larger and better premises has been distinctly one in a right direction, and it speaks well for the club that considerably over £50 was immediately subscribed to cover its cost. The annual exhibition was one of the most successful ever held, in all respects, except from a financial one. Notwithstanding this, the club's funds are in a healthy condition.

The business of the evening resulted in Mr. W. H. Smith being unanimously elected to the Presidential chair, and Mr. F. W. Hicks to the somewhat ungrateful post of treasurer, both elections being signalled by loud applause. Mr. W. H. Rogers, an old and valued member of the Council, rejoins it, and Messrs. Bawcomb and Wood appear thereon for the first time.

The usual and inevitable votes of thanks to officers, and all and sundry, terminated the evening.

SOUTHAMPTON CAMERA CLUB.

THE members of this club who attended the lecture at the club-room, on Monday evening, by Mr. E. Harvey Piper on "Our Chapter Houses," formed an audience which, though an intensely enthusiastic one, was quite inadequate, numerically, to the merits of the lecture. Having by a specimen plan shown the general placing of the chapter houses in the various abbeys and cathedrals, the lecturer explained the two chief forms of construction in the oblong and polygonal styles, and then proceeded to make the round of the chapter houses, with the aid of the slides of many noted architectural workers, among whom Mr. F. H. Evans figured largely. Beginning first with the houses in the oblong style and following chronological order, Mr. Piper went first to Gloucester, with its Benedictine origin, and spoke of its connection with Domesday Book and Richard, and then dashed off to Durham, speaking in scathing terms of the vandal architect who destroyed by explosives the beautiful apse, and recording how the beautiful work had recently been restored as nearly as was possible. Winchester was next visited, the features so well known to the club members being pointed out; and then came Bristol, with its wonderful house, the finest conception of Norman work, according to the lecturer, in the land. Then came Ripon, stern and stately, with its story of the men who broke sanctuary, and again a local instance in old Beaulieu. The lecturer told again the story of King John and the Abbots, and then came still closer home to poverty-stricken Netley, whose establishment at the period of the dissolution was twelve brethren only, and whose only literary treasure consisted of one small volume. Here it was pointed out how the forbidding of the introduction of the figure into the sculpture had resulted in the exquisite geometrical designs, and how the very repression had resulted in the extension of the art. Furness Abbey, Exeter, Rochester, and Canterbury were visited in turn, and then the lecturer came to

the polygonal chapter houses, among which are Worcester, Lincoln, Lichfield, and Westminster.

Throughout the lecture Mr. Piper had been guide, artist, poet, and the eloquent enthusiast; and the vote of thanks passed on the proposition of the President, Mr. W. B. Hill, was of the very heartiest description. Mr. Piper was not permitted to leave until he had promised a further lecture, which will be eagerly looked forward to.

A SOCIETY called the Oliver Goldsmith Photographic Society has recently been formed by the members of the photography class at the Oliver Goldsmith Commercial School, Peckham Road. In addition to the ordinary meetings on Thursdays, practical instruction in photography is given on Tuesdays and Fridays from 7.15 to 9.45 p.m. by Mr. F. W. Bannister. Non-students, however, will be cordially invited as members of the society, and any one interested may obtain full particulars by writing to the secretary, Mr. F. Tomlinson, 63, Montpelier Road, Peckham.

Commercial & Legal Intelligence

B. J. EDWARDS AND CO., LTD. (Photographic Material Manufacturers, Ealing).—Announcement is made of issue on January 7 of £700 2nd debentures, part of a series created April 12, 1902, to secure £8,000, charged on the company's undertaking and property, present and future, including uncalled capital. Total amount previously issued of same series, £7,000.

G. B. KENT AND SONS, LTD.—The report of directors and accounts for the year ended September 30 states that £5,365 is available for the ordinary dividend. The past year has been one of severe depression and keen competition, added to which the prices of nearly all raw materials used in the brush trade have advanced. The life directors therefore forgo their fees. The board have placed £500 to reserve (making £2,500) and paid the usual half-yearly dividend on the preference shares. In addition, they have written off one-third of the balance of equipment account of the new factories, and recommend a dividend at the rate of 6 per cent. per annum on the ordinary shares for the second half-year (making 5½ per cent. for the year), leaving £254 to be carried forward.

AN Architect's Light.—Is an architect legally entitled to an extraordinary amount of light for the purpose of carrying on his profession? This was the main issue in a special case, stated by an arbitrator, Ambler v. the Bishop of Leeds, which came before Mr. Justice Bray last week. Mr. Ambler is an architect carrying on business in Cookridge Street, Leeds, and opposite his premises a Roman Catholic cathedral is being erected. Mr. Ambler complained that the new building obstructed his light, and threatened an action, but after negotiations arbitration was resorted to. The arbitrator found that in spite of the building there remained sufficient light for all ordinary purposes, and that the plaintiff was not entitled to damages for interference; but if, on the other hand, a court of law found that he was entitled to an extraordinary amount of light, he assessed the damages at £600 odd. It was now argued, on behalf of the plaintiff, that user for twenty years and the nature of his profession entitled him to a special amount of light. His lordship decided that this was not so. A person carrying on a delicate trade, he held, was not entitled to a greater enjoyment of light than other persons. In this case there was, therefore, no actionable obstruction; the plaintiff was not entitled to damages, and there must be judgment for the defendant.

COPYRIGHT in Post-Cards.—In the City of London Court a point of interest in regard to the sale of picture post-cards was disposed of on Monday last. Mr. Frank D'Arcy, photographer, 90, Grafton Street, Dublin, sued Mr. Frederick Hartmann, 45, Farringdon Street, E.C., for £34 1s. 6d., for seventy-one photographic negatives of views in and about Dublin and Killarney, supplied for the purpose of enabling the defendant to reproduce them as coloured picture post-cards. Defendant raised a counter-claim for damages, and said he had bought the exclusive right of reproduction, and now found that the plaintiff had sold other negatives of similar views to rival reproducers. Plaintiff stated that he had sold many prints made from the same negatives before he sold them to the defendant. Some of the negatives were fifteen years old. The copyright in the negative did not transfer until the purchase. It was not retrospective. In fact, he did not sell the exclusive right of reproduction. Some of the negatives took days to obtain, and the exclusive right to reproduce them could not be sold for 10s. 6d. each, the price charged to the defendant. He could take any number of negatives at the same time of the same view, and sell each separately. Defendant said he thought he was getting an exclusive picture. Judge Rentoul, K.C., found for the plaintiff on the claim and counterclaim, with costs.

News and Notes.

THE current list of "Elge" films reaches us from Messrs. L. Gaumont and Co., 22-27, Cecil Court, London, W.C.

A SALE of cameras and other apparatus is announced by Messrs. Houghton. It is to last for about a fortnight from the present date and lists will be sent on application.

THE card-catalogue of the Derby Photographic Society appears this year in its accustomed handsome shape, and fulfils its mission, we hope, of keeping the society fixtures constantly before the members.

NEW Thornton-Pickard specialities are listed in the 1905 abridged catalogue which the Thornton-Pickard Co. will send to any applicant. It describes the "Rotator," a new 30s. magazine hand camera which will be ready in March, a new triple extension focal-plane stand camera, and other apparatus.

FANCY DRESS BALL.—The employees and guests of Mr. J. F. Lessels, photographer, Aberdeen, were entertained last week at a supper and fancy dress ball. Twenty-five couples were present. An interesting function took place at supper, when Mr. Spencer, on behalf of the employees, presented Mr. Lessels with a handsome dressing-case as a token of esteem. The dresses of the company—historical and fancy—were exceedingly striking and effective. The host made a life-like David Garrick while Miss Lessels as Lady Hamilton was quaintly pretty.

THE camera must be included in the outfit of the up-to-date Parliamentary speaker. During the recent election in North Dorset a Free Trade meeting held in the Blandford market-place was continually interrupted by a number of Tariff young gentlemen. Mr. Outhwaite, who was speaking, stood it for some time, then called attention to them as specimens of latter-day reformers, and said he thought if he got his camera a photograph of them would do for the Free Trade journal; and at that moment he left the improvised platform. The ruse succeeded: the threatened camera induced the interruptors to take cover among the general crowd.

THE case of Herbert Meek, mentioned last week, came before the Brentford magistrates on Friday last, when it was stated for the prosecution that the accused was engaged as general manager to the

company on September 1, 1904, at a salary of £2 10s. per week. After he left on December 24, the prosecutor examined the books, and discovered certain irregularities, it being alleged that sums totalling £2 7s. 9d. had been received by Meek but not accounted for. After leaving the company's employ, the accused, it was stated, represented that he had been given permission to borrow the camera, whereas no such permission had been given. Mr. Wilfrid Firth submitted that the whole question was simply one of account, which could have been settled in a civil court. The Chairman (Mr. C. J. Cross) said there was not sufficient evidence to send the case for trial, and the accused was thereupon discharged amid applause in court.

DEATH of Mr. G. R. Baker.—We regret to announce the sudden death of Mr. G. R. Baker, who for thirty years past was connected with Messrs. J. H. Steward, opticians, of 406, Strand. Mr. Baker, who was fifty-five at the time of his death, was ill for only a few days last week, and succumbed on Saturday, the 28th inst., to influenza, pleurisy, and pneumonia. His interment took place on Wednesday last at the Brompton Cemetery. He leaves two daughters and four sons, one of whom is in business in Cape Town. The deceased gentleman will be missed by many friends, for he was widely esteemed for his genial qualities. Readers of the JOURNAL will remember him as a constant contributor to the "Lantern Supplement," and as one always ready to help others out of his wide experience of lantern matters.

DEATH from Potassium Cyanide.—Mr. W. Schroeder concluded an inquest at St. Pancras on January 18 on the four-year-old boy of a photographic printer, living in Bayham Street. The child was a hopeless imbecile, and on January 12 he took out a drawer from a chest in the room in which he was tied to his bed-end by a rope, and opening an unlabelled tin, containing cyanide of potassium, ate a quantity of the poison and died. The father said he did not sign the "poison book" when he bought the potassium cyanide, as he frequently went to the shop and obtained all he wanted as a wholesale customer. The Coroner referred to the freedom with which people on any pretext were able to purchase deadly poisons, and said that he was not satisfied that a chemist who sold 2 oz. of potassium cyanide, even to a regular customer, could take refuge under wholesale trading and not require the purchaser to sign for it. To allow such a practice to obtain would practically mean the sanctioning of wholesale destruction of life. The jury found that the child died from misadventure. They added that there was carelessness on the part of the parents, and that the sale of such poisons as potassium cyanide should be restricted.

"NATURE STUDIES," portrayed by the camera, has been the subject of the third one-member's show of work at the clubroom of the Tunbridge Wells Amateur Photographic Association. The exhibitor was Miss Turner. There were 105 pictures exhibited, which have been selected from the work done during the last three years. The Broads, in the Eastern counties, claim a large share of her attention, as proved by the wild fowl and their nests of that part, which were shown. There must be a great fascination in securing a negative of that rare bird, the great crested Grebe, on its nest, and it must be borne in mind that on these occasions it is frequently necessary to be hidden from the view of the bird, covered up with rushes or other matter, perhaps in a cramped position, and at times irritated almost beyond endurance by the interminable midges, so that it can reasonably be understood, when a successful rendering has been secured, how much store is set on the negative thus obtained. Amongst other pictures were nests of the teal, mallard, reed bunting, shoveller (and a view of the latter showing how the parent birds cover it up when leaving it), swans, lapwing, blue tit, cole tit, whin-chat, water-rail, and black cap.

Correspondence.

- * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*
- * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE ROYAL PHOTOGRAPHIC SOCIETY.

To the Editors.

Gentlemen,—As a London member, and one fairly in touch with the R.P.S., and a constant attendant at its meetings, may I ask by what authority the opening sentence of the report is made: "The election of President and Council of the R.P.S. appears to be causing more than the usual amount of interest on the part of the members"?

Till the idea for this meeting was mooted I had not heard a word—either in the house of the R.P.S., or outside amongst its members—on the subject; there certainly was not "more than the usual amount of interest."

If all I hear is true, the selection of the candidates resolved itself into somewhat of a farcical procedure, which may be briefly described as "you scratch my back, and I'll scratch yours." Mr. A. (present at the meeting) proposed Mr. B. (also present), Mr. B. proposed Mr. A., Mr. C. (present) proposed Mr. D., and Mr. D. reciprocated, and thus went on the merry little game.

As one of the members of the Reform Committee of 1902, I should like to ask why it must be resuscitated, it did its work and died the natural death; and what is the particular status to which the Society is to be raised from or to?

There is an old saying that a house divided against itself cannot stand, and it is a matter of regret that a self-elected committee or body of members should band themselves together to keep open a sore that was caused three years ago, and split the Society into cliques and parties. Surely if the members at large, or individually, are so dissatisfied with the work of the existing Council they can of themselves elect a new one, in part or in whole; but so far as I am concerned, to have a list such as published thrust upon me is as nauseous as a dose of medicine, and I shall exercise my right to support as few of its members as I like.—Yours faithfully,

FELLOW OF THE ROYAL PHOTOGRAPHIC SOCIETY.

London.

To the Editors.

Gentlemen,—As a country member, may I be allowed to ask either Mr. Churchill or any other member who was present at the meeting in the library of the R.P.S., as to the reason for the agitation which they are fomenting, and why should I vote for the list of nominees on p. 78 of your last issue. Some of them are utter strangers to me, and so far as I can see there is not a single professional photographer's name on the list.

Is the professional photographer not wanted in the Society, and is it to drift into a purely amateur shop?—Yours faithfully,

PROFESSIONAL.

Edinburgh.

To the Editors.

Gentlemen,—With reference to the letter from Mr. Churchill, we should much like to know—(1) Who constitute the "Reform Committee"? (2) Who appointed them? (3) What they want to "reform"? If my brother and I met by the cosy fireside in the library at Russell Square, and appointed ourselves "Reform Committee No. 2," should we be justified in endeavouring to coerce the society by seeking publication for our resolutions and threats of "opposition," "activity," and "force," as if we were the only members who knew how "to raise the status and membership" of the

society, or at least the only ones in whom the knowledge was associated with the requisite "activity" and "force"?—Yours faithfully,
F.R.P.S.

VIEWING STEREO PICTURES WITHOUT A STEREOSCOPE

To the Editors.

Gentlemen,—I was much interested in a paragraph in your issue of November 11, "Viewing Stereo Pictures without a Stereoscope," and shall be much obliged if you will refer to this again and give further particulars. If possible, print Mr. Violle's paper in full, as it would probably interest many of your readers.—I am, Sir, yours faithfully,

H. R. HEARSON.

Shanghai, December 24, 1904.

[Except that M. Violle uses a pair of lenses in taking his negatives, his process does not differ from that of Mr. F. E. Ives, who originated the method, and gave the results the name of "Parallax Stereograms." Mr. Ives' paper appeared in full in our issue of January 1, 1904.—Eds. B.J.]

GUM PRINTS FOR SOCIETIES.

To the Editors.

Gentlemen,—It might interest secretaries to know that I have a small collection of about twenty frames of gum prints, which I should be pleased to loan for exhibition or society gatherings.

The idea in the arrangement is to show the wonderful range of the process of gum, unattainable in any other medium.—Yours, etc.,
January 27, 1905.

J. PAGE CROFT.

HONORARY PHOTOGRAPHERS.

To the Editors.

Gentlemen,—A day or two ago I received the enclosed circular letter.

A similar "dodge" was tried some few years since, and the photographers who consented to take "beautiful photographs" for nothing soon discovered that the scheme, as far as they were concerned, was an utter failure.

The possible advantage to the photographer, even in the case of a high-priced periodical of importance, would be very problematic, but when it is a question of three coupons cut from a penny weekly magazine the value placed upon the "beautiful photograph" by the recipient may be readily guessed.

Such a communication is an insult to the profession, and should be treated with the contempt it deserves; and I sincerely hope none of my professional brethren will lend themselves to a scheme by which a large publishing firm seeks to be generous and increase the circulation of a magazine at their expense.—Yours truly,

Dalston Lane, London, January 30, 1905. F. A. BRIDGE.

The circular-letter runs as follows:—

"Woman's Life," Southampton Street, Strand, London, W.C.,

January 27, 1905.

Dear Sir,—During the next few weeks, and for a limited time, we are publishing in the pages of "Woman's Life" an announcement of a free photograph scheme, brief particulars of which are enclosed. In connection with this scheme we are desirous of giving your name and address as the photographer specially appointed by us for your district.

As you will observe, we state that you will be prepared, on presentation of three "Woman's Life" photograph coupons, to take a cabinet photograph of any of our readers without charge. You will, of course, readily perceive that this introduction by us paves the way for further remunerative business on your part, for it is most likely that in the event of a successful photograph resulting from the preliminary sitting, our readers would be desirous of purchasing at your usual charges further prints, enlargements, etc.

Your name and address will be duly announced in the pages of this paper, and with our large circulation it is expected that a great number of readers in your district will call upon you.

If you are agreeable to take one photograph of any reader presenting three coupons, as set forth in our scheme, without charge, will you please write to me by return, and your name shall be included in our list without delay?—Yours faithfully,

J. G. P.

For the Editor,

"Woman's Life" Presentation Photographs.

A new scheme that will interest every reader.

We have made arrangements with the photographers whose names are published here to take a cabinet photograph of yourself in exchange for three of the coupons shown below. Beyond this nominal fee there is no charge.

Three of these
Coupons entitle
you to a beautiful
photograph
either of your-

COUPON.

self, your husband,
your sweetheart, your
baby, sister, or
friend.

The photograph will be cabinet size, well taken, and handsomely mounted. Remember, no payment is necessary.

This week we publish the names of London photographers who have been appointed by us to take these free photographs. Next week our Manchester readers will be given an opportunity of securing a splendid photograph, specially taken, in exchange for three coupons in next week's issue.

List of "Woman's Life" Photographers.

N.

E.

S.W.

W.

ENTRIES for the South London Photographic Society's annual exhibition close on February 18, 1905. Entry forms can be obtained from the Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

PHOTOGRAPHING Fish.—One of the most interesting portrait galleries in New York, and one not generally known, is the roof garden studio of the big aquarium at the Battery. Here on bright days, says the "New York Tribune," certain of the fish, the most characteristic and representative of their respective species, are brought out from their exhibition quarters and photographed. A specially-devised narrow glass tank, with unusually transparent surface and pebbly bottom, is used for holding the fish during the picture-making time. This novel fish studio is in charge of the former superintendent, Mr. L. B. Spencer, who now conducts the nature study department in the laboratory, which was visited last year by 2,620 persons, including students. The desired fish are brought to the roof from the exhibition hall in large buckets filled with salt or fresh water. By the aid of a scoop net the fish is gently dumped into the waiting glass case. Here his movements are watched, and when a favourable attitude is struck, such as a free swimming one, with whole body outlined, the exposure is made. Quick plates, a rapid lens, coupled with an extremely short exposure, ranging from one-hundredth to one five-hundredth part of a second, are necessary to produce a fair image. Some of the large and showy fish, such as the carp, fourteen inches long, owing to their slow swimming gait, are comparatively easy subjects to portray. Of all the colony of queer boarders in the aquarium, probably the little sea horses are most popular with visitors. Reproductions of these for pictorial books and for "slides" used in school work are in great demand. Mr. Spencer has tried on a number of occasions to catch these fantastic creatures, but their frisky mood in nearly all instances has baffled his securing good and distinct facsimiles.

Answers to Correspondents.

* * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.

* * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

* * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPH REGISTERED:—

C. Foster, Promenade, Port St. Mary, Isle of Man. Photograph of Dr. Torrey addressing the Members of the Corn Exchange, Liverpool.

H. C.—The "Optical and Cinematograph Journal," published monthly by E. T. Heron and Co., 9 and 11, Tottenham Street, W.

R. C.—An article dealing with the mercury lamp commences on p. 85.

Miss J. S. (Paris).—We have none. If you address the British Commissioner of the St. Louis Exhibition, Westminster, London, he may be able to supply you with official reports.

F. W.—We should strongly advise you to patent the camera and then apply to some of the leading houses, whose addresses you will find in our advertisement columns or in the BRITISH JOURNAL ALMANAC.

FERROTYPE DRY PLATES.—Can you give me any formula for the sensitizing of dry ferrotype plates which will keep?—W. ELLIOTT.

Ferrotype dry plates are, we believe, coated with a collodion-bromide emulsion, formula for which will be found on pp. 1,046-1,047 of the B.J. ALMANAC for 1905.

LIPPMANN PROCESS.—I shall esteem it a favour if you will kindly give me particulars as to where I can obtain all information of the Lippmann process of colour photography.—A. H. P.

"Photography in Colours," by Bolas, Tallent, and Senior, published by Marion and Co., Soho Square, price 5s., is the best work.

PUBLISHERS WANTED.—In the query column of the Journal of January 13 you recommend a book called "The Pose in Portraiture," No. 2 of the Photo-miniature series." I have tried to get this through a good local bookseller and he cannot get it. Could you please tell me the name of the publisher?—W. F. BATE.

Dawbarn and Ward, 6, Farringdon Avenue, E.C., are the English publishers of the Photo-miniature.

F. H. C.—Unless you have sold the copyrights outright to the post-card people, you can register them now quite apart from your arrangements as to acknowledgment. But as to stopping publication, that we cannot say, because we do not know what arrangement you have made with the publishers. If you received nothing beyond the acknowledgment, certainly you can stop publication, but otherwise you do not appear to have much of a case.

LIGHT FOR PORTRAITURE.—I should like to know of a light to take miniature photos (not gas). Are there any acetylene generators made that are automatic and safe; if so, who are the makers?—W. E. H.

It is contrary to our rule to recommend the goods of individual firms. We would refer you to the Almanac for the current year, in which you will find the advertisements of several illuminants. Either acetylene or magnesium burnt so as to include the products of combustion will answer well for the purpose.

COPYRIGHT.—We shall be obliged if you will reply per post on receipt to our queries. We paid a certain firm of photographers for taking six photos, all different positions, also we paid a certain gentleman for posing. Can we claim copyright? or have we to have the sanction of the photographer? If we can, what will be the cost to enter each at Stationers' Hall, and what is the *modus operandi*.—G. W. AND Co.

As you have paid the photographers for their work, the copyright is yours, though you must, of course, give the name of the operator as the "author of work." You can register the copyrights at Stationers' Hall or through our own publishers on the conditions stated at the head of this column.

RETOUCHING.—Kindly examine enclosed prints and give me your opinion of retouching on same, and do you think I am improving since the last work you saw of mine?—ANXIOUS INQUIRER.

Your retouching is still very poor and unsatisfactory, and we consider that you are wasting your time in trying to teach yourself this art. Under an expert instructor you would learn more in one month than you would teach yourself in many years. Your methods are all wrong, and consequently you have no "touch," and show but feeble efforts in the direction of modelling. If you cannot get first-class instruction (and any other is quite useless) locally, we advise a course of postal lessons.

COPYRIGHT.—I have a photograph of a cathedral from a somewhat unusual point of view, which I think is worth copyrighting, and shall be much obliged if you will tell me exactly how much protection it would afford me. I am selling the view, and am naturally anxious that it should not be copied.—SIGMA.

Under the Copyright Act you can obtain protection in your photograph, and can prevent any one from copying it. But you cannot prevent any other photographer from placing his camera in the same position and producing an almost exact fac-simile of your view. "Nothing," says the Copyright Act, "shall prejudice the right of any person . . . to represent any scene or object, notwithstanding that there may be copyright in some representation of such scene or object."

NON-ACTINIC FABRIC.—May I ask if there is a thin, light-safe, easily-carried fabric under which one could change plates safely away from home—say in corner of old roofless building. The fabric might be thrown over one like a curtain, and plates changed under it in the box in which things are carried. A fabric transmitting enough ruby light would be best, but, failing this, a small kind of window might be cut in it. It would require to be a fairly large curtain; consequently thin, yet light-safe.—CURTAIN.

You can obtain ruby fabric from the dealers, and this alone, or silesia lining with a ruby window, may answer your purpose. But why go to all this trouble when you can purchase a reliable changing bag for a few shillings? With it you can change plates in safety anywhere, which you will certainly be unable to do by the method you contemplate.

PHOTOGRAPH ON COPPER.—Many thanks for answer, but it is not what I require. What I want to do is to photograph some designs on to copper plates as a guide for the engraver to work upon. If you can let me know the name of book which gives instructions, and where to obtain same, shall esteem it a favour.—APPROPOS.

It would be possible to transfer a collodion positive or carbon print on to the copper, but as a substratum would have to be used, this might possibly give trouble to the graver. The best thing to do would be to use the enameline process, as used for making half-tone blocks and print direct on to the copper.

It might be possible also to utilise the principle of mercury by bleaching a bromide print in mercuric chloride, well washing, and then squeegeeing down to the copper, when the mercury should attack the copper, giving a faint but distinct image.

SEPIA SENSITISER.—**COPYRIGHT.**—1. Could you give a formula for an preparation in the shape of a sensitising liquid which brushed on to paper gives a pleasing sepia tone without any toning bath? 2. Does copyright obtained in England hold good for the Australasian colonies.—SEPIA.

1. Dissolve 55 grains of silver nitrate in 4 to 5 drams of distilled water. Add ammonia drop by drop to just re-dissolve the white precipitate, and then add (very cautiously) weak sulphuric acid until the odour of the ammonia entirely disappears. To the solution thus obtained 40 grains of green ferric ammonium citrate, dissolved in 6 drams of water, is added. The sensitiser keeps well in the dark. 2. British copyright extends to all the colonies, under the Berne Convention, but we understand that legislation is somewhat lax in some colonies. We note, with thanks, your information as to the Australian Philosophical Institute.

COPYRIGHT.—On our September holiday, 1904, I specially took a series of photos of a well-known person. Several weeks before I had arranged with him to do so, and had considerable difficulty in making arrangements, as several persons had also to be consulted. The photos turned out well, and in return copies were presented and received with thanks. No money was paid to me for taking them, but fully a month afterwards I received an order from one of the parties asking copies and account with them. These I sent on, and heard nothing more of them until to-day. I find three of my photos are reproduced in a well-known magazine, but with false statements under each regarding circumstances under which I took them. Can I claim damages for the following reasons?—(1) Not having been paid to take the photographs. (2) Gave no authority, or was even asked to allow reproduction. (3) When photographs appear they have false and misleading statements under each, and no name mentioned for photographer.—H. S. L.

We think it is clear that the copyright is yours, but you appear to have neglected the very advisable precaution of obtaining a written assignment of it to yourself and immediately registering it. This is the wisest course to pursue in all cases, as it leaves no room for argument as to whether the photographer did or did not obtain a "valuable consideration" for his work. We should advise you to register the copyright at once. Though you cannot claim damages, you can stop further publication and obtain penalties from the infringers.

NOTICE.

Several replies are held over for insertion next week.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

Oxygenated Acetylene. The idea of utilising a mixture of oxygen and acetylene is not new, but the disadvantage is that except in the correct proportions the mixture is extremely explosive; but at the Royal Institution last week Mr. J. Reid showed that by injecting a stream of oxygen into an acetylene flame the brightness was raised from 150 to 2,000 candle-power. Although we have not details as to the particular method employed, it is obvious that a modification of the old blow-through oxyhydrogen jet might be utilised. The possibilities before such an enriched acetylene are, of course, great, and it might be useful not only in the studio, but also for lantern work.

* * *

More Advertise-ment. A week or two ago we quoted the sign of an American photographer: "Time is flying; you will never be so good-looking again. Come in and be taken now." The phrase has inspired an artist of our gay contemporary, the "Sketch," in which we see depicted a woe-begone and presumably mangled motorist deposited before a photographer's premises, on which is displayed an invitation to enter, couched in the terms we have just quoted. The juxtaposition of the printed phrase and the automobilist coiled like the Laocoon among the debris of his vehicle gives a delicious irony to the situation. Photographers who want to attract visitors to their shop windows might do worse than frame the picture and display it for a day or two.

* * *

Alpine Photography. The special photographic difficulties of the class of subject encountered by the Alpine mountaineer are well known to lie chiefly in the

great range of contrasts. It frequently happens that a distant snow-clad peak falls next to a foreground of dark pines, and it is the photographer's task to average exposure and adjust development. A highly tentative method has been adopted in these cases, but Dr. Kuhfahl, narrating his experience of mountain photography in "Photographische Kunst" is in favour of stand development. The plates are retained in the developing solution until the details are visible in the darkest shadows. If the negative is then too dense in the high lights it may be necessary to reduce it with ammonium persulphate, but Dr. Kuhfahl recognises the danger of this operation, and prefers to obviate it by a restrained developer, selecting for this purpose edinol in admixture with acetone sulphite. It was found best to make the exposures on orthochromatic plates through an adjusted yellow screen.

* * *

Coloured Lantern Slides.

Some time ago we commented on the crudity of the vast majority of hand-coloured lantern slides, and deplored the desuetude of an art which, at its best, is one deserving of preservation. We prophesied a revival of the coloured slide as produced by the modern trichromatic process, or hand-coloured by a skilled artist, and there are signs, we are glad to say, that public lecturers and others who seek to amuse and instruct through the medium of the optical lantern, are availing themselves of modern progress in colour photography. But it is particularly regrettable that in instances where the factor of the expense of good hand colouring can hardly be of any account, the most appalling work should be tolerated. In one of the largest of London's music-halls the illustrated song is now a feature. Perhaps twenty slides are employed in accompaniment of a song of five minutes' duration, but in the estimation of anybody with the faintest development of colour sense the slides had far better be left out of the programme. When we hear of the large sums of money paid to music-hall performers, it is legitimate to ask why an audience should be offended by an exhibition of slides so ludicrously crude in their colouring as to destroy any interest in the vocalist's efforts. And the worst of it is that the coloured lantern slide is plunged deeper still in public estimation by such exhibitions.

* * *

Photography and Criminals.

Photography is very largely employed by the police authorities, but is not so much depended upon now, so far as portraits of criminals are concerned, as it used to be. This is not altogether to be wondered at, considering the very poor photography they usually were. They were often taken by, not an experienced portraitist, but one of the

police force, and always in two set positions—one full face and one in profile. These portraits often led to the arrest of an innocent person, and frequently aided the escape of the criminal through the bad likeness. Now the authorities, while still utilising photography, rely more upon photographs of finger imprints—the markings on the fingers of no two persons being, it is affirmed, identically alike. The police have albums filled and classified of thousands of photographs of criminals' finger prints for ready reference. We read that last week some thieves broke into the premises of a bowling green club at Bradford, and made a good haul of wine, spirits, and cash. On one of the spirit glasses a detective found a man's finger mark; this was photographed, and the photograph, when compared with a thousand or more on the file, was found to be identical with one of a man who had passed through the hands of the district police. The man was arrested, and subsequently admitted his guilt. In this way photographs of finger prints often prove of more value than portraits would. A burglar when he breaks into a house does not leave his portrait behind as a means of identification, but he imprints his finger marks, as he frequently finds to his cost.

* * *

"Honorary Photographers."

The letter of Mr. F. A. Bridge, in our last issue, should command the approval of every photographer. Fancy a photographer being asked to produce a cabinet portrait, "well taken, and handsomely mounted," on the production of three coupons cut from a penny weekly paper. This means that by purchasing three penny papers and going with the coupons to one of the "appointed photographers" they are to get a well taken, handsomely mounted portrait for nothing. By buying three dozen of the publication they would be entitled to go to a dozen of the different appointed ones and get a cabinet portrait from each; that is to say, they could obtain a dozen cabinet portraits, in as many different positions, for an outlay of three shillings, and a quantity of waste paper into the bargain, and the deluded photographers who agree to the scheme get nothing at all. In face of this, the alluring statement in the circular "that in the event of a successful photograph resulting from the preliminary sitting, our readers would be desirous of purchasing at your usual charges further prints, enlargements, etc.," is very considerably discounted. Enterprising publishers are very fond of making capital, without remuneration, out of photographers in different ways. One dodge is to offer a few small prizes for the best of a series of photographs, with the right to make use of any that are submitted in competition. By this means they obtain, for a trifling sum, hundreds of illustrations for their publications. It is amateurs who chiefly respond to these enticements. From this last dodge—for it is not the first of its kind—we hope that all professional photographers, for their own credit's sake, and the sake of the profession, will hold themselves aloof, for they cannot expect any profit out of it.

* * *

Frauds on the Public.

A fraud that, we understand, is largely being committed on the public, the victims being mostly servant girls and the poorer classes, has again been brought under our notice, as it is causing great annoyance to many photographers in the suburbs of London. The system is this: A canvasser solicits orders on the so-called coupon system, offering portraits at a very low price if the coupon is purchased. Fairly good specimens are shown, and the coupon bears the address of a photographer whose place

is a long distance off. This part of the business is legitimate enough, as the parties, if they choose to visit the place, can have their portraits taken there on the terms promised, no doubt. But it is here that the fraud and the annoyance to photographers comes in. When the distance to be travelled is demurred to the victim is told that if the purchased coupon is taken to one of the local studios—usually the best in the neighbourhood—the portraits will be taken at the same price, although the regular prices there are perhaps double or three times those mentioned on the coupon. On this promise the money is paid, and the dupe, when he or she goes for the sitting, learns of the clever fraud that has been committed. This, of course, is very annoying to the local photographers, and is made the more so because some of the dupes refuse to believe that they are not actually parties to it. In one of the cases brought under our notice the canvasser persuaded a couple of servants to buy a sixpenny coupon each, telling them that by paying another sixpence at a local studio, where the charge for them was more than three times the price, they would get a dozen midgets—that is, for the shilling. It is a pity these cheats are not brought to book. No doubt most photographers whose names have been thus used would assist in the prosecution if that were instituted by those whose money has been obtained under false pretences.

* * *

Names on Apparatus.

In our issue of the 27th ult. is a letter of Messrs. Perken, Son, and Co., Ltd., which calls attention to a matter of some importance to purchasers of second-hand apparatus, and also raises a question as to whether anyone who has to make an important alteration in a piece of apparatus has the right to re-engrave the original maker's name upon it. In the case of Messrs. Perken, they were called upon to make an entirely new mount for a lens, and were requested to engrave the optician's name on the new mount. To this they demurred, and rightly so, we think. They were told by their customer that their scruples were absurd, and that he could get the work which they had declined done by another, "having business relations with all the best houses in London." If this thing were a recognised one in the trade—and we cannot imagine it is—it is easy to see that it would not be difficult for unscrupulous traders to create, as Messrs. Perken point out, two costly instruments out of one. This could, of course, be done by putting spurious glasses in the original mount, and the genuine ones in a spurious one. Many years ago a second or third-rate lens maker got himself into serious trouble by this procedure. It is tolerably well known now—more especially with the newer forms of lenses—that the mount is a very important part of the instrument. In some instances the most trifling alteration of the length of the tube, or in the separation of the glasses, may convert a most excellent instrument into quite a mediocre one. In any case, if a new mount is made for an instrument the name of the original maker of the instrument should not be put upon it. Many of the older portrait lenses were not supplied with central stops, and these could not be fitted without removing the makers' names. In these cases it was customary, when stops were afterwards fitted, to cut out the name and attach it, as a plate, on the side of the tube. We direct attention here to Messrs. Perken's letter to caution purchasers of second-hand apparatus against buying it without making sure that the whole of it was made by the makers whose names it may bear. When sold by a dealer of repute this may be relied upon—at least, so far as he is aware. In other cases the purchasers will do well to submit to the makers, who will always be pleased to verify it, or otherwise, without charge.

CLASHING OF EXHIBITION DATES.

OUR readers will have observed from an inspection of the list of forthcoming exhibitions, published week by week in another column, how frequently it occurs that one provincial photographic society has chosen a date for its annual exhibition clashing with the date of another or several other exhibitions. In some cases the dates are identical. In others, it will be found that they overlap in such a way that, although the actual shows are not open during the same period, yet the closing date of one exhibition is fixed so that it is impossible to get pictures returned to the exhibitors and repacked by them in time for delivery to another show. Whether this state of things is due to lack of observation on the part of the organisers, or whether no thought is given to the necessary support of the exhibition by the exhibitors, on whom, of course, the major part of the success of the venture depends, it is difficult to say. It is nevertheless obvious that an exhibition that is the only one of its kind open at a certain time is more likely to be a success and get more support in the way of exhibits than if two or three similar shows are competing with it during the same week. Yet the fact remains that season after season there is a recurrence of this exhibition clashing. Secretaries complain in many instances of the lack of support given their shows. The expected balance is found at the conclusion of the proceedings to be a deficit, and the usual excuse offered the members of the society at the annual general meeting is that the show received little support because there was a big show at A. and another at B.

Now, it seems to us that the remedy is entirely in the hands of the secretaries themselves. Let them combine or co-operate to produce a proper sequence of dates that do not clash, and the difficulties vanish. Of course, certain societies that are long-established organisations, holding their exhibitions at approximately the same date every year, would be bound to say: "We have always held our annual show on such and such a date; why should we alter it to assist other and younger societies?" There would be no need to alter them. Such fixed dates would stand, and form admirable starting-points for the formation of a sequence of other exhibitions by societies less advanced, but more anxious to assist in removal of the date-clashing nuisance. It appears that the hon. secretaries and councils of the older societies usually have a well-thought-out scheme for the production of a successful exhibition, and all particulars are announced well in advance. Others, on the contrary, wait until within sight of the exhibition season, and then decide on a date at the last moment to fit in with their other arrangements. Such undertakings hardly deserve success. We know of many an exhibition that has been rushed into without thought as to other shows held on the same date, and the result has been financial loss.

A move in the right direction was made by the Affiliation of Photographic Societies by publishing in the "Red Book" the approximate dates of future annual exhibitions of affiliated societies. Doubtless much more could be done in the matter by the executive of that organisation convening a meeting of the secretaries of exhibiting societies, and endeavouring to come to some agreement regarding a workable sequence of dates throughout the exhibition season, having due regard for the geographical proximity of one society to another. As the affiliation now includes practically all the more important English photographic societies, there is no doubt that others who hold exhibitions, but are not affiliated, would readily fall into line in the event of such an arrangement coming to pass. Needless to say, it would not be wise, if "new season's goods" are looked for, for any suburban

or provincial exhibition to be fixed during the run of the two big London annuals—the R.P.S. Exhibition and the Salon. The dates of these two are always about the same every autumn. If, however, an exhibition of the "rejects" is contemplated, the experiment might well be tried, and would probably meet with considerable success.

The fact remains that the exhibitor, be he that much-maligned but necessary individual the "pot-hunter," or otherwise, who desires to be represented by his best work at, say, two exhibitions which, under the present system, happen on the same date, and has only one set of pictures or lantern slides prepared, can only send to one of the shows, or else must produce a duplicate set, which is not always desirable or, in some cases, possible. This has been already observed, and, to some extent, obviated by certain groups of societies situated in the neighbourhood of each other. Here, the dates have been so arranged that they follow very closely. The pictures shown at one exhibition and entered for the next are packed and dispatched direct without further reference to the exhibitor, who, in the event of having entered for the complete series of, say, two, three, or four shows, and having dispatched his exhibits to the first one, has merely to pay the entry fees and cost of carriage between one exhibition and the next. This would appear to be the correct way of solving the difficulty, but, confined as it has been up to the present, to isolated groups of societies in certain districts, it is not far-reaching enough. What is wanted is the complete co-operation of all the suburban and provincial societies who hold annual exhibitions, and the fixing of a recognised order in which the exhibitions will run. It would be found impossible, however, owing to the number of exhibitions that occur annually, for the dates to be arranged otherwise than to allow the pictures of an exhibitor to be forwarded from exhibition to exhibition direct. The receiving society in each instance would pay all carriage, and, if necessary, retain the pictures until same was refunded by the exhibitor. These details could of course be arranged by a general committee.

This plan would at once save the photographer who exhibited much, a vast amount of labour in the way of repacking, although no doubt he would have occasional qualms as to the condition of his frames by the time they reached the last exhibition on the list. Provision might be made for this by the hon. secretary of each society, when acknowledging receipt of frames, stating briefly their condition. We do not, however, advise the adoption of the method employed by an exhibitor at an R.P.S. exhibition not many years ago, who, evidently having suffered much at the hands of exhibition packers, framed his exhibit, a work of important size, in solid iron.

Good scientific results have been obtained by the Daniels Expedition, which sailed for New Guinea about a year ago for the purpose of studying the manners and customs of the natives of some of the little-explored islands of the South Pacific Ocean. Major Daniels, the leader, who is returning home by way of Hong Kong and India, has devoted considerable attention to the diseases, especially cases of cancer, met with, and his notes on the subject should prove of much value. Other members of the expedition, including Dr. Seligmann, the newly-appointed pathologist of the Zoological Society, have already arrived in London with part of the collections made. These consist of an extensive series of objects of native workmanship and several cases of zoological specimens representing the fauna of the islands visited. The party were able to secure some excellent photographic records and cinematograph pictures, which will, no doubt, in due course be exhibited at one of the meetings of the Anthropological Institute.

A NEW LIGHT FOR PHOTOGRAPHY.

II.

Description of the Mercury Lamp.

THE lamp is constructed in the form of a glass tube, having platinum wires sealed in at each end. These wires lead the current to the electrodes. The tube is exhausted to a high degree on a vacuum pump and sealed off. This prevents any escape of the vapour which fills the tube, and also contributes to the efficiency of the lamp. The vacuum is much higher than in the case of the ordinary electric glow lamp. The tube is now usually made straight, but in some forms of the lamp is made V or U shape. It must in any case be of such shape as will permit of the ready flow of the mercury from one end of the tube to the other, as upon this depends the method of starting the lamp. One end of the tube is enlarged to a bulbous shape, and the mercury reposes in this when the tube is vertical.

Starting the Light.

The principle of starting the lamp is that when the current is switched on the mercury is disintegrated at the negative electrode, particles of mercury being thrown off and carrying the current to the positive electrode. Mercury vapour, however, under the conditions existing in the lamp, possesses a high initial resistance to the passage of the electric current. This resistance appears to reside between the negative electrode and the vapour, and must be broken down before the lamp can be put into operation. Of the various ways in which this may be accomplished Cooper-Hewitt has selected two. One consists in discharging a high potential spark from an induction coil, and the other is by tilting the tube so that the mercury runs down to the other electrode, carrying the current with it. The stream of mercury momentarily establishes a metallic connection between the electrodes and then breaks, usually at the bottom, where it ends in a spray. The lamp lights across the break, the luminous area rapidly extending up the tube as the stream of mercury falls away. Lamps over four feet long can be lit in this way, and for all purposes where practicable the tilting method of starting is recommended as being simpler and less expensive than the other. The lamp lights up almost instantaneously if the tilting is done steadily. With two lamps in series they are mounted on one frame and tilted simultaneously. When lamps are lighted independently each is furnished with a resistance which is automatically cut out when the lamp is started.

The Life of the Mercury Lamp.

The length of the tube, it may be mentioned, is proportionate to the voltage of the supply. On 200 volts the tubes are about four feet long, and although they seem likely to be very fragile, they can be handled with safety when in the framework in which they are mounted. When first installed the chief danger of spoiling a lamp is that the poles may be connected up in a reversed way, and even a momentary current through the reversed poles will spoil a lamp, rendering it unfit for any further use. It is necessary, therefore, to first carefully test with pole-finding paper or other means the polarity of the cables leading to the lamp before connecting the terminals. When once the lamp is installed there is little or no danger of any mishap, and the life of the lamp is theoretically infinite. No doubt it would be practically so if an absolutely perfect vacuum could be obtained. Lamps used over 2,000 hours show but a slight decrease in candle power. The best life of the average vapour lamp may be considered to be about 1,600 hours, whereas the best incandescent filament lamps cannot be run efficiently over 600 hours. Renewals of the tubes are furnished by the makers at a low rate.

Radiation of Heat.

A feature of the lamp is that there is comparatively very little heat from it. The temperature of the glass is slightly

higher than that of an incandescent lamp bulb. The radiant heat, however, is not so great, and consequently a vapour lamp heats up a room less than a cluster of incandescent lamps or an arc lamp. This absence of heat is of very great benefit in the use of the lamp for printing purposes.

Colour of the Light.

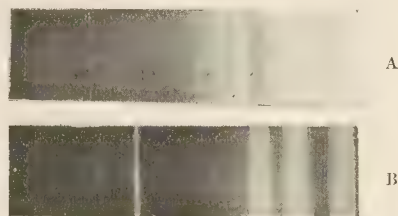
The most remarkable feature of the mercury vapour lamp is the colour of the light. Apparently it is a cold, brilliant white; but if white objects are illuminated it imparts a greenish tinge to them. Red becomes a purplish hue, tending towards black. Gold becomes a light greenish bronze. Greens, blues, and violet appear more natural. Flesh tints are ghastly, a white face being a sickly greenish hue, whilst any ruddy patches are a dark purple, as also are the lips. By some people the light has been likened to that produced by the monochromatic sodium light, but that is incorrect, for in the latter case all colour differences are abolished, and everything becomes black or yellow. With the mercury vapour lamp there is, however, plenty of colour, but it is not correct. Flowers and other brilliantly-coloured articles appear wonderfully coloured, but the colours are not their natural ones. As one writer has expressed it, "The light plays such pranks with colour that the colour sense seems to have gone crazy. One red thing will appear blue, another black."

The Spectrum of Mercury Vapour.

The cause of this eccentricity of colour is not far to seek if we examine the spectrum of the light. There is no red what ever; but there are two bright orange lines which are difficult to obtain photographically with an exposure sufficient for the other parts of the spectrum. No yellow is to be seen, but there is a yellow-green line which is not very actinic, then a brilliant green line, a broad dazzling blue-violet line, and two more broad bands up to the end of the visible spectrum.

I reproduce here one of a series of spectrum photographs of the light, and the superposed continuous spectrum of the arc light, with sodium introduced to give the D line will enable a comparison to be made:—

D



A. Spectrum of open arc showing D line at 11 mm.
B. Spectrum of Cooper-Hewitt mercury light.

Widening of Spectrum Lines.

It will be seen that the lines of the mercury vapour spectrum, especially towards the violet end, are very broad. This is a characteristic of the spectrum, as of most gases, especially when under high pressure, such as will be indirectly produced by the high temperature of incandescence. Lommel states that an increase in the density or the pressure of a radiating gas causes a broadening of the bright lines in its spectrum, and at the same time displaces them towards the red. When spectral

of gases widen out in this way it will generally be found that the most refrangible lines widen most easily, as will be seen to be the case in the mercury vapour spectrum. This widening of the lines renders it necessary to give very short exposures and maintain a narrow slit, or an almost continuous spectrum formed. The spectrum photographs were made with Tallent's diffraction camera, with quartz prism and lenses, and the image has been cut off at the violet end owing to the overlapping of

the spectra of the second order, otherwise a considerable extension into the ultra-violet would be shown.

Having now given the reader some idea of the properties of the mercury lamp, I am in the position to consider in the third and concluding article the practical questions connected with its uses in photography. Its employment in portraiture, its installation in the studio, and its applications to printing, copying, and enlarging, will be dealt with next week.

WILLIAM GAMBLE.

THE WEEK IN HISTORY.

Fox Talbot.

TO-MORROW (February 11) a hundred and five years will have elapsed since the birth of Fox Talbot. It may not be generally known that his tastes while still a boy at school ran in the direction of chemistry. In a letter to his mother written in 1812 he refers to an explosion of a fulminating powder which had taken place. "The powder she describes," he wrote, "must either have been hyper-oxymuriate of potash, or one of the metallic fulminating powders which are so dangerous as they can never be removed out of the vessel in which they are made without exploding, and most likely a small portion had got between the cork and the neck of the bottle, which could infallibly explode by the friction of opening it." "Infallibly explode" is not bad for a boy of twelve, and no wonder that Dr. Butler, the head master of Harrow, wrote that he was "really distressed at removing him at so early an age to the fifth form; but if his acquirements are beyond his years, how can I help it?" Practical chemistry was a forbidden subject at Harrow in those days, and the youthful Talbot was accustomed to prosecute his study of it in the top of a neighbouring blacksmith.

Although there is nothing in his photographic papers to indicate it, Fox Talbot was a close student of the physics and mathematics of his day, and he graduated at Cambridge as a self-wrangler when he was twenty-one, and ten years afterwards obtained the Fellowship of the Royal Society for his papers in these branches of science.

The Germs of Calotype.

As I mentioned in the notes which appeared on January 20, the specimens of what he called "photogenic drawings" exhibited for the first time on January 25, 1839, were the results of experiments made some years previously, and set aside for a time. Fox Talbot explained that the idea of "fixing shadow" first occurred to him during a tour in Italy in 1833. He was using the camera obscura as an aid to sketching, when he conceived the possibility of making a chemical process the work of the hand. In January of the following year he was in England again at work on the problem, and, as I have already recorded, he was rewarded in 1835 with results which may be legitimately described as permanent photography. That process was crude enough, but it was a complete process, and Fox Talbot perfected it until he obtained in "Calotype" a very efficient photographic method. Though collodion superseded it in the studios, it was used for many years afterwards by travellers.

The Labours of Talbot.

By the time my reader has taken the fifty-two doses of history which I propose administering to him in the course of these pages from the past, he should have a pretty good idea of the shares in the making of photography taken by Talbot and Herschel, Niépce and Daguerre, but at this point may sum up Talbot's work, and see what sort of total it amounts to. I am the more inclined to do this as this week there is a regrettable dearth of events, and had it not been for the dispositions of Nature which brought Talbot into the world on this particular day of the year, I should have had to adopt the anticipatory method of the boy who received proposals for the division of his apple with his friend by the comment, "There ain't going to be no core." However, to take a rapid glance over what Talbot did.

He was the first to publish a permanent photographic process. He maintained a continuity of work, and brought this first crude process to a considerable degree of perfection.

His photography was that of the negative and positive, and all subsequent developments have been on these lines.

He was the first to apply successfully a photographic process to the making of a printing surface.

The justice of these claims on behalf of Talbot will be apparent from the accounts of his work which will appear in "The Week in History" as their position in the year determines.

"The Pencil of Nature."

Among these contributions to the photographic art there is one which would be omitted were we to confine ourselves strictly to those to which a given day can be assigned. In the year 1844 Talbot issued through Messrs. Longman, Brown, Green, and Longman, of Paternoster Row, the first work illustrated by photography. It was entitled "The Pencil of Nature," and each number consisted of six "photogenic drawings." The issue, however, did not extend to more than five or six numbers, but in the following year twenty-three photographs were issued under the title of "Sun Pictures in Scotland." In an introduction to "The Pencil of Nature," Talbot narrates how the idea of fixing the natural images of the camera came to him on the shores of Lake Como. "Whether," he writes, "it had ever occurred to me before amid floating philosophic visions, I know not, though I rather think it must have done so, because on this occasion it struck me so forcibly. I was then a wanderer in classic Italy, and, of course, unable to commence an inquiry of so much difficulty; but, lest the thought should again escape me between that time and my return to England, I made a careful note of it in writing, and also of such experiments as I thought would be most likely to realise it, if it were possible."

Talbot's "Subchloride" Theory.

In this same introduction Talbot speculates on the cause of the fact discovered by himself that when less salt was used (i.e., as we now express it, when there was excess of silver nitrate) the paper possessed much greater sensitiveness. Talbot was sure of his facts, but his explanation of them reads very curiously in the present state of our knowledge:—

"A sheet of paper was moistened with a much weaker solution of salt than usual, and when dry it was washed with nitrate of silver. This paper, when exposed to sunshine, immediately manifested a far greater degree of sensitiveness than I had witnessed before, the whole of its surface turning black uniformly and rapidly, establishing at once and beyond all question the important fact that a lesser quantity of salt produced a greater effect. And as this circumstance was unexpected, it afforded a simple explanation of the cause why previous inquirers had missed this important result in their experiments on chloride of silver, namely, because they had always operated with wrong proportions of salt and silver, using plenty of salt in order to produce a perfect chloride, whereas what was required (it was now manifest) was, to have a deficiency of salt, in order to produce an imperfect chloride, or (perhaps it should be called) a subchloride of silver."

HISTORICUS.

POSTAL PHOTOGRAPHIC CLUBS.

THAT photographic societies have been of the utmost use in popularising photography and instructing the beginner every one will admit (writes C. C. Vevers in "Photographic Scraps"), but there exists among a certain section of devotees to the art a kind of bashfulness, a nervous dread of publicity, which renders them utterly incapable of asking questions, or submitting examples of their work for the criticism and advice of more expert photographers at the meetings of societies. It is with a view to encourage such latent talent as these workers may possess, and to assist others whose timidity prevents them from making their wants known in an open meeting, that most postal photographic clubs have been called into being.

Specialists' Clubs.

There is also another class of postal club for advanced workers who specialise in certain branches of photography, such, for instance, as architecture. Here the members can compare work and notes with other experts in their own department, and they can, if the circle covers a wide area, as it often does, see examples of their particular study from all parts of the Kingdom. In any society the number of photo-micrographers could probably be counted upon the fingers of one hand; few societies can boast of more than one or two members who devote special attention to this useful branch of scientific photography. How gladly would many avail themselves of the opportunity of seeing and criticising the work of others through the medium of a postal club!

"General" and "Special."

There are, then, two types of postal clubs—the "general," which admits photographic work of any description; and the "special," whose members submit one class of work only.

The "general" club may be taken to be one formed for the benefit of the amateur who tries everything or anything, and who is, perhaps, not markedly proficient in any department. It is a sort of "mutual help society," in which each one seeks to become more skilful by receiving and giving advice, and comparing the results of his efforts with those of his fellow members.

Organisation.

The general scheme of such a club is roughly as follows: Each member inserts a print or prints in the portfolio, or other protecting cover; as it reaches him, he criticises the other members' contributions, offering suggestions for their improvement according to his notions of art and photographic technics. For this purpose he is allowed to retain the portfolio for a limited time, and he then passes it on to the next member, who does likewise. And so it goes on until it has gone the round of the members, when it is started on its second circuit, each member removing the prints he previously inserted, and replacing them with others.

From twelve to twenty members are generally found a sufficient

number to form one circle or club, and the time each one is allowed to retain the portfolio is limited to from two to five days. Generally three days will be found to allow ample time for each member to insert his prints, criticise the others, read the notes, and so on.

Whole-plate is generally regarded as the maximum size of prints contributed, but, of course, this rule is open to modification according to circumstances. In order to keep the weight down as much as possible, there is also a rule generally made against the use of thick mounts, for if every member inserted three or four prints upon plate-sunk mounts, for instance, the carriage from one to another would become quite a costly affair. Stout paper mounts can be purchased in various tints to suit all classes of printing processes, and are very suitable for postal club purposes. They are cut to allow an effective margin round standard sizes of prints, those for half-plate size measuring about 10 by 8 inches, which can also be used for the few whole-plate prints that may, from time to time, be contributed. The portfolio should, therefore, be made to take this size, say, 11 by 9 inches.

It is desirable that the members should furnish the fullest information regarding the conditions under which the negative and print were made.

Criticisms.

Space for criticism must be provided also, and the best plan is to supply each member with a number of folded sheets of writing paper sufficiently large to enclose the mounted print. A writing paper known as "large post," which measures about 21 by 17 inches, when cut in half and folded, just makes a suitable sheet to contain a print mounted upon 10 by 8 inch paper. The front of this sheet should be reserved for member's name, title of subject, exposure, and other data, and the other three sides can be used for criticisms. Such a sheet keeps the print and mount clean, the prints can be stored in them after removal from the portfolio, and the sheets will often be found extremely useful for reference in the future.

Postal Club Activities.

A note book should accompany the portfolio on its journey for the insertion of items of interest, questions and answers, the exchange of prints, and other matters in connection with the club. Each round a discussion might be conducted upon some subject selected by the secretary, or suggested by a member. A list of dark rooms and lodgings at photographic resorts could also be made by the members from personal knowledge; and, in like manner, a useful list of "places to visit" and "what to take" could, in the course of time, be built up. Indeed, this note book would soon become as interesting and instructive a feature of the club as the portfolio itself.

An annual subscription of 2s. or 2s. 6d. will generally be found ample to cover all secretarial expenses, including the cost of portfolio, note books, printed covers for prints, etc.; indeed, I know some clubs which are worked on a subscription of a shilling a year.

MR. HENRY M. WARD, trade photographer, of Belgrave Avenue, Leicester, sends us his current list of prices for enlargements and printing. Sepia bromides, an effective form of the toned bromide, are a strong line of his, and in their special mountings of sea-green, brown, and deep cream produce an exceedingly rich appearance. The "Auró" enlargement, of rich brown colour, is another speciality which the firm lists, at very moderate prices, on paper and opal.

BROWN Tones on Lantern Slides.—Messrs. Burroughs, Wellcome are drawing attention to the use of the pyro soda developer in a particular way for the obtaining of golden brown tones on lantern plates. The following are the instructions issued by them:—In 2 oz. of water dissolve one "tabloid" pyro accelerator. Add 5 to 8 grains

of potassium bromide—the most convenient way of doing this being, of course, to use 5 to 8 "tabloid" products, each containing one grain of potassium bromide. Use lantern plates specially prepared for the production of warm tones, give them several times the normal exposure, and immerse them in this solution of accelerator and bromide for one or two minutes. Then pour the solution back into the measure, and in it dissolve one "tabloid" pyro developer. Pour back the mixture and develop in the usual way. The result is a beautiful golden brown tone; which looks exceedingly well in the lantern. Warm black tones are also obtainable with this developer by taking the normal developer as for negatives, but adding "tabloid" ammonium bromide according to the exposure and to the warmth of the black desired.

FOCAL-PLANE DISTORTION IN AUTOMOBILE PHOTOGRAPHY.

[A Portion of a Paper in "The Motor-car."]

THE author, in undertaking an analysis of the conditions under which the distortion of motor-car wheels takes place when they are photographed at a high speed, assumes a very narrow slit—of one-eighth of an inch—and a rate of movement of the shutter equal to a passage over a 5-in. plate in 1-30th of a second. On this basis the local or relative speed becomes 1-1,200th of a second, and this figure is one which Mr. Claudy assumes to be attained in practical work.

Exposure Conditions.

The next factor to consider is the relation between the distance between automobile and lens, and lens and plate, for, this known, and the speed of the automobile known, a simple calculation in proportion gives the speed of the image of the moving automobile across the sensitive plate. Suppose, for the sake of argument, that the distance from the lens to the plate is 1 ft., and from the lens to the passing car is 10 ft. Suppose that the speed of the car is greater than 88 ft. a second (mile a minute) and is 100 ft. a second. Then, to find the speed of the image on the plate in feet per second, we solve the equation:—

10 (feet from object): 1 (foot between lens and plate): 100 (feet per second of car in road): X (feet per second of image of car on plate).

10:1::100:10; therefore, the automobile crosses the plate at the rate of 10 ft. per second, or 1 ft. in 1-10th of a second, or 5 in. (the size of our theoretical plate) in 1-24th of a second. Now, if the speed of the slit of the shutter were 1-24th of a second, a point would get its picture taken at the corner of the plate when the slit started to move; some point in the automobile just above this would get its picture taken further sideways, and the topmost point of the automobile, probably the driver's cap, would get its picture taken at the other corner of the plate, since the motion of the slit and the motion of the moving image is performed at equal speeds. Naturally this would give a very distorted effect, the whole automobile appearing to lean in the direction in which it is going. As a matter of fact, the speed of the slit is from 1-30th to 1-50th of a second, and few automobiles go 100 ft. a second, or are taken with so long a focus lens so close as 10 ft. Therefore, the paths I have indicated more nearly represent the real state of affairs, and the path with least inclination is the most correct, as the car seldom, if ever, fills the whole plate, so that the space occupied by the machine is not more than $2\frac{1}{2}$ in., which, of course, cuts the distortion in half.

Shutter Speeds.

I am sure to be questioned here by those not familiar with focal-plane shutters as to the correctness of my statements regarding the speed at which they work. It is perfectly true that the picture as a whole receives an exposure which amounts to only 1-1,200th of a second, but it is equally true that the small aperture in the curtain seldom, if ever, passes over the 5 in. of the plate in faster time than 1-50th of a second, about fifteen miles an hour. And this, when you come to think of it, is a remarkable thing in itself—that any mechanism, small and light enough to be carried in the hand, can jerk, from a state of rest, a curtain, rush it suddenly at fifteen miles per hour for 5 in., and then as suddenly check its motion, and all without breaking a spring or injuring the mechanism! If the matter is still

not quite clear, re-read what I said above regarding the size of the aperture of curtain and the speed of the slit.

Another factor in this matter is that, by a law of optics, the image on the sensitive surface is upside down. By a law of the camera maker, curtain shutters operate from top to bottom. It is plainly to be seen, therefore, that the bottom of the wheels and the bottom of the automobiles get their pictures taken first, then the middle, which in the meantime has moved, and finally the top, which has moved still more.

Wheel Movement.

I now come to the last factor in this matter, and one which is really most important, as it is most interesting and seemingly paradoxical. The distortion is always greater in the wheels than anywhere else, and also always greater at the tops of the wheels. This would seem but natural according to the foregoing explanation, were the distortion equal all over the car, but, on the other hand, that of the tops of the wheels far exceeds that anywhere else. This is because the upper parts of the wheels travel several hundreds per cent. faster than the lower parts, while all the rest of the automobile moves at a uniform speed.

Obviously, the upper spokes of a wheel revolving on the ground travel, with reference to any fixed point, at a much greater rate than those near the ground. Of course, were the wheel revolving in the air, or considered with reference to its hub only, all parts would have to be considered as moving at the same speed.

However, we have to do with a fixed point, the lens of the camera. The slit of the shutter secures the impression of the lower part of the wheel first. As it slides across the plate and the upper part is taken, the speed of the image rapidly increases as it approaches the top of the wheel. The motion is thus shown more plainly at the top of the wheel than anywhere else, and any given point has a chance to slide a little further on the plate than those below it, which gives to the top of the wheel a blurred look as well as a distinct forward inclination.

An Example.

It may be interesting to state that when the upper spoke is absolutely perpendicular its extremity is going at double the speed of the car—120 miles per hour, if the car be making sixty; 200 ft. per second if the car be making one hundred. This also is a very simple calculation. The spoke from the free end to the ground end is to be considered as a lever. The ground end is the fulcrum, the hub the point of power application. As the upper point of the spoke is twice the distance from the fulcrum that the hub is, any movement of the hub must be twice amplified at the upper part of the spoke. Consequently, if the hub (the car) be making sixty miles per hour, the upper point of the spoke must be making double that, or 120 miles per hour. Of course, this condition of affairs obtains for only a theoretical instant. The fulcrum is not fixed, but moving, and the upright spoke of one instant becomes the horizontal spoke of the next.

Still, in dealing with pictures, we have to do with minute fractions of a second, and the doubled speed of the top of the periphery of the wheel is an important factor in the egg-shaped distortion which I have tried to explain in as simple a way as possible.

C. H. CLAUDY.

THE Birmingham Exhibition.—We would remind those of our readers who are sending to the exhibition of the Birmingham Photographic Society that but one day remains before the entries must be with the secretary. They should reach Mr. Lewis Lloyd, at Norwich Union Chambers, Congress Street, Birmingham, not later than tomorrow, Saturday.

MEMBERS of societies, clubs, etc., may be interested to learn that the Official Information Department for the Isle of Man (established by the Manx Government) is now lending, free of charge, a series of lantern slides (with descriptive reading) illustrative of a tour throughout that picturesque island. Particulars may be obtained from the Secretary, 2, Coronation Chambers, Douglas, Isle of Man.

Photo-Mechanical Notes.

The Effect on Zinc Plates of Enamelling the Image.

ZINC, being a much cheaper metal than copper, and, to a certain extent, more quickly etched, is still used for half-tone plates. Some years ago the albumen process was practically the only printing method for process blocks, and with this mode of printing, zinc answered all purposes. When the enamel process was introduced, however, it was soon found that the zinc plates did not stand the wear and tear of the printing machine so well, the effect of enamelling, or burning-

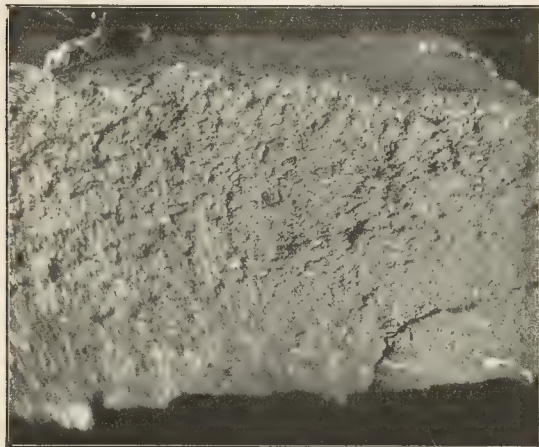


Fig. 1.—Photo-micrograph of Fractured Edge of Zinc Plate.

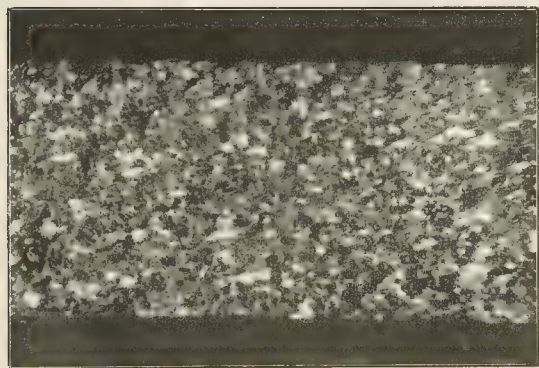


Fig. 2.—Photo-micrograph of Fractured Edge of Zinc Plate "Perished" by Heat.

in, the image being to soften the metal and render it more brittle.

The cause of this softening of the zinc plate is, of course, the intense heat required to effect the enamelling of the fish glue or gum arabic used in printing. With albumen printing comparatively little heat is required to "set" the resin and ink. "Perished" zinc is the term applied by the trade to this burnt metal, and in consequence of the inability of the cheaper material to stand the enamelling process, it was abandoned by

many firms for half-tone work; copper or brass, which are practically unaffected by burning-in, being substituted.

The effect of enamelling is to destroy the grain and structure of the rolled metal, and the zinc becomes what is usually termed "crystalline" in structure. The change that has taken place in the metal can easily be detected by bending a strip of perished zinc close to the ear. The rending of the metal can be heard distinctly. When a strip of zinc that has not been heated is bent, no sound is heard.

The accompanying photographs demonstrate the change that takes place in the metal by enamelling. Fig. 1 shows the fractured edge of a piece of rolled zinc before heating. It will be seen that the fracture is of an uneven nature owing to the toughness of the prepared metal, and the grain is of a close texture.

In Fig. 2 the fracture point of a piece of "perished" zinc is reproduced. The break is of an even nature as the metal has lost its toughness, and the grain is of a very different structure from that of Fig. 1.

J. I. Pree.

The paper by Mr. J. W. Lovibond before the Society of Chemical Industry, on Monday last, the 6th inst., was a disappointment to anybody who expected to gather any information on the fading of inks used in trichromatic printing. The author did little more than refer to the method of exposure of the inks to light and exhibit the curves of fading obtained by measurements in the tintometer. The inks were exposed to a north and south light, under the normal conditions of atmosphere found in a furnished house. They were also exposed under a bell jar containing a wet sponge, and it was found that the presence of moisture notably affected some of the results. The total time over which the exposures extended was only five weeks, and it was suggested that the tintometer, by measuring very minute colour differences, was able to provide a useful means of comparing paints and colours in regard to permanency. Unfortunately no details were given of the chemical composition of the inks examined, nor was any statement made as to their commercial origin. Possibly when the paper appears in full in the society's journal it may be possible to extract some of the practical facts which it doubtless contains.

New Book.

"Der Gummidruck in Natürlichen Farben," by C. L. Armin. Published by "Gut Licht." Vienna xviii 2.

This pamphlet is a reprint from our contemporary "Gut Licht," and according to its sub-title, it is "the first description of the trichromatic positive process." The exact date of its publication is not given, but from internal evidence we gather that it must have been issued in the last month or two, and having ignored or being ignorant of all that has been done in the matter by Ducos du Hauron, Vidal, Ives, Sanger Shepherd, Lumière, Miethe, and others, the author proceeds to give us his three-colour printing process, which resolves itself into a first printing with a bright cadmium lake, a second with Florentine lake (red), a third with Prussian blue (thin), a fourth with deep Prussian blue, a fifth with madder lake, and a sixth with yellow lake or saffron. Three colours, but six printings and all in gum. There are easier and more reliable methods we think.

WILLIAM THEODORE SANDERS, photographer, of Bournemouth, was committed for trial last week on the charge of stealing a camera value £16, the property of James Low Warren, of the "Bournemouth Graphic."

Exhibitions.

BLAIRGOWRIE AND DISTRICT.

THE exhibition of the Blairgowrie and District Photographic Association opened on Monday last, the 6th inst., and will close to-morrow, Saturday. 450 entries are contributed. The Public Hall, where the exhibition is held, is eminently suited for the purpose of a photographic exhibition, being entirely lit from the roof; the walls have been hung with a neutral tinted canvas, which displays the pictures to advantage, while the pictures themselves have been carefully arranged on the walls under the superintendence of Mr. Ewan Geddes, whose valuable services in this direction can hardly be over-estimated.

In the Champion class there is a galaxy of well-known pictures, and the local photographers are revelling in the making the acquaintance of pictures previously known through reproductions only. The judges awarded the plaque to Dr. Boon's "Convalescent," in which the beautiful rendering of tone and arrangement of lines appealed to all; meritorious work—outstanding work, in fact—is shown in this class by the leading exhibitors, including Dr. Grindrod, S. G. Kimber, E. Seymour, Jas. Patrick, W. Clayden, J. C. Warburg, Miss Warburg, A. H. Allan, A. W. Hill, Graystone Bird, A. H. Avery, John Spark, Fred Judge, and J. C. Robertson, etc., etc. Dr. Boon's picture is also awarded the silver plaque for the best picture in the exhibition, and he annexes another plaque with his street scene in the landscape class. In this class a plaque is also awarded to A. C. Milne, Brechin, for "A Highland Descent," a strong and realistic rendering of a highland stream in spate, the overwhelming onrush of the water being graphically depicted. This class is a large one, and contains a plethora of good things, such as Dr. Grindrod's "Crossing the Ford" and "Hauling Timber," J. C. Warburg's "Shadow of the Cliffs," "The Adur Bridge," and "The Gothenburg Boat"; J. B. Johnstone's "A Lonely Shore," "A Cherry Orchard in Spring," and "The Orchard Way," by Agnes B. Warburg, "Toilers of the Field," by Dan Dunlop, "Here a Sheer Hulk," by J. E. Latham; entries are also included from P. B. Clarke, Japan, Wilfred C. de Tain Bly, K.C.M.O., Constantinople, Arthur J. Fuller, and J. G. Rose, Capetown.

In Portraiture and Genre, the judges have only awarded one plaque, viz., to "Sir Edward Elgar," by Dr. Grindrod. A second study by Dr. Grindrod is "A Cornish Fisherman," and is essentially strong portraiture, the hand of Time has drawn the wrinkles of experience on the tanned face of the veteran salt, and the photographer has shown up these in all their gnarled picturesqueness. Although only one plaque has been awarded it must not be thought that the class is weak, the reverse is the case. Mrs. Baird, Broughton Ferry, has a realistic study of "Gipsy Life," for which she is awarded the silver medal given by the "Amateur Photographer" for the best picture in the exhibition by a lady. Peter G. Terras has several good studies of "Gipsy Girl"; "The Old Fiddler," by F. W. Urquhart, Dingwall, is a telling picture; Miss Warburg has two characteristic entries; "The Forum—Julius Cæsar's," by Arthur Payne, Gateshead, is unique in its way; John Smith, Dundee, shows one of his "slum" pictures, "A Youthful Outler," while A. H. Allan, Edinburgh, ventures one portrayal of the male persuasion in his "Auld Rab"; two pictures from H. A. Reed, Gibraltar, convey the warmth of the sunny south; John C. Warburg shows two pictures stamped with his own individuality; amongst others who show good work, of which space forbids detailed notice, are John Terras, John Smith, Hastings, E. S. Baker, Birmingham, Graystone Bird, Bath, W. R. Kay, Southampton, T. Ritchie, Wishaw, Dan Dunlop, Motherwell, John Spark, Perth, Mrs. Clarke, Yokohama, John B. Anderson, Belfast, and Miss May Donaldson.

In the "Any Subject" class a plaque is awarded to "Paeonies," by D. W. Kyle, Glasgow, a fine rendering of these flowers. In this

class John C. Warburg's "Fairy Clocks," printed in a daring shade of green, attracted much attention, and secured some favourable comment; E. Seymour, Watford, had some charming fruit and flower studies; Miss Warburg showed her unique conception of "The Marble Arch"; Dan Dunlop was represented by architecture and fruit, W. R. Kay, Southampton, John B. Anderson, Belfast, and others by architecture; Robert Dykes, Edinburgh, showed a clever "night" picture.

Lantern slides was a strong class, and here the judges awarded three plaques, viz., "White Currants," by E. Seymour, Watford, noticeable for the brilliant transparency of the fruit, "Mother's Help," by Rev. H. W. Dick, Manchester, in which the "help" was delightful, and "Gala Night, Scarborough," by Graystone Bird, Bath, a representation of fireworks with telling reflections in the water in foreground; the mention of a few names will indicate the high quality of the work:—F. G. Tryhorn, London, Godfrey Bingley, Leeds, W. S. Crockett, Glasgow, Rev. E. T. Clark, Gloucester, Geo. A. Booth, Preston, John Stabb, Torquay, W. R. Kay, Southampton, and H. Wormleighton.

In the Lecturette Class the result had not been received at time of writing.

The class confined to associates of the Scottish Photographic Federation was one of the strongest in the exhibition. Plaques were awarded to Jas. C. Robertson, Brechin, "The Picture Book," and it is noticeable that the judges preferred it to his R.P.S. success, "The Minister's Man," which was competing in the same class; Jas. D. Ross, Brechin, "Practising," and G. D. Macdougald, Dundee, "Bridge and Canal at Bruges," a beautiful little bit-gum; Messrs. Robertson and Macdougald's exhibits, to which were awarded plaques, were reproduced in the Scottish Salon catalogue. The above winners showed many other good works besides the plaqued pictures, and to individualise the works deserving notice would monopolise over-much space.

The plaque for best exhibit (six pictures) by a Federated Society was won by the Brechin Photographic Society.

In the three members' classes plaques are awarded to D. G. Monein, "At the Muirton," Jas. M. Donaldson, "The Last Rose of Summer," J. B. Young, "Birds of a Feather," Lake Falconer, jun., "The Crypt, Glamis Castle."

The judges were Messrs. J. Craig, Annan, Glasgow; Arch. Cochrane, Barrhead, and Wm. Crooke, Edinburgh; and for Lecturettes: Mr. Alex. Keighley, Keighley, Yorks.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE pictures sent in to the Society's annual competition are now on view in the Club Rooms, 9, Eberle Street, Liverpool, and, on the whole, the show is an excellent one. In Class A, which is known as the Champion class (to which the winning prints in the other classes are added previous to its being judged) Mr. C. F. Stuart easily takes first place with his set, of which "The Light in the West" is by far the best, being in all-round merit, considerably above his other two; and Mr. Stuart may be said to have fairly gained the gold medal and "Appleby" trophy. After this set comes Mr. J. D. Johnston's, the best of which is "Urgent Business," a winter scene on the River Mersey. The work is somewhat ordinary, notwithstanding excellent technique, and the worker may be congratulated upon being awarded an extra silver medal. Mr. C. J. Meyer's set of Continental figure studies is to be commended, while Mr. Canevali's work is mostly spoiled by theatrical and false lighting, and he would be well advised to leave more to nature and less to "faking." His third print, however (No. 6 in the catalogue), is a soft and effectively-lighted picture. Mr. Corney Wilson's "Windy March" is a nice breezy subject. In Class B, Dr. Holland gains the silver medal with three prints, the best of which is "The End of an Italian Valley." Mr. Selkirk's "Blowing Squally" is an excellent picture which the title fits admirably. His "So Smiled the Day" is also a fine subject.

but slightly marred by false light in the sky. In Class C a silver medal is awarded to Lieut.-Colonel Pilkington for an excellent set of architectural subjects. This medal, however, should have gone to Mr. J. D. Johnston for his charming set of Continental pictures, which are mounted, lettered, and framed in great taste—perhaps the best presented set in the exhibition. He was, however, debarred by the rules of the competition. Mr. W. A. Taylor carries off the other silver medal in the class. In Class D. Mr. H. R. Heap gains the bronze medal with a very creditable set, and as this is a beginner's class, he should be encouraged by his success. In Class E. (also a beginner's class) Mr. H. H. James gains the bronze medal for a good architectural set. The excursion prize is well earned by Mr. Canevali, whose figure studies are excellent. The second prize goes to Dr. J. W. Ellis, who also has a fine set. The president's prize for the best portrait of a member taken by a member in the club studio, is well earned by Mr. John Smith, for an excellent portrait of Dr. Holland, the work in this class being of very high quality. Mr. Carruther's portraits are spoiled by execrable mounting and framing. The premier prize for lantern slides is taken by Mr. H. Holt, who gains the gold medal in Class F, in which class Dr. Ellis also has an excellent set, the best of which is probably Canterbury Crypt. In Class G (lantern slides) the silver medal goes to Mr. J. W. M. Richardson, and in Class H. (lantern slides) the bronze medals go to Colonel Pilkington and Mr. Victor Prince.

GLASGOW AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE annual exhibition, under the auspices of the Glasgow and West of Scotland Amateur Photographic Association, held in the Association Rooms, 180, West Regent Street, compares very well in all respects with those of previous year. The average merit of the work exhibited is as high as ever, and reflects the greatest credit upon amateur photographers in Glasgow and the West of Scotland. The entries show, if anything, a slight increase over those of last year. As usual, the exhibition is divided into five sections, the first, including landscape, seascape, architecture, flowers, etc. (half-plate size or smaller); the second similar subjects, the sizes of which are above half-plate; the third, portraiture, figure studies, animals, etc.; the fourth, pictures taken at outdoor meetings in 1904; and the fifth, lantern slides. The principal prize-winners are well known at these exhibitions, and in many instances the outstanding excellence of their work would have justified the judges in awarding them extra prizes if it had been within their power to do so. The awards are, however, confined to one for each competitor in any one section, and consist of bronze plaques of equal value. The judges were Messrs. Auld and Forbes, of Edinburgh, and W. Ralston, Glasgow. Their awards are as follow:—

Class A.—W. B. Summers, "A Moorland Path" (97); Robert Burnie, "White Currants" (113); Thomas Walker, "A Winter Landscape" (127).

Class B.—John Hepburn, "Blackadder Crypt, Glasgow Cathedral" (3); Thomas W. Robertson, "A Winter Landscape" (13); Dr. Richmond, "How Calm and Beautiful" (28); Robert Burnie, "Cobham Mill" (65).

Class C.—John Hepburn, "When Ance Life's Day" (146); J. R. Forrest, "The Fisherman's Siesta" (157).

Class D.—William M'Phun, "Homeward Bound" (188).

Class E.—Robert Burnie, six lantern slides, "Kitten Studies" (217); James Baillie, six lantern slides (196).

CARDIFF WINDSOR.

THE Cardiff Windsor Amateur Photographic Society deserve compliment upon having scored a success with their first exhibition, which opened at the Town Hall last week. A large number of well-known workers have entered for competition, and it is especially pleasing to record that members of the society have gained many of the awards which were made by the Rev. F. C. Lambert. Among the chief local

successes are Mr. Fred Cox, the president of the society; Mr. A. W. Woodward, the hon. secretary; and Mr. Yonker, of Barry Dock. Mr. F. H. Brown, another member, secured the silver cup presented by Mr. Harold Lloyd for the best marine study with representation of a breaking wave.

WOODFORD PHOTOGRAPHIC SOCIETY.

THE eleventh annual exhibition of the above society was opened at the Wilfrid Lawson Hall on February 3. The prints shown number 155, and are by 38 members of the society, giving an average of 4.1. Amongst the exhibitors are Messrs. E. Marriage, F.R.P.S., H. Wilmer, F.R.P.S., H. T. Malby, F.R.P.S., E. H. Carpenter, A. Ziegele, F. G. Emler, E. H. R. Hillsworth, F. G. Newmarch, E. C. Winney, W. F. L. Wastell, G. H. Grimsell, W. C. Smith, A. G. Brine, W. W. Donaldson, J. J. Blundell, D. Kemsley, F. E. Holmes, J. Sparling, W. Orme, E. T. Wood, R. A. Malby, C. A. E. Chandler, T. W. Pallett, T. J. Tee, C. F. Gould, E. B. Cook, E. C. Simmons, A. J. Kirby, G. S. Fish, H. W. Coke, F. E. Holmes, G. E. Anderton, S. Tymms, J. Irwin Packington, T. W. Pallett, A. Heim, T. F. Harding, J. P. W. Goodwin, and A. Horsley Hinton.

FORTHCOMING EXHIBITIONS.

February 6-11.—Blairgowrie and District Photographic Association. Hon. Secretary, Wm. D. M. Falconer, James Street Cottage, Blairgowrie.

February 14-15.—Royal Albert Institute, Windsor. Hon. Secretary, Mr. Jas. W. Gooch, 9, High Street, Windsor.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club. Largerplatz No. 3, Vienna III., 3.

February 16-18.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earham Road, Norwich.

February 21-March 7.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 14; for pictures, February 17. Hon. Secretary, E. J. Felce, 85, Adam's Avenue, Northampton.

February 25-March 4.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

February 25-March 11.—Edinburgh Photographic Society. Entries close February 11; for pictures, February 15. Hon. Secretary, J. S. McCulloch, 3A, North Saint David Street, Edinburgh.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-14.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 16-30.—International Photographic Exhibition, Earl's Court. The Organising Managers, 119-125, Finsbury Pavement, London, E.C.

March 20-25.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

New Materials.

The "Wellington" Etching Plate and the "Wellington" Lantern Plate. Made by Wellington and Ward, Elstree, Herts.

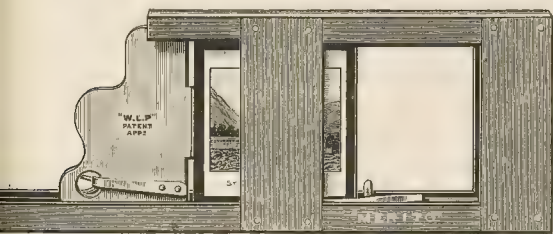
We have submitted the sample of the etching plate to some practical tests, and find them clean-working and capable of giving a great amount of light in development, especially if hydroquinone be used. They are very slow, being almost exactly the same speed as a sample of wet collodion, against which we tested them, and of almost equally steep gradation. They show very little tendency to halation, much less than some other process plates. Their good qualities make them very suitable for line work. For half-tone work, on the other hand, their slowness is a drawback, and we find that (again comparing with a wet plate), while it is easy to get as good a dot in the shadows and middle tones of the negative, the high-light dots have the familiar spreading action found in all dry plates we have so far tried for screen negatives. Their sensitiveness, as shown by a test on the spectrum of the arc electric light, is at a maximum in the ultra-violet at about wave length, 3,800, and does not extend beyond the violet.

The lantern plate is suitable for both cold and warm tones, and we note that the makers recommend hydroquinone and caustic potash for the black tones and pyro-ammonia for the warmer colours. This choice of developers in our experience is as good as any, and by increasing the bromide in the pyro-developer we were successful in obtaining some pleasing brown and sepia tones.

The prices of the "Etching" and "Lantern" plates are 1s. per dozen in quarter-plate and $3\frac{1}{4} \times 3\frac{1}{4}$ sizes respectively.

The "Merito" Lantern-Slide Carrier. Made by W. L. Parkinson, Limited, 62, Dale Street, Liverpool.

As single lanterns are now so extensively used, on account of their portability for lantern exhibitions, a slide changer or carrier to give a dissolving effect and at the same time be certain in its action, is a thing to be much desired amongst lanternists. The "Merito" lantern carrier is well made and finished in polished mahogany, is reasonable in price, and fitted with a brass feeding and withdrawing frame, consisting of two rails or bars, leaving an open space between, whereby dissolving effects are obtained. At the end of the frame



a withdrawing hook comes in operation to remove one slide for the next to take its place, and whatever the thickness of the slide may be it is brought automatically into correct register. The feeding and withdrawing of the slides is worked from one side, dispensing with the necessity of any assistance to the operator. The feeding frame carries the slides in on the front side of the brass frame, i.e., the side nearest the lens. After the first slide is focussed, the second slide is carried in with the frame, pressing the lever hook out of action going in, and after the frame is pushed as far as it will go, the lever spring is released to bring the hook into action, and then withdrawn by the round end of the frame.

A number of newly-designed frames are now being issued by Messrs. Epstein, 33, Broad Street, Bristol, and our mention of the fact should induce photographers to investigate the selection which is offered them. The 20 x 16 antique brown oak is a carved and ornamental frame which we would signalise as extremely handsome in appearance. Messrs. Epstein, who have a new descriptive list ready for despatch, announce that they make a practice of making any size or design to order.

Two new series of Cooke lenses are being placed on the market by Messrs. Taylor, Taylor, and Hobson, Stoughton Street Works, Leicester. Of the same triplet type of construction as the Series III. and V. Cooke lenses, the new issues are designed to work at the large apertures of f/5.6 and f/4.5. Those of the former intensity, known as Series IV., are made in focal lengths of 6, 8, 11, and 13 inches. The f/4.5, Series II., in the three latter sizes only. The lenses are advanced for high-speed photography, for portraiture, and for photography under poor conditions of lighting. A further review of them will appear as soon as we have examined the actual instruments. Meanwhile an illustrated descriptive circular is obtainable from Messrs. Taylor, Taylor, and Hobson.

A vivid glazed showcard has been prepared by Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C., in advertisement of the "Geka" series of chemical products. It will be sent post free to any one interested in the goods.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

ORNAMENTAL BORDER NEGATIVES.—No. 1,286. "Improvements relating to negatives for the photographic reproduction of ornamental borders or of composite designs or pictures and inscriptions on sensitised surfaces." Hugo Kuntzen, 37, Essex Street, Strand, London. (Richard Hoh and Co., Saxony.)

COATING AND PREPARING MEDIA.—No. 1,290. "Improvements in and relating to the coating or preparation of media for photographic purposes." James Harris Paul Gillard and Henry Hearn Molyneux, 7, Southampton Buildings, Chancery Lane, London.

LENSES.—No. 1,594. "An improvement in lenses."

LENSES.—No. 1,595. "An improvement in lenses."

FORMING IMAGES.—No. 1,596. "An improvement in a process of forming images." Ulrich Nehring, 19, Holborn Viaduct, London. (Date applied for under Patents Act, 1901, February 15, 1904, being date of application in United States.)

STEREOSCOPE.—No. 1,665. "Improvements in stereoscopes." Douglas William Hart, 23, Southampton Buildings, London.

RISING FRONT.—No. 1,708. "A simple rising front for hand cameras." Robert Jackson, 99, Hart Street, Moss Side, Manchester.

PHOTOGRAPHIC SHUTTERS.—No. 1,740. "Improvements in or relating to photographic shutters." Wilhelm Kenngott, 111, Hatton Garden, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

IMPROVED METHOD AND APPARATUS FOR THE PRODUCTION OF COLOURED PHOTOGRAPHS.—No. 1,008, 1904. "The inventor claims the method for the production of photographs in natural

colours without the aid of coloured filters, consisting in splitting up into a spectrum a beam of composite rays by the use of colourless, transparent means, separating such parts of the spectrum as desired, and collecting homogeneous rays into beams of complementary colours, which are caused to act simultaneously on suitably arranged sensitised plates. For executing the method described above a photographic camera in which the light-rays pass through a system of lenses (primary objective) in the front part of the camera, through a plurality of secondary lens-systems arranged in front of an equal number of sensitised plates, and through a system of colourless prisms arranged in the central part of the camera, between the said primary objective and the said secondary lens-systems, one prism or set of prisms serving to split up the beam of rays into a spectrum, sections of which are taken up by separate prisms-systems, corrected and collected to form a plurality of one coloured beams of rays. In the camera described above the adjustable arrangement of the device for collecting the separate parts of the spectrum, for the purpose of so regulating the relations of the said parts that the latter are adjusted for uniform times of exposure." Charles Julius Drac, 21-23, Mariensztadt, Warsaw.

FOLDING STAND.—No. 5,680, 1904. "A folding stand for photographic cameras, surveying apparatus, and the like, capable of being used as a walking stick and characterised by being formed of legs of light material, in which other legs slide up and down, the latter having a metal case and being held in any suitable position by a spring controlled catch, which at the same time prevents side turning, substantially as herein described and set forth. A folding stand as described above, which is held in folded position by means of a ring attached to a ferrule on one of the legs, substantially as herein described and set forth." Johann Becker, 46, Westbahnstrasse, 11te St., Vienna.

DISSOLVING SLIDE CARRIERS.—No. 22,283, 1904. "An improvement in lantern slide carrier operating mechanisms, namely, a mechanism comprising a head part, and upper and lower horizontal members, carried from same, forming a space between the same and the head plate, so that the mechanism does not interfere with or lie across the plate being illuminated or projected when moved into and out of position; and one or each of such horizontal members having connected with it or them a catch, adapted to engage with the slide to be removed when the mechanism is moved out, and withdraw the plate; the said upper and lower horizontal members being adapted to slide in the carrier frame; for the purposes specified. A lantern slide carrier operating mechanism, adopted to feed in a fresh slide, and withdraw the used slide, having connected with it a spring or springs adapted to hold the slide being illuminated or projected against the carrier frame while a fresh plate is being introduced; substantially as set forth." William Lawrence Parkinson, 3A, Imperial Chambers, 62, Dale Street, Liverpool.

STABLE HYDROSULPHITES.—No. 6,216, 1904. "The hydrosulphite is prepared in combination with a ketone such as acetone or methyl-ethylketone, in the presence of alkalis. It is stated that the stability of the acetone-hydrosulphite preparations thus obtained is such that the reducing power of the solution is only a little diminished after several weeks and at a temperature of 50 deg. C. The solution may be evaporated in a vacuum at a low temperature to obtain the acetone-hydrosulphite preparation in the solid state in which it is very stable." Abel and Imray, Southampton Buildings, London, E.C., for Meister Lucius and Brünig, Höchst-on-Maine, Germany.

THE death is announced of Dr. A. V. Griffiths, of Fenton, and a prominent member of the Fenton Amateur Photographic Society.

THE ROYAL PHOTOGRAPHIC SOCIETY COUNCIL ELECTION.

THE following is a copy of the balloting paper:

President, *Major-General J. Waterhouse, I.A.; vice-presidents (erase not fewer than five names), *Sir W. de W. Abney, K.C.B., F.R.S., *the Right Honourable the Earl of Crawford, K.T., F.R.S., *Douglas English, B.A., *F. Hollyer, Dr. G. Lindsay Johnson, M.A., M.D., Chapman Jones, F.I.C., F.C.S., *J. C. S. Mummery, *E. Sanger Shepherd, Sir J. W. Swan, M.A., F.R.S.

Treasurer, John Sterry.

Ordinary members of the Council (erase not fewer than thirty-six names); *J. T. Ashby, *T. Thorne Baker, F.C.S., A. W. W. Bartlett, R. R. Beard, *H. W. Bennett, *C. P. Butler, A.R.C.Sc., Jas. Cadett, *C. Churchill, E. Leslie Clift, D. Cotes-Predy, M.A., W. E. Downey, Austin Edwards, Alfred Ellis, *P. H. Emerson B.A., *Douglas English, B.A., *T. E. Freshwater, F.R.M.S., *J. Fuerst, W. Gamble, *J. H. Gear, Dr. C. F. Grindrod, Captain H. C. Hall, Sir W. J. Herschel, *J. A. Hodges, E. T. Holding, F. Hollyer, *F. Ince, *Dr. G. Lindsay Johnson, M.A., M.D., *C. Barrow Keene, Rev. F. C. Lambert, M.A., *G. Lamley, *H. B. Lemere, Furley Lewis, *Ernest Marriage, W. Southcomb May, F. J. Mortimer, *J. C. S. Mummery, A. J. Newton, *C. H. Oakden, *J. Borthwick Panting, *J. I. Pigg, *Dr. T. C. Porter, *P. R. Salmon, Leslie Selby, *E. Sanger Shepherd, *C. W. Somerville, *John Spiller, F.I.C., F.C.S., John Sterry, Sir J. W. Swan, M.A., F.R.S., W. Thomas, *G. W. Tottem, T. C. Turner, *H. Snowden Ward, W. L. F. Wastell, Major-General Waterhouse, I.A., *B. Gay Wilkinson, J. W. Zaehnsdorf.

Judges—Technical and Scientific Section (erase not fewer than eighteen names): *T. Thorne Baker, F.C.S., T. Bolas, F.I.C., F.C.S., Geo. E. Brown, F.I.C., C. P. Butler, A.R.C.Sc., Jas. Cadett, *W. S. Colls, *Douglas English, B.A., *T. E. Freshwater, F.R.M.S., W. Gamble, *J. H. Gear, Dr. G. Lindsay Johnson, M.A., *Chapman Jones, F.I.C., F.C.S., Furley Lewis, F. J. Mortimer, A. J. Newton, *Wilson Noble, *E. Sanger Shepherd, *J. Spiller F.I.C., F.C.S., Dr. Spitta, A. H. Starnes, *Sir J. W. Swan, M.A., F.R.S., *E. J. Wall, H. Snowden Ward, *Major-General J. Waterhouse, I.A., *P. L. Waterlow.

The Selecting and Hanging Committee will consist solely of the seven judges elected by the members.

Fellows of the society are indicated by an asterisk. Balloting papers may be posted at any time, but only those will be counted which are received at No. 66, Russell Square, London, W.C., by 12 noon on Monday, February 13, 1905 (the day preceding the annual general meeting).

MR. FRED. W. EDWARDS, of Swadlincote, gave a lecture and demonstration before the Burton and Y.M.C.A. Photographic Society on Monday, the 6th inst. The lecturer, whose practical demonstrations are always popular with the members, chose as his subject "The Bichromate Salts in Negative Making," and the very able manner in which he manipulated the different experiments and processes proved that he was entirely master of his subject. In the course of his lecture he touched on the practical and theoretical aspect of negative making, and also described the chemistry of the chromium and bichromate salts, and the processes based on these salts. The judging of the prints entered for the competition, "Portraiture Without the Aid of a Studio," was then proceeded with. There was a good average entry, and some excellent work was shown. The silver medal was awarded to Mr. T. Grundy for a half-plate print on "Luna" paper, who also took second place. The next meeting will take place on Monday, February 20; subject, "Lecture by C. P. Goerz on Stereoscopic Photography."

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
10.....	Ulster Amateur Photo. Society	<i>Messrs. R. & J. Beck's, Ltd., Latest Novelties.</i> Mr. W. F. Slater, F.R.P.S.
10.....	Watford Camera Club	<i>Architecture Photographically, Technically, and Pictorially Considered.</i> Mr. H. W. Bennett, F.R.P.S.
10.....	Aberdeen Photographic Assn.	<i>Gay Pavee, Liéppé, &c.</i> Mr. A. Mackilloan.
13.....	South London Photo. Society	<i>Faking the Negative.</i> Mr. E. W. Taylor.
13.....	Optical Society	<i>Measurement of Absorption in Tinted Glasses.</i> Mr. L. W. Phillips.
13.....	Derby Photographic Society	<i>Demonstration by Mr. C. Barrow Keene, F.R.S.P.</i>
13.....	Southampton Camera Club	<i>Poona Prize Lectures.</i> Reader—The Hon. Secretary.
14.....	Royal Photographic Society	<i>Annual General Meeting.</i>
14.....	Sheffield Photo. Society	<i>Toning of Platinotype Paper.</i> Demonstrated. Dr. H. G. Paterson.
14.....	Rodley and District Ph. Soc.	<i>Annual Conversation.</i>
14.....	Border City Camera Club	<i>Control in Photographic Printing.</i> Mr. Geo. H. Hill.
14.....	Architectural Assn. Cam. Club	<i>Old Coaching Inns.</i> Mr. Reginald Welbyre.
14.....	Nelson Photographic Society	<i>Pendle Forest: Its Old Houses and their Historical Associations.</i> Alderman Greenwood.
14.....	Thornton Heath Photo. Soc.	<i>Toning of Luna Paper.</i> Lucien Allegre & Co.
14.....	Glasgow Southern Photo. Assn.	<i>Annual Visit from the Photographic Section of the Paisley Philosophical Institution.</i>
14.....	Bristol Photographic Club	<i>Bromide Printing.</i> Mr. Fred Little.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held February 7. Mr. Leslie Clift in the chair.—In reply to a question by a member (arising out of the ballot paper for the election of council and other officers) it was stated by the chairman that the judges in the technical and scientific sections would act as the selecting and hanging committee in these sections only. In the pictorial section the selection and hanging will be done by a committee selected by the Council.

A demonstration lecture on the negative in architectural photography was given by Mr. H. W. Bennett, who very fully stated his own practice in this branch of work. He preferred to use a tripod with a large head rather than a turntable head on the camera. The legs of the tripod should be adjustable, and were best kept from slipping by a strut, which was greatly superior for this purpose to hooks or other accessories on the points of the tripod. The camera should possess a rise of front at least 3 in. in the whole-plate size, and should extend as far as 18 in. and as close as 6 in. A suitable battery of lenses for work in this size would be flat field anastigmats of 6 in., 8 in., and 11 in. focus, and Mr. Bennett said that the great majority of interior work would be done with the two lenses of shorter focus. In focussing, the largest aperture of the lens should be employed, and a point somewhat beyond the nearest object obtained in sharp focus. This point might usually be a distance beyond the nearest object equal to one-third the distance between camera and object. Exposure meters he found of very little use in ascertaining the time to expose the plate, owing to the variation in the depth of shadows with their distances from the camera. The most valuable hint in development that could be given was the use of a weak solution in cases of great contrasts. The normal solution might be diluted with eight times its bulk of water to the very great advantage of the negative in such subjects. The lecture concluded with a few very fine examples of architectural photography shown as lantern slides. These illustrated many of the points previously dwelt upon by the lecturer.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.
MEETING held February 2, at the White Swan, Tudor Street, E.C., Mr. T. E. Freshwater presiding. Mr. A. E. Smith gave a lecture on

"Photography with the Microscope." The lecture was illustrated by means of 12 by 10 prints from the original negatives, and by lantern slides reduced from the 12 by 10 negatives, and all were exhibited for the first time.

In enlarging with the microscope the procedure is in a general way much the same as in making a bromide enlargement, the microscopic objective taking the place of the usual negative, the sensitive plate being put up instead of the bromide paper. An easy method of finding the degree of amplification is to divide the focal length of lens by the length of camera extension. Thus using an objective of one-inch focus, with 50 inches camera extension, the magnification would be 50 times with a one-sixth inch objective, and 40 inches extension equals 240 times. It is always important to know the focus of an objective; those met with in commerce being generally marked too short, so that before any accurate calculation can be made the focus of objective should be carefully measured, the lecturer mentioning that an objective marked $1\frac{1}{2}$ was actually $1\frac{1}{8}$, a 2 inch was $1\frac{1}{2}$, a $\frac{1}{4}$ was $\frac{1}{8}$. When an eyepiece was used the magnifications are greater (with less camera extension), according to the power of the eyepiece, which gave usually 5, 7, 18, 27, etc., times more magnification; the lower the power used the better.

For small magnifications, up to about twenty times, a short-focus R.R. lens ($3\frac{1}{4}$ to $8\frac{1}{2}$ inches focus) will answer better than a microscopic objective. When using high power objectives, such as one-twelfth, a drop of oil is put between objective and object. This abolishes two refracting surfaces, but is messy. Achromatic objectives are corrected as regards the two chief colours, the apochromatic for the three. Mr. Smith did not use a projection eyepiece, as he found it too much trouble. A condenser he found useful, but not always necessary, the interposition of a sheet of ground glass giving the best results. Plates of 12 by 10 size were mostly used, the exposures varying from two seconds to two hours for transparent objects; from one to two hours for opaque subjects.

The light used was most important. Oil was too weak, but good and steady; incandescent gas was very good, but the mantle must be out of focus and secure from wobbling. Lime light was too hot and expensive. Arc light, from which great things are expected, proved disappointing, the arc being always in motion, and, except for short exposures, useless. The Nernst lamp is much better, but the light comparatively weak.

Then about one hundred slides were projected, the degree of amplification of each picture being given, covering a range from about 70 times to 90,000. All were of high technical excellence, as may be judged by the chairman remarking that he had never seen such a succession of splendid work, nor had enjoyed so pleasant and instructive evening. The 12 by 10 prints must have a highly educational value, and would enable the teacher to explain the special points required, in a manner quite impossible when the microscope itself was used.

Mr. Kinson was sorry that such work entailed the use of very expensive apparatus, but Mr. Smith and the Chairman were emphatic on the point that the extra expenditure, beyond a good stand, and one or two objectives, was quite unnecessary, and the hon. recorder promised to show on March 9 how a micro-enlargement could be made with simple arrangements.

Mr. W. Thomas was pleased to hear that Mr. Smith liked the Nernst lamp. Microscopic work was not his hobby, but he could speak with great pleasure as to the efficiency of the lamp for bromide enlarging.

On February 16, the London and Provincial will hold a smoking concert at the White Swan, Tudor Street, in place of the annual supper. The musical arrangements, it is satisfactory to note, are in the hands of Mr. T. K. Grant. Tickets for the concert cost one shilling each, and may be obtained from members or from the hon.

secretary, Mr. R. J. Kindon, Burnside, Church Road, Shortlands, Kent.

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION—EDINBURGH BRANCH.

A MEETING of the Edinburgh branch of the P.P.A. was held at 38, Castle Street, on Friday, February 3, 1905. Present: Messrs. Crooke (chairman), Inglis, E. D. Young, D. Watson, Balmain, Heanen, Bibbs, Patrick, Banks, Russey, and Halkett.

The subject of assistants' certificates was taken up, when the chairman intimated that an almanac had been sent out by the P.P.A., embodying a scheme in regard thereto. Some of those present had not received it. A good discussion was carried on as to the examiners for the candidates, etc., the chairman remarking that a number of the subjects might be dealt with by correspondence. Mr. Heanen suggested that certificates might be granted both to male and female assistants, and also to receptionists. The abilities of the latter, however, as pointed out by Mr. Young, are greatly a matter of personality and would be difficult to deal with in connection with the more practical workers. The chairman strongly urged that as the chemical and optical department of the profession are of such importance, the candidates should give these subjects special study. In discussing the time of apprenticeship, it was thought by the meeting that three years was hardly long enough for their grade certificates, but during the currency of apprenticeship certificates should be granted in the various branches which would be so much (in hand) for the candidate. The meeting was quite unanimous in its approval of the scheme upon lines, however, which should be more fully discussed. It was also thought that the third and second grade (operators' and assistants') certificates might be combined.

"Cheap Portraits and the 'People's Friend.'" This subject brought forth a long discussion, several members being very desirous of knowing by whom they were produced. It was thought advisable that this matter should be dealt with by the P.P.A. by correspondence with the proprietors of the journal, pointing out to them the injurious effect such a system has on a great many photographers all over the country, as well as in their own town. The hon. sec. was therefore instructed to write the hon. sec. of the association to this effect, and with enclosure of circular. Mr. Balmain said it had come to his knowledge that the free portrait dodge had arrived in Edinburgh, particulars of which he would try to ascertain. A letter was read from Mr. Crawford as to conditions of fire insurance in connection with alterations, and classification of lenses, backgrounds, furnishings, etc.

ABERDEEN PHOTO ART CLUB.

UNDER the auspices of the Photo Art Club, a lecture was delivered last week by Mr. J. A. H. Hector, artist, in the School of Design, entitled "Picture Design." The lecturer, by rapidly-executed sketches on the blackboard, showed how from the simplest designs a great picture might be built up. By adding a light here and a shadow there, he demonstrated how a picture might be balanced, and how by certain lines the aim and motif of the artist might at one glance become apparent. The picture might be full of detail, but there should be one object which always brought the eye back to it. This object might be but a light in sky or landscape, a cloud or a group of trees; whatever it might be, one would find that the design of lines and balancing of parts led the eye naturally up to it. While insisting, however, on artistic design in picture making, he wished to make it thoroughly evident that such design should not obtrude itself on the eye—that "art should hide art" in such a way that the mind felt the beauty and purpose of the picture without knowing how such had been obtained. In portrait painting he showed that the same theory held good, that some design, pleasing yet unobtrusive, should run

through the picture. He said that sentiment and certain effects might be given to a picture, and by a few deft touches with the chalk produced a farm homestead, on a breezy upland, among sunlit sheaves, and explained the designing which had given the rising character to the landscape and the impression of sunshine and wind. Altogether Mr. Hector's lecture was a most instructive one, rendered all the more so that it was delivered purely from the point of view of an artist who claimed to know nothing of photographic methods. A cordial vote of thanks was accorded to the lecturer.

The lantern slides submitted in the competition, entitled "Play," were thrown on the screen by the lanternist, Mr. Stephen, while Mr. Duff read the criticisms by the adjudicators, Messrs. Findlay and David. The first place was given to Mr. Bow, the second to Mr. Stephen, and the third to Mr. Clerihew.

The Secretary received a letter from Mr. David, of Gray's School of Art, in which he suggested a slide competition of local architectural subjects, and the getting up of a set of such slides as would be useful in lecturing or teaching.

CROYDON CAMERA CLUB.

FEBRUARY 1, held at 128, George Street, a demonstration of real practical utility was given by Mr. H. P. C. Harpur, on the pictorial treatment of transparencies and lantern slides. The various methods of introducing clouds, shading down portions of the picture, double printing, and the like, were very clearly described by the lecturer. For general work of this description he used his enlarging lantern, and, in conjunction with this, a most ingenious easel of his own design was employed, adaptable to take from lantern size to 15 by 12 plates or paper, a notable point of this being that the carrier could be removed after focussing and replaced with certainty of correct register being maintained. Just behind the condenser of the lantern a sheet of finely ground glass was placed, to avoid any possibility of the image of the mantel recording itself; and reflection from the illuminated plate, or paper, to the highly-polished woodwork of the lantern and back again was obviated by covering the front of the lantern with velvet. This, Mr. Harpur said, was no needless precaution.

The most interesting point raised, however, consisted in Mr. Harpur's method of softening definition to any desired extent without the painful loss of structure, occasioned by placing the image decidedly out of focus. The method in question, consisted of placing, preferably close to the projection lens, and in front thereof, one or more thicknesses of French tulle. That sold at 6½d. a yard possessed the most suitable mesh, viz., 1-16 inch. It could be conveniently mounted on cardboard frames, and if more than one layer were employed, about 1-20 inch should separate each piece of fabric. When mounted, it should be steamed to remove the stiffening, which would also cause the material to tighten. One thickness did not perceptibly increase the exposure; two approximately increased it by one-half; three by three-quarters; and four doubled it. The soft effects produced in proportional varying degree, Mr. Harpur stated, were totally different to those obtained by bolting silk used close to the easel.

Irrespective of the softening of definition, a somewhat remarkable result also followed—namely, a considerable reduction of contrast in the enlargements. Whatever the reason of this may be, and it must be a purely optical one, the fact remains that Mr. Harpur convincingly demonstrated that negatives too harsh to be dealt with in the ordinary way, would be successfully enlarged by the method alluded to.

At the instance of the president, Mr. W. H. Smith, a most cordial vote of thanks was accorded the lecturer, and deservedly.

THE Photographic Exhibition at the Royal Albert Institute, Windsor, will be opened on Tuesday, February 14, by H.R.H. Princess Alexandra of Teck.

News and Notes.

A new photographic society is proposed for the Dennistoun district. The names of those favourable are being received by Mr. James Watson, 84, Bellgrove Street.

THE Secretary of the Northampton Exhibition writes that under an extension of time entries may be received up to the 14th inst. Pictures should be sent to the Town Hall by the 17th.

A LIST of stock-taking bargains is offered by the Tella Camera Company, of 110, Shaftesbury Avenue, London, W., who are clearing out hand and stand cameras, lenses, etc., at reduced prices.

WILLIAM HEATHCOTT BENTLEY, Ernest Bentley, and Charles Bentley, photographers, of Hanley, Staffordshire, and Nottingham, have changed their name to Humphriss.

MR. AND MRS. W. J. ANCKORN, of West Port, have just celebrated their silver wedding, which took place in 1880, that year also marking the foundation of their present successful photographic business.

PHOTOGRAPHING Royalty.—On the present occasion, as upon all previous visits to Ireland, his Royal Highness the Prince of Wales has honoured M. Lafayette with special sittings, thus bringing a most interesting series of portraits of his Royal Highness fully up to date.

RAILWAY Lantern Slides.—Lantern slides showing places of interest on the L. and N.W. line are available for the purpose of illustrating lectures, etc., and a list of slides and the terms on which they are loaned can be obtained on application to the Company's agents, or to Mr. R. Turnbull, Superintendent of the Line, Euston Station, N.W.

SLOUGH Photographic Society.—This newly-formed society, after successfully completing the programme for the first half of its winter session, has just re-started its meetings. The membership has increased, and an excellent record of attendance is maintained. Under the presidency of Mr. E. Oetzmann the society should have a very promising career before it.

At the Hull Photographic Society last week Mr. T. E. Kerridge read a paper on "Ischromatic Photography," in the course of which he recommended the home manufacture of screens, using Ilford black-tone lantern plates, fixed and washed, and soaked for three minutes in the solution of picric acid. For a twelve-times screen he used a saturated solution; for a six-times screen half strength; and so on.

THE Essex Field Club has inaugurated photographic and pictorial survey and record of Essex for the purpose of gathering together at the Essex Museum, Romford Road, West Ham, a permanent collection of photographs and pictures of objects of interest, with maps, plans, and other documents, so as to give a comprehensive survey and record of all that is valuable and representative of the county and of the neighbouring river and sea.

MR. T. WHITE, photographer, and Mayor of Lewisham, has recently had fame thrust upon him in his assumption of the rôle of stone-breaker. In order to test the genuineness of the complaints of unemployed who were put to stone-breaking by the Guardians, Mr. White and three other gentlemen became stone-breakers for part of a day, and though his professional duties did not qualify him for the task he did his turn in the yard without fatigue.

AN amusing and unrehearsed incident occurred at the first Drawing Room held by the Governor-General and Lady Grey in the Senate Chamber, Ottawa. An enterprising photographer, stationed in the Press Gallery, almost opposite the throne, ventured to take a flash-light photograph. The sudden blaze of light startled everybody, creating quite a sensation, and, according to one account, Lord Grey was so surprised that he nearly fell off the dais.—"Canadian Gazette." February 2, 1905.

IPSWICH Camera Club.—At the Museum last week, before a large attendance of members, presided over by Mr. G. H. Hewetson, a very interesting and instructive demonstration on the enlargement of photographs was given by Mr. A. W. Green, representing Messrs. J. J. Griffin and Co. Mr. Green also demonstrated the toning of bromide prints by the uranium and sulphide processes, and showed various apparatus connected with bromide printing. There were several ladies among the company, and all present manifested a close interest in the demonstration.

WE have received a comprehensive and well-printed catalogue and price list of enlarging and enlargements from the well-known trade enlarger S. H. Fry, of 12, South Villas, Camden Square, London, N.W. In its pages will be found details of the photographic work undertaken, all of which is executed under the personal supervision of Mr. Fry. The list includes quotations for enlarging and finishing in bromide, carbon, and platinotype, etc., and several special popular lines are also brought to the notice of the profession. Generous discounts are allowed to the trade, and the list will be forwarded post free to professional photographers.

At a meeting of the Thornton Heath Photographic Society, held at 86, High Street, Mr. H. P. C. Harpur gave a demonstration, before a large and appreciative audience, on "Portraiture by Window Light and Flash Light." For portraiture at home he recommended using a room into which the sun did not shine, or, failing that, only to work when the sun was obscured. When using flash light it was absolutely necessary that the light should be diffused, and the full aperture of the lens should be used to secure softness. If magnesium ribbon be used for the illuminant, it should be kept in motion during the exposure, even when diffused through a screen, otherwise uneven lighting would result.

THE London County Council's improvements in London having swept away many historic buildings, it was to be expected that the Council would not overlook the making of a photographic record. Inquiry, however, on the part of Mr. Hector Maclean, as reported in the "Morning Post," discloses the fact that such photographs as the Council possessed are scattered about various departments. No permanent photographic specialist has been appointed, and it is understood that the records are printed in silver. It should not be necessary to inform even local government authorities that silver prints are unsuitable for this purpose, platinotype or carbon being the printing processes universally recommended.

At Bromley, Kent, one day last week, the magistrates investigated some extensive thefts of photographic apparatus. The stolen property was of the total value of nearly £30. The accused, against whom there were four separate charges, was Walter Ware, residing at Broom Hill, Orpington. He had not been regularly employed for some time past, and Mr. Richard Cartright Davenport, the prosecutor, a tradesman of London Road, Bromley, had found him occasional employment. The prisoner took advantage of his visits to prosecutor's premises to rob him of goods in a wholesale manner, and then pledge them. The prisoner pleaded guilty, and was sentenced to six months' hard labour.

THERE was an influential gathering of City men at Anderton's Hotel on Friday last, when Sir William Treloar, on behalf of a large number of friends presented Mr. W. G. Thame, the late advertisement manager of the "Standard," with a handsome testimonial as a mark of their esteem. The presentation took the form of a valuable gold hunter and chain, and an illuminated address, while a diamond bracelet was subscribed for to be handed to Mrs. Thame. Sir William Treloar, in offering the tokens to Mr. Thame, whose birthday it was, mentioned that he had known the recipient of their good wishes for very many years. That gentleman used to induce him to spend a good deal of money in advertising, and he felt it difficult to dissociate him from the occupation their guest had so ably followed.

He (Sir William) had been looking up some old newspapers, and found that forty-one years ago his father had a shop on Ludgate Hill which the Chatham Railway Company acquired when they put a bridge across that thoroughfare. His father brought an action for compensation, and in his evidence he said a good many things about advertising which were interesting. He gave it as his opinion that advertising in a certain number of years repaid to the extent of 10 or 15 per cent. Advertising was a science which it was necessary to study, and although it would not return profits for some time, it soon did so. His father also told the judge that he had had a gentleman in his shop who carried a newspaper seven years old, and pointed out that a considerable purchase resulted from the perusal of an advertisement published seven years before it reached the eye of his customer. Some years back Sir William Treloar said his income-tax assessment was doubled. He appealed, and found the commissioners not very wide awake. It was not so now—he spoke as an income-tax commissioner. (Laughter.) Asked why they overcharged him, one of the commissioners produced three copies of a paper in which he had whole-page advertisements, and said: "It is impossible to spend a lot of money like that unless you have a large income." He laughingly replied, "It shows you know nothing about it. These advertisements are flags of distress which I show when I want business." Sir William concluded his speech by expressing the delight he felt at being able to make the presentation to their esteemed friend, whom they were delighted to see in good health. Mr. Thame, in returning thanks for the gift, expressed pleasure at being honoured by so many of his old friends and colleagues.

Commercial & Legal Intelligence

TORQUAY Photographer's Failure.—The first meeting of creditors and public examination in bankruptcy of Samuel James Porter, photographer, 4A, Strand, Torquay, were held at Exeter recently. The gross liabilities were stated to be £2,476, expected to rank for dividend £622, assets £235, deficiency £386. The causes of failure alleged by debtor were: "Depreciation of property, and being obliged to move my Torquay business; heavy rental of Torquay business premises." The official receiver, in his printed observations, stated:—"The debtor states that he commenced business at Ventnor, Isle of Wight, in 1890, with a capital of about £190. About seven years ago he opened a branch at Torquay, five years ago another at Paignton, and three years since one at Exeter. He sold the Ventnor business about two years ago, the Paignton business in September last, and the Exeter business in November, 1903, the Torquay business being the only one now carried on by him. He says he has not balanced his affairs at any time, and there is no account showing the profits from his trading; that he did not become aware of his insolvency until a fortnight ago, when he found that he could not sell his Ventnor property except at a loss, and that he should be liable for the balance due to the mortgagee. The fully-secured creditors include the bankers for £134 7s. 8d., who hold a guarantee, and the guarantor holds as security for that and his own debt of £54 6s. 9d., two bills for £135 given by the purchaser of the Exeter business, and six bills for £10 each given by the purchaser of the Paignton business. The last of these bills falls due in July, 1906. There are two fully-secured creditors for £900, holding first and second charges on a freehold house at Paignton. The partly-secured creditor for £710 holds a mortgage on a long leasehold house at Ventnor, of the estimated value of £550. The landlord of the Torquay premises is a creditor for £180 balance of rent to Christmas last, of which he claims in full six months' rent. £112 10s., and as security for the remaining rent he holds a life policy worth about £15, and three bills amounting to £100, part of the purchase-money of the Paignton business. The unsecured creditors for sums over £10 each include three for £194 for money lent, one for £15 for furniture, and the remaining creditors are all for goods supplied."

Correspondence.

- * * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*
- * * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE R.P.S. AND REFORM.

To the Editors.

Gentlemen,—There is a very impressive sound in the expression "Reform Committee." One instinctively assumes it to consist of a small body of individuals chosen for their abilities and general worthiness to represent a community at a period when misgovernment has reached a stage beyond endurance, with a view to the establishment of an improved system which shall avoid the errors of the past and result in enhanced prosperity to all concerned. That is what a Reform Committee should be to justify its name, and, in order that it may perform its function truly, it must be composed of men of wisdom, experience, and, beyond all, of probity. A body so composed would certainly not undertake to upset existing conditions without a clear aim, a definite policy, and a fulness of assurance of being able, not only to make a change and create a new system, but to make a change that shall be beneficial, and to create a new system which shall be an improvement on the old one. The border-line between reform and meddling interference is very lightly drawn; sometimes at first it is imperceptible, but after a time, in the broad light of day, it "prints out," and does not require any toning or fixing. Thus it is only by waiting for the result that it is possible for the uninitiated onlooker to form an opinion whether a movement, represented to be a reforming one, is genuinely of that nature, or whether it is merely a revolutionary movement of the character which South American Republics have taught us can easily be brought about by aspiring politicians in their own interests; and, now that sufficient time has elapsed to be able to judge by results, in the interests of everyone concerned in the prosperity of the Royal Photographic Society, and in ordinary fairness to those gentlemen whose voices were so loudly heard in 1892 in protest against a state of things which, in their wisdom, experience, and probity, they thought or said they were capable of improving, it is fitting that their claims should be considered, either to be looked upon as men of wisdom, experience, and probity whose names deserve to be recorded in history, or—well, merely as interfering meddlers.

It was rather more than three years ago that the then president of the R.P.S., in a manner which the Council contended was unconstitutional, proposed certain alterations in the constitution of the society, which the Council almost to a man opposed as being more likely to do harm than good. A "Reform Committee" sprang into existence, declared battle against the Council, and in the end ejected them bodily and filled their places with its own nominees. If this was "reform," the results of the last three years ought to show that the Reform Council has done better service than its predecessors, that it has raised the society both in status and material prosperity, that it has become more useful to its members, and that it more completely fulfils its mission—the advancement of photography.

A comparison of the work of the last three years with a corresponding period before the "reform" will tell its own tale.

In 1898 the Council organised an exhibition at the Crystal Palace on a scale that had never been attempted before in connection with photography. That it was a brilliant success was undoubted, and that all concerned were entitled to the highest praise has been everywhere enthusiastically acknowledged.

In 1899 the Council, in view of the fact that the growing importance of the society demanded better house accommodation, entered into the tenancy of 66, Russell Square. The cost of furnishing and

equipment was provided by an appeal to the members, which was so abundantly responded to that it was only found necessary to call up one-third of the amount promised. This, at any rate, showed that the Council possessed the confidence of the members generally and their approval of the undertaking.

In 1900 the Council, after strenuous efforts for years to find better accommodation for the exhibition than at Pall Mall, transferred it to the New Gallery, Regent Street, as epoch-making an event in the history of the exhibition as that just referred to was in the annals of the ordinary work of the society.

In 1901, in spite of the interruption of the work of the winter session caused by the proceedings of the president and the Reform Committee, at the time of their forcible exit in February, 1902, the Council had arranged and ear-marked the funds for:—

The provision of enlarging apparatus; the arrangements were partly made.

The publication of a catalogue of the library; this, again, was in hand.

The arrangements for proper display of the Museum and the permanent collection of pictures.

The arrangements for a series of lectures of an elementary or demonstrational character for the benefit of the less advanced members was discussed, but postponed for a reason of a transitory nature.

Exigencies of space have restricted this list to practically one item of each year's work, but it does not require much discrimination to recognise that the important changes indicated and the corresponding expansion of the society must have entailed an enormous amount of actual work and a not inconsiderable display of administrative ability. Against this unduly epitomised record of the old Council's achievements let the achievements of the Reform Council be set out. There is no need to epitomise. They can be set out in full.

The Reform Council has completed the arrangements of the enlarging room.

It has carried out successfully the arrangements of the museum and library.

It has almost completed the library catalogue.

It has instituted the series of practical demonstrations.

These, its successful efforts, were the legacy of its predecessors, and it must be said they have been well done.

It instituted the custom of publishing a brief report of the proceedings of the Council, a valuable innovation, but discontinued for some reason more or less obvious.

It attempted to institute an Annual Dinner, and failed.

It has attempted to raise funds for a research laboratory, with little prospect of success.

The celebration of the society's jubilee in 1903, an unprecedented opportunity for a demonstration of the most brilliant description, was utterly wasted. A dinner, sparsely attended; a Conference in the society's rooms, at which a few ordinary papers were read to an assemblage of a couple of dozen or so; an exhibition of historic apparatus, consisting of a few cases containing a few dozen articles—the whole proceedings, conducted in an atmosphere of funereal gloom, constituted the jubilee celebration.

Possibly some unimportant item may have been omitted, but on the whole this is a fair record of the Council's activity during three years. For the consequences to the society, please refer to the report and balance-sheet just issued. To men whose coming was heralded by the Reform Committee with such flourish of trumpets this must be a most humiliating document. A confession of failure in every direction. Stagnation in the work, falling receipts, enhanced expenses, the unprecedented number of resignations of membership, fifty-seven in the year, a balance on the wrong side, and dry rot everywhere.

It is on this record that a Reform Committee, engineered mainly

by the same individuals who, in 1902, beguiled the members into entrusting the society's management to their care, dares to appeal for support for themselves and their nominees.

The entire facts have never been disclosed with regard to the revolution of 1902. At the time it was represented that the opposition of the Council to the president's wholesome proposals was entirely fractious. Let us review the results of carrying out these proposals. The battle raged round two points in particular—the abolition of the office of honorary secretary (the original scheme provided that the secretary must be a paid officer; the permissive wording of the rule was introduced later: if the rule had been presented at first as afterwards modified there would have been no necessity to oppose it), and the publication of the nominators of candidates for the Council. With regard to the first, in the time of the old Council the secretarial and clerical work of the society was performed, and performed efficiently, even during the great changes which have been recorded, and which necessarily involved a considerable addition to the ordinary amount of clerical work at an expense of about £150 or £160 per annum on the average. A speaker on the reform side, whose testimony is unimpeachable, stated publicly that the hon. secretary was a hindrance rather than an assistance to the assistant secretary, so it may be assumed that, at any rate, the new conditions involved no necessity for greater expense. No question of cost was raised, however; the point of the contention of the Council was that the work could be *less efficiently* done with an officer not directly responsible to anyone. Well, the alteration in the status of secretarial department had for its first effect an increase in the cost of the department to £250, and according to the last balance-sheet the cost has now reached £312 for the year.

The point remaining is the publication of the nominators' names. It is only necessary to turn to the lists of Council for the past three years to discover the erratic way the members exercise their privilege of voting. A man does something to bring his name into temporary notoriety. In February he is popped on the Council. The next year he is popped off. His capabilities as an administrator no one knew, knows, or probably ever will know. A chandler's-shop keeper will not engage an errand boy without a reference to someone who knows something of him. The members of the R.P.S. are expected to choose their representatives from a list of names whose owners mostly would seem only to have the recommendation that they aspire to govern. The old system was not perfect; it was capable of abuse, but at the worst it never could lead to the chaotic confusion of the present method. For results, vide the report and balance-sheet.

The present Reform Committee is a very human institution after all. A number of gentlemen, estimable enough in their way, who have never done anything to induce anyone to imagine they possess more than ordinary capacity—some on the Council, and fearful of losing their seats; others, not on the Council, but aspiring—meet to consider the best way they can advertise themselves for their mutual benefit. "The Manifesto of The R.P.S. Reform Committee" is the result. There is the matter in a nutshell.—I am, etc.,
RESPECT FINEM.

WHAT TO DO WITH OUR GIRLS.

To the Editors.

Gentlemen,—A few weeks ago there was a letter published in your journal from a father who was anxious to start two of his daughters with a photographic studio.

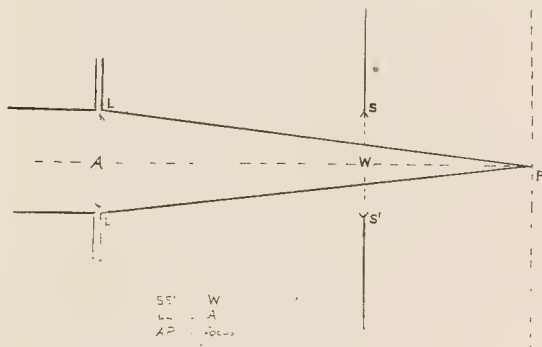
My sister and I are carrying on a successful business of our own, and if I can be of any assistance to others wishing to do the same I should be glad to do so.

Enclosed is name and address if you care to forward.—Yours truly,
February 7, 1905.
SCRIBBLER.

THE FOCAL-PLANE SHUTTER.

To the Editors.

Gentlemen, -I should like to express my appreciation of the technical and scientific turn the BRITISH JOURNAL has taken lately. I read with great interest the articles on the focal-plane shutter; but although the first notice was very good, I must say the method of treating the subject seems to have led to much obscurity in the second article appearing in the current number. I should like to ask the author how the third row of figures in the table the "illuminations," are arrived at. It is true he states, that "no exact mathematical treatment of the problem can be given," but why not, may I ask? The statement is made that if the width of the slit equals half the diameter of the diaphragm ($s = \frac{1}{2}b$), then the illuminations are the same at double and normal focus. This is quite true, if by "illumination" is meant the duration of exposure multiplied by the efficiency of the shutter; but just previous to this statement an example is given where the width of slit is 1 c.m., and the surface illuminated at double focus 4 c.m. Now obviously under these conditions s does $\neq \frac{1}{2}b$, and yet the author deduces $\frac{1}{2}$ as the value of the illumination. Now it must be borne in mind that a back extension would very probably be used in conjunction with the back half of a symmetrical combination, and then although the illumination would be the same, regarding illumination as a shutter factor, yet, on account of the altered value



of the diaphragm, twice the exposure must be given. One might naturally think the exposures would be proportional to the illuminations, therefore I think this term somewhat unsatisfactory. But if we understand what is meant, it matters little, and, as I will show, the "illuminations" are practically the same whatever the position of the blind shutter in the camera. And this is where I seriously differ from your table.

The simplest way of dealing with the question of "efficiency" and "illumination" is to consider the light-action at a point instead of at a surface of considerable area; then there will be no "crossing rays" to muddle one's mind. Imagine that a star were being photographed, and in accordance with the rules of geometric optics, which are all-sufficient for this little problem, make a sketch of the parallel beam of light converged to a point on the sensitive plate. Let the image of the star be in the middle of the plate, and also, so that conic sections and their areas shall not obtrude in any way, imagine we are using a square diaphragm. Now the efficiency of a roller blind shutter is the number of times the width of the pencil or beam of light where the shutter cuts it, is contained in the width of the slit divided by this number plus 1. Thus, if the shutter slit is the same width as the pencil the efficiency is $\frac{1}{1+1} = 50$ per cent.

Now, in the figure let a = aperture, and w the width of slit. Let

the blind cut the pencil LPL' in any plane between a and P. Supposing the plane of the shutter $1/n$ th. the focus of the lens from the plate, and taking the speed of the shutter at the focal plane as unity, the speed at the plane ss' , $1/n$ the focus from the plate, will be

$$\text{duration} = \frac{w + \frac{a}{n}}{w}$$

But the efficiency in the same plane is $\frac{w}{w + \frac{a}{n}}$; the width of the

slit divided by the width of the slit plus the width of the light-pencil.

Hence the illumination equals

$$\text{duration} \times \text{efficiency} = \frac{w + \frac{a}{n}}{w} \times \frac{w}{w + \frac{a}{n}} = 1.$$

Hence my disagreement with the third row of figures, the illuminations, in your table.

It will be seen that if we substitute $\frac{1}{n}$ for $\frac{1}{n}$, the duration

$\frac{w + \frac{a}{n}}{w}$ becomes $\frac{w + \frac{a}{2}}{w}$, which gives the values in your table of the relative speeds, with which I am in perfect agreement.

My conclusion is, therefore, that although the speed varies considerably with the position of the blind in the camera, the effective exposure does not vary. Further, if a back extension is used to adapt the camera to the varying foci of a convertible lens, the exposure will vary in accordance with the altered value of the diaphragm.—Yours truly,

C. J. STOKES.

29, The Green, Richmond, S.W., January 31.

HONORARY PHOTOGRAPHERS.

To the Editors.

Gentlemen,—I beg to enclose a copy of my reply to the letter by the editor of "Woman's Life," which appears in your last issue. Why will not these editors stick to their lasts and let photographers alone?—I am, dear sir, yours very truly,

A. J. LANGTON.

The Langton Portrait Studios, 35, Buckingham Palace Road, Belgravia, London, S.W.

To the Editor "Woman's Life," Southampton Street, Strand.

Dear Sir,—Replying to yours of even date re free photograph scheme. I wonder if you would do what you calmly ask me and other photographers to do? It is a faulty rule that will not work both ways, so what do you say to this "scheme"? I propose to give a coupon with each photograph I supply to the public. Three of such coupons when presented to the Editor of "Woman's Life" will entitle the presenter to at least one shillingsworth (my photograph would cost me about 2s.) of the publications of George Newnes, Limited. "You will, of course, readily perceive that this introduction by us paves the way for further remunerative business on your part."

Candidly, if you do accept my proposal, I should think you as big a fool as I should know myself to be did I accept your exactly similar scheme.—I am, dear sir, yours truly,

A. J. LANGTON.

WEEK-END Holidays from London.—A handy pocket guide is in course of preparation entitled "Week-end Holidays from London." It will contain exactly the information which the week-end traveller needs, namely, brief particulars of a large number of the most popular South and East Coast resorts, together with the fares and train services, as officially supplied by the railway companies, and the week-end charges made at hotels, hydros, and other establishments. Two editions of the book are to be issued yearly—the first at the beginning of May and the second in October.

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- J. Haywood, Kingswood, Wooton-under-Edge, Glos. *Photograph of Loom and Maker together with Designs of Ribbons made in the Model Loom, together with Description, all forming One Picture.*
- R. Leak, 60, South Parade, Bradford, Yorkshire. *Photograph of Group in the Comic Opera, "The Mandarin."*
- M. D. Morley, 94, Belgrave Road, Leicester. *Two Photographs of General Buller Unveiling Monument at Nuanetsi.*
- S. J. Jones, 9, St. James' Street, Newport, Isle-of-Wight. *Photograph of a Soldier Holding a Wild Ass called Kyang, Captured at Lhasa in Tibet.*
- W. H. Dee, 810, King's Road, Reading. *Photograph of the Reading Football Club.*
- H. Gascoe, Ltd., 48, Queen Street, Wolverhampton. *Three Photographs of Mr. Henry Norman, M.P.*
- F. W. Hardie, 416, Union Street, Aberdeen, N.B. *Photograph of the late Mr. E. Brough, A.R.S.A.*
- C. Johnson, High Street, Gillingham, Dorset. *Photograph of A. W. Wills, Esq., M.P., North Dorset, and Party in Motor Cars.*
- H. P. ROBBIE.—We do not know the address. Better write to the Y.M.C.A. Camera Club, Alexandra Hall, Cambridge.
- H. H.—We cannot be the medium of communication of the kind you send. We have destroyed your letter.
- L. S. LANGFIER.—The Westinghouse Company, Westinghouse House, Norfolk Street, Strand, London, W.C.
- J. W. STAREY.—We should advise you to obtain provisional protection, which you can do for a sovereign; then apply to such houses as Fallowfield, Hurman, Houghtons, etc.
- A. QUERIST who asks for the wages of a lantern slide colourist is informed that such work is generally paid for by the dozen, and the price paid by some firms is about 3s. or 4s. a dozen.
- C. J. D.—We do not undertake commissions of the kind you name in your letter, but if you will turn to the "Miscellaneous" advertisements in the JOURNAL, you will see offer of service such as you require.
- A. F.—The postcard is a rather bad colotype. You can obtain cards in colotype from a number of firms. It is not usually so cheap as half-tone. You will see prices for both processes in our advertisement pages.
- AGRI.—There is not the slightest advantage in using a dilute developer. Use one of the normal strength and without bromide. You would get much better results if you used the special X-ray plates made by the same firm as those you are now using.
- PHOTOGRAPHIC ENAMELS.—Can you inform me where I can obtain particulars of a process for transferring a photograph on to enamel or porcelain which will stand burning?—G. A.
"Photo Ceramics." By W. Ethelbert Henry and H. Snowden Ward. Published by Messrs. Dawbarn and Ward, 6, Faringdon Avenue, London, E.C. Price 1s.
- RUDOL.—Will you kindly inform me where I can obtain some of the new developer, Rudol, mentioned in this week's Journal?—WM. H. COX.
The name of the maker is Dr. C. L. Marquart, Beuel-on-Rhein. We shall be glad to see the prints, and will then deal with them.

ANON.—The seaside season begins in May and June, as a rule, and there is not much to choose between places as to date of commencement. As a rule you will see plenty of advertisements in the "Situations Vacant" column for the seaside season, and we should advise advertising about the middle of April.

ARCHITECTURAL POSTCARDS.—Could you oblige me with the address or addresses of firms publishing architectural views of London or other cities in England on postal cards?—A. LEVY.

Application might be made to the Photochrom Co., Cheap-side, E.C.; Valentine and Co., 154, Perth Road, Dundee; Hood and Co., St. Bride Works, Middlesbrough.

CLAIM OF SALARY.—Will you kindly inform me if I can claim a week's salary, in lieu of notice, in the following case?—I was engaged by letter, at a weekly salary, as retoucher and spotter, no mention of going on trial in it. It was at a very busy, cheap photographer's, and at end of week, finding the place much too hard, I gave a week's notice, and was immediately told that I need not come on the following Monday as I did not suit. I may add that I was told there were three retouchers kept, but found when I got here I was the only one, and was expected to get through about fifty negatives a day, and last three days of week had 600 to 700 prints a day to spot.—Y. Z.

As you were engaged at a weekly wage, although there may not have been any definite statement as to notice, there is an implied contract which would enable you to claim.

RETOUCHING.—Kindly examine enclosed prints and give me your opinion of retouching on same; also state the quality of the lens the photographs have been taken with.

(1) Prints sent for criticism of retouching should comprise a double set, the first showing the unretouched state, and the second set displaying the effect of the retoucher's efforts; otherwise, it is impossible for us to form an idea of how you have treated the likeness and general character. Your retouching is decidedly very weak, but shows promise of better things in certain respects. You are too undecided and flabby in your technique, but a few first-class lessons from an expert teacher should soon put you on the right road to success. (2) It is impossible to say much as to the lens because no details are given of the aperture used, but there is not, so far as we can see, much fault to find with it.

COLLOTYPE.—Wishing to gain some information respecting the "Colotype Process for Postcards," which is described in the BRITISH JOURNAL PHOTOGRAPHIC ALMANAC, 1905, p. 915, I should feel much obliged if you would be so kind as to send me formula for colotype ink and colotype varnish? Then I have tried ordinary writing ink and copying ink, but I cannot get any copy.—VILHELM WARDINGHAUSEN.

We recommend you not to attempt to make the ink or varnish in the small quantities you probably require. Your wisest course is to procure from the dealers in process supplies, such as Klimsch and Co., Frankfort-on-Maine, Germany, Penrose and Co., London, or through your local stationer. You may purchase lithographic ink and varnish with less difficulty, and these will answer your purpose almost as well. Writing and copying ink are quite useless; why not get a book on the colotype process.

INSERTING PORTRAIT IN GROUP.—A customer has a family group, he is coming to sit himself, and then he wants me to take one figure out of the group and put him in instead. How should I set about this? I intend taking him the correct size for photo of group; but then I do not know if it would be best to make a print of him, cut it out round the figure, paste it on the group over the other figure, and then copy the whole, or whether I should cut figure out of film, and, after removing the film of

figure that is to come out of group, stick the fresh piece of film in its place in group negative. The former seems the easiest, but there may be other ways.—GLAUCUS.

The former is the better plan. The print of the figure should be taken on the thinnest albumen paper and, after cutting out, the edges should be rubbed down with fine sandpaper. The junction of print and figure will then scarcely be visible, and if you copy the composite print with the light falling flat on it, the join will not show in the negative.

PROJECTION.—At a distance of 10.5 mètres I want to get a picture of 3.5 mètres, the transparency being 7 cm. in diameter. Is it possible, or, rather I should say, practicable, to do so, that is, with sufficient brilliancy and sharpness and not excessive distortion? It is evident that a small diaphragm would increase the amperage and consequent heat and cost of light beyond feasibility. I have an old portrait C.D.V. lens that does it, but sharpness insufficient. What is the easiest way to find the back focus of this portrait lens?—PHOTOPHIL.

This is a matter of calculation; thus $10.5 \times .07 = 3.5 \div 21$ centimètres, which is the focus of the lens required to give the above-named disc, the rule being multiply the distance between lens and screen by the diameter of the transparency and divide by the diameter of disc. We do not quite understand what is meant by the small diaphragm increasing the amperage. If the C.D.V. lens does not give sufficient marginal sharpness, the back combination should be unscrewed and the lenses separated a little more, and, by trial and error, using rings of cardboard, the best separation can easily be found. To find the back focus, focus the sun or clouds as sharply as possible, and then measure the distance between the focussing screen, or even a white card may be used without a camera, and the back glass of the lens.

TINTYPE.—I shall be glad if you would give me some information as to the following:—I have been out of work now for over a year, and, being unable to obtain any, I want to try and do tints at the seaside during the summer. The information I want is the probable cost of a complete outfit, and where they can be obtained, and if you would give a little information as to the working I should be grateful. I have been a practical photographer over thirty years, and for nearly twenty-seven with one of the leading West-End firms, but the process I am asking about is to me a novelty. Some seaside places are, of course, better than others. If you can give me a hint I shall be glad.—SHADOW CATCHER.

The ordinary tintype or ferrotype process could be adopted, but this entails learning the wet collodion process, if our correspondent does not already know it, and also the purchase of a portable dark room. If, on the other hand, the dry ferrotype process were adopted, all that would be required would be the special camera and plates, and Jonathan Fallowfield, of 146, Charing Cross Road, London, W.C., is the agent for these, and full description and prices could be obtained on application. With regard to the best pitch, we are afraid we cannot give any assistance.

COPYRIGHT.—Could you kindly inform me the method of getting a copyright for a Christmas card that I have designed? The points I should like to know are (1) the cost; (2) where I should have to send; (3) whether it is necessary to do another card, which I want to avoid if possible, as it entails a large amount of time and work.—XMAS.

It is impossible to answer satisfactorily, because we are in doubt what is actually meant by "design"; as this might entail protection as a design, when it would have to be registered in the Trade Marks and Designs section of the Patent Office, Southampton Buildings, Chancery Lane, W.C. On the other

hand, it might be classed as a work of art, and would then fall under the ordinary Copyright Act. In any case, we should advise the sending of a stamped, addressed envelope, and a penny stamp, to the Registrar, Stationers' Hall, London, E.C., for a "memorandum for registration under Copyright (Works of Art) Act." This form must be filled up and sent with a postal order for one shilling to the above, when doubtless it could not be copyrighted the Registrar would inform you, if you send a stamped, addressed envelope. It is not absolutely essential to send a print or anything else that is to be copyrighted, but it is, we think, preferable in the case of a photograph, and possibly a photograph of the "design" might be appended in this case.

MISTAKEN RIGHTS.—I took the enclosed photograph of the matron and nurses at our local hospital to their order—viz., eight dozen p.c.'s, which I said I would do at 3s. 6d. per dozen. I first submitted $\frac{1}{2}$ -plate proof, which I enclose. They liked same, and told me to go on with the p.c.'s. I first made one as enclosed and submitted, and they ordered from same eight dozen. When finished I sent in my account, and 5s. for going out and first proof, saying the p.c.'s were ready. At this they were highly offended. First, because I did not send work before payment. (This is one of our terms, and shown in large type in all our premises.) Second, because I charged 5s. for taking same. Thirdly, they affirmed the p.c.'s were not purely photographic ones, and they could get exactly similar in Liverpool for 25 a 1s. At this I refused to supply them with the p.c.'s. I then put them on sale and sold them well, up to date about twenty dozen, from just before Christmas. Now, can they stop me selling same and exhibiting for sale? If so, my directors say they must pay us 10s. 6d. for going up to take photo and the proof. Can I legally claim same? I have proof that they sent many people to buy the p.c.'s for them. Kindly inform me what is my right course.—CLIFTON JOINT.

It seems to us that you are wrong from beginning to end. You contracted to supply a certain number of the cards at a stated price, therefore you were not entitled to charge anything for the $\frac{1}{2}$ -plate picture, which was not ordered. You should have delivered the cards as ordered, and then if not paid for you could have sued those who ordered them for the money in the County Court. Instead of this you refused to supply them at all. You have also done wrong in selling the pictures. The copyright in them is vested in the customer who ordered the picture to be taken, and whom you could have sued for the money. You had no right to use the customer's pictures for your own purpose, and they can stop the sale of them. You cannot, of course, claim the sum suggested by your directors.

NOTICE.

Several replies are held over for insertion next week.

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EX CATHEDRA.

Another Art Find. More than once we have alluded to the probability that there may be large numbers of valuable pictures in existence, by painters of renown, the owners of which do not prize them, as they have no idea of their value. We read that one was recently bought in the neighbourhood of Swindon for a mere trifle, which proved to be a picture by the celebrated artist, Paul de la Roche. It bears the inscription, which was almost illegible when purchased, "Duchesse d'Orleans—Paul de la Roche." It is said that the picture has been purchased by the Duke of Orleans, and that it is without doubt a family portrait. There is little question that there are scores of pictures by renowned artists in different parts of the country that are treated by their owners more as lumber than anything else, and who would willingly exchange them for a brightly-coloured modern "chromo," which would be more in accord with their ideas of a picture.

* * *

The Rapid Copying of Plans. Lecturing to the students at the Bolt Court School of Photo-Engraving last week on his Indian experiences in reproduction work, Major-General Waterhouse mentioned that when in America recently he had noticed the use which was made of gaslight paper for the copying of large plans and drawings. A negative was first made by contact with the original exposure of a few seconds to arc-light was sufficient for this purpose, and the negative thus obtained was immediately printed on to a second piece of gas-light paper. Apparently this was done with the back of the negative in contact with the face of the sensitive paper,

both being wetted, and apparently also the negative was not fixed. The whole process, General Waterhouse stated, was complete in a minute or two. The cost of gas-light paper seriously interferes with its use on a large scale for such purposes as this, and we are not at all sure that in continuous printing the process would prove economical of time. But in "rushed" work it may probably be of service, and it is, therefore, well to note that gas-light papers by their harder contrasts are more suitable for the reproduction of line-drawings than are those carrying the usual bromide emulsions.

* * *

Foreign Picture Postcards.

Some time ago, since the picture postcard has become such an institution in this country, our postal authorities allowed a portion of the address side of the card to be utilised for correspondence. The cards now bear an intimation that this applies to inland postage only. Now, we learn that Germany has followed the example set by this country in the matter of picture postcards, and, from the beginning of this month, the address side of the card may be utilised for correspondence, provided the space be marked by a clear, perpendicular line, and that not more than half the card be so used. This concession by the English and German authorities is in one way a great advantage, as it permits the whole of one side of the card being filled by the picture. Whether the recent concession by the German postal authorities applies to picture postcards, written on the address side, and sent from this country, seems somewhat open to doubt; or whether a German one sent here would be delivered without a surcharge is, at present, not quite clear.

* * *

Postcard Piracies.

There is one aspect of this concession of the German Post Office which has escaped the notice of the lay Press, but which is of considerable importance to photographers. It concerns the use of copyright photographs on postcards. Under the German copyright law licence is granted to copy and reproduce any photograph "for use in a work of industry, handicraft, or manufacture." And it has been held that a postcard is such a work of manufacture, and the publisher thereof is empowered to lay hands on the work of any photographer and use it for the decoration of his goods. That such a practice should be countenanced is the more unfair when it is remembered that a considerable proportion of the total vast issue of pictorial cards does not go through the post at all. The cards are bought and preserved for their pictorial qualities, not utilised for their legitimate purpose. And, again, the picture postcard as usually produced, allows very little space for a written message; so little, indeed, that the reproduction of a copyright photograph under these conditions has been contested in the

high German Courts, but unsuccessfully. Now that the message can be written on the address side of the card such action becomes more hopeless still, since the back can be filled with the picture to the edges without the "post-card" character disappearing. In the eyes of the German Government a picture postcard is an article manufactured for the transmission of written messages, and the piracy by the publishers of photographers' copyrighted work is more firmly established than ever by the recent concession of the Post Office.

Using Negatives Without Permission.

It seems that the law in France is pretty much the same as it is here with regard to the right of a photographer to make use of customers' negatives, for his own purpose, without their consent. A judgment was given one day last week in the Paris Law Courts in the action brought, a little time back, by Dr. Doyen, a well-known surgeon, against some manufacturers of cinematograph films. It seems that the doctor, for scientific purposes, had certain operations, performed by himself, cinematographed. Some time afterwards he found that the films were being sold for public exhibitions, and he at once instituted legal proceedings. In the result the Court decided that Dr. Doyen in the sole proprietor of the films, and that he can restrain them from being exhibited against his wish. The Court also decided that he had suffered moral detriment by their being exhibited at non-scientific assemblies, and the defendants were ordered to pay substantial damages. Two of them have to pay the doctor 8,000 fr., another 500 fr., and a fourth 200 fr. These are very substantial damages, but none too much, one would think, under the circumstances. In the English and Scottish Courts it has been held that photographers have no right to exhibit, or sell, copies of portraits of customers, or to make use of them for any purpose of his own, against their wish, and injunctions have been granted restraining their doing so. No damages in these cases were given, as none were sued for, so far as we are aware, but when an injunction, with costs, is granted in the Court of Chancery, the latter is a matter that the defendant is not likely to forget, as they always amount to a very considerable sum.

The Approach of Spring.

Signs are not wanting even at this early period of the year that the time is drawing near when landscape and other out-door photographers will be able to sally forth once more on picture-making bent, with more bodily comfort than the recent cold, dark days have made possible. The afternoons are perceptibly lengthening, and the frequent spells of sunshine should be eagerly taken advantage of by the ever-increasing army of camera users who are not adverse to tramping across sodden fields and along muddy roads in search of picturesque landscape "bits" that at this time of year are surprisingly unlike anything of the kind obtainable in the autumn or at any other time of year. In those parts of the country where King Frost has laid his hand, much that is beautiful to the eye can be secured on every side, from the carefully-composed winter scenes or representation of hoar-frost to snap-shots of skating parties. In the warmer districts where the rainfall has been heavy, he who would portray and make pictures of marshy stretches with reflecting pools—present at no other time of year; desolate wastes of mud flats or dreary though picturesque woodland views with gaunt tree-trunks and bare branches and masses of fallen and decaying leaves that the winter winds have heaped around the roots, will find the present probably the best time of the year for this purpose. Fine cloud and atmospheric effects and sunsets, too, are much in evidence during February and

March, and these should be secured as often as the opportunity presents itself, for future use. Orthochromatic plates will find ample scope in the portrayal of these late winter and early spring subjects, for although there is little of the charm of colour present that appears in the more florid summer landscape the presence of dead bracken and other vegetation varying in tint from the palest of yellow to the deepest ruddy brown will frequently call for the use of a dark yellow screen.

THE SLACK SEASON.

PERHAPS no business demands more alertness and adaptability to environment than does photography from those who follow it. Success depends fully as much on such qualities as these as it does on the quality of the work produced, as is constantly being demonstrated. It is no uncommon thing to find a man doing poor work and making money while another not far off, maybe, does good work at a small profit. The commercial instinct being often lacking where there is love of the work for its own sake, such men are often exploited by others who know how to turn to good account the abilities they lack themselves. Many businesses now languishing could be made profitable concerns, if the proprietors were alive to the situation, instead of taking it for granted that what answered yesterday will do to-day and to-morrow. Then when business is bad his first thought is how to get more sitters, when often all that he need do is to make the most of those he has. A line that does not receive its share of attention is the tactful introduction of enlargements, and other forms of the photograph. Perhaps the photographer is not a good salesman and has no one capable; yet if the persons undertaking it will use their wits, and cultivate tact, they will find the faculty grow. Let the photographer used to a cabinet and c.d.v. business regard his orders for cabinets as a peg to hang an order for an enlargement on, carefully studying the taste of each customer, and having taken the order for an enlargement, let him sell a frame for it; a big difference in profits will result. We mentioned tact; it is the secret of success in this department. Much harm may be done by a too pushful receptionist on commission, who perhaps secures the order and offends the customer. It is very necessary, too, to give careful attention to the get-up of special lines. A departure from the conventional groove will secure many good orders which would otherwise be refused.

Oliver Sarony, of Scarborough, who was a good business man and an excellent photographer, made a feature of oil paintings. He had a large gallery containing portraits of celebrities, and a likely customer on leaving the studio was shown round the gallery, and finally into a small ante-chamber, where to his astonishment a large portrait of himself was thrown on the screen by means of a lantern, a transparency having been made in the meantime. That was in the early days of dry plates, and was exceptional enterprise for that period.

It will often happen that during the busy season there is not time to make the best of each customer, but in a residential district this can be made up in the slack season. A book should be kept, in which is entered the names of customers who are likely to order, with a note as to their tastes. Then when things are quiet a call can be made on one pretext or another, and the subject judiciously introduced; if properly done, this has none of the appearance of canvassing, and slack seasons have been converted into profitable times in this way.

Seaside photographers cannot do this, but they very commonly neglect their opportunities during the season, however. We have known many orders secured through

the post. In all this much depends on the ability of the operator. Undoubtedly his first aim must be a pleasing likeness. It may be technically and artistically excellent, but if it fails in expression it is useless. A very imperfect picture photographically will be preferred in which the photographer has secured the expression which is liked and recognised.

In endeavouring to push business, the photographer doing with a good-class connection should beware of anything that may result in loss of prestige. We have in mind the case of one who had a high-class clientèle, and who, by an unlucky inspiration, announced that he would

take sitters at half-price on a certain day in each week. That brought him ninety and one hundred sitters a day, but before long he had to charge the reduced prices at all times, and never recovered his former position.

As a rule, also, it is weak policy to do enlargements "on spec." in the hope of the customer buying. The photographer is at his customer's mercy in the transaction, and it creates the impression that he is hard up for business. Moreover, curiosity and imagination come into play when a customer is properly handled by a skilful receptionist, but are lacking when the customer sees the work completed.

A NEW LIGHT FOR PHOTOGRAPHY.

III.

The Deficiency of Red Rays.

MANY suggestions have been made for supplying the missing red rays in the light, a suitably fluorescing glass tube or glass jacket for the tube being one promising idea. Paweck, in Vienna, has proposed the introduction into the tube of amalgams—e.g., of mercury and potassium, whereby red lines would be introduced into the spectrum. It has further been noted that if too much current is passed by the lamp a good deal of red showed up in the spectrum.

It has been suggested that a red glass should be put in front of the light to modify it—a rather absurd idea, considering there is no red present in the light. The red glass would appear as grey or black glass, and would act as such, cutting off the light altogether if the colour was very dense. For the same reason colour filters in the camera would be useless. Ruby incandescent lamps have, however, been introduced in the vicinity of the tubes, and found to supply the proportion of red rays required. Ordinary incandescent lamps have also been found to tone the illumination owing to the yellow rays they emit. The most practical way, and the one which the Cooper-Hewitt Co. have adopted for toning the illumination in the case of their studio apparatus, is to have a blind of a very light transparent silk dyed with a pinkish fluorescent dye. This takes away the glare, and introduces an appreciable amount of red into the light. The exposure can be made with the blind down, in which case the time is increased, or the blind may only be drawn over during focussing and posing the sitter. It may be mentioned that the light produces no fatigue to the eye, even if looked at directly, and therefore does not distress the sitter even when placed close.

Diffusion of the Light.

The light is also perfectly steady and noiseless. It is extremely diffuse, and the great extent of the luminous surface does away with the glare and contrast of shadows cast by lamps of small light-giving surface. The modelling of features in portraiture is well rounded, and the necessity for retouching is, if anything, lessened. The hair of sitters is rendered more natural, and there is an absence of excessively deep shadows in the dress.

One advantage of the light for portraiture is that the operator sees the image of the sitter brilliantly on the ground glass and in monochrome, having almost the effect of a platinum print, so that he is better able to judge how his result is likely to look when finally printed, instead of being misled by colour effects of the dress, complexion, etc.

Shortness of Exposures.

With regard to exposures, it has been found necessary to employ a shutter even when the lens is stopped down to F. 16, any tapping of the lens by hand being out of the question on account

of the extreme rapidity of the light. The mercury lamp is indeed more rapid than the best daylight obtained in portrait studios. With five tubes, unscreened by the blind, using an ordinary portrait lens, snapshot exposures can be made. With three tubes, unscreened, the exposure is about half a second; with five tubes, screened, one second; with three tubes, screened, three seconds.

A further notable fact concerning exposures is that a number of fully-exposed cinematograph films of stage groups have been obtained, using eight tubes all round, and placed as close as practicable to the subjects, the films running at 1,200 to 1,300 exposures per minute. A number of tableaux at the Coliseum have also been made with the light, 120 negatives being exposed in one day.

The Form of Studio Light.

In the form used for studio work, five of the mercury lamp tubes are mounted in a wooden frame measuring 5 ft. by 4½ ft., and hung in a sloping position near the ceiling or roof, thus forming an artificial "skylight." The frame can be hung at any angle and lowered at will. Each lamp is provided with a separate metal reflector, and works independently, so that only as many lamps as required need be used at one time, with a proportionate decrease in the current consumed. The "skylight" may be used for printing by having a framework to attach to it for supporting the printing frames.

The actual candle-power of the five lamps together, considered from an illuminating point of view, is 3,750, equivalent to over 115 32-c.p. incandescent lamps, but owing to the fact that the mercury lamp is so rich in actinic rays the effective illumination is far greater than would be obtained by an equal nominal candle-power from any other light.

For photographic interiors, the mercury light is an efficient substitute for flash-light, and without the many drawbacks of the latter. The Hewitt light does not produce the hard "stary" effect of flash-light, is under far better control, and involves no danger.

Process Lamps.

For process reproduction the lamp has come considerably into use in America, and is found very efficient. Two forms of the lamp mounted on floor-stands are offered for this purpose, one being started by the quick-break method and the other by tilting. The light is so diffuse that it will probably be found unnecessary to have two lamps—one on each side of the copyboard—except where very large subjects have to be lighted. It is found that a pair of Hewitt lamps taking eight ampères will do quicker and more satisfactory work than arc lamps taking 25 ampères. On 200 to 300 volts two sets of the Hewitt lamps may be run in series taking only three to three and a half ampères, and yet giving quicker results than even the enclosed arcs run in parallel, taking ten ampères each, or twenty ampères the pair.

Transparency and Enlarging Work.

For making bromide enlargements, lantern-slides, and transparencies, no condenser is required, nor could it, in fact, be used. Two 10-inch tubes are mounted in a reflecting-box, which is pivoted to a baseboard fixed to the wall, and the lamps are started by the tilting method. The negative is placed in a carrier in front of the box, with a ground glass interposed, and a bellows and projecting lens used as in a daylight enlarging camera. The illumination is very even over the entire surface, and furnishes an ideal light for quick-printing papers, whilst for lantern-slide work it is over three times faster than exposure to a northern sky.

Rapid Printing.

For printing, the lamp shows equally remarkable results. Two of the long lamp tubes are mounted in a frame, on each side of which are places for supporting seven 7 in. by 5 in. printing frames, so that fourteen prints may be made at once. As an example of the speed of printing, it may be stated that P.O.P. prints from an ordinary portrait negative are fully exposed in five minutes, and platinum prints with proportionate rapidity.

In carbon printing, for some unexplained reason—possibly the yellowness of the film obstructing the actinic rays—the light is somewhat slow, but for blue prints the light is from four to six times as efficient as arc lamps. Moreover, the form of the lamp adapts itself to the cylindrical copiers now so largely used.

Remarkable Economy.

With regard to the economy of the light compared with other forms of illumination, each lamp tube consumes one-third of a kilowatt per hour, or one-third of the Board of Trade unit on which all supply companies base their charges for current. Taking the price per unit at 6d., which is as high as is generally charged in this country, the price of running one tube will be 2d. per hour. The cost of running the printing lamp outfit will be 4d. per hour, and of the "skylight" outfit 10d. per hour when all the tubes are on. In the case of the photo-engravers' lamp, where two are run in series, the cost will only be 2d. per hour when the current is 6d. per unit; but as photo-engravers get very low rates, such as 2d., 3d., or 4d., the cost may be only

a little under or a little over one penny per hour per pair of lamps.

Use for General Lighting.

It may be added that the mercury light is coming largely into use in America for general lighting of workshops, offices, etc., the diffusion, absence of shadows, and the fact that it gives no fatigue to the eyes being great advantages, apart from the question of economy. Practically, it gives one candle-power of light for half a watt of energy, whilst a candle-power for four watts is the best value that can be obtained from good incandescent lamps. From an electrical as well as a photographic point of view, the mercury light is of extreme interest, and is undoubtedly a factor to be reckoned with in the immediate future.

Cost of Outfit.

In regard to cost of the outfit, it is at present more expensive than arc lamps, but when it is considered that there is no expense to be set off against cost of carbons and trimming, besides a great saving in cost of current, and, moreover, the prices include resistances and suitable fixings, the difference is not material. A single tube and its accessories cost about £10.

Postscriptum.

Since writing the foregoing, Major-General Waterhouse kindly writes to say that during his recent visit to America, going along Broadway in the evening, he saw the mercury lamps in more than one place being used for portrait photography, and, he believes, very successfully. A mercury arc quartz lamp was exhibited at the St. Louis Exhibition by W. C. Heraeus, of Hanau-a-M., but perhaps more for scientific work with ultra-violet rays. There must have been others (continues Major-General Waterhouse) in the electrical building, and probably a number were used in the grounds at night.

I have also received a communication from C. Orme Bastian taking exception to my remarks concerning his type of lamp. He states that he can make them as large and powerful as is necessary. Considerable improvements have been effected in the lamp since the Press were invited to inspect it nearly a year ago. Mr. Bastian invited me to call at his works to inspect the latest forms of his lamp, and what I saw is so interesting and promising that it deserves some further notes, which must be deferred until next week. WILLIAM GAMBLE.

BLISTERS ON BROMIDE PAPER.

DURING the cold weather considerable trouble has been caused by blisters in bromide paper, not only in large enlargements, in which they are very apt to appear, but also in small contact prints. I believe the large blisters in enlargements are caused by the handling of the large prints in the various operations of fixing and washing, especially when the prints are of large size, 20 by 16 and over, for in ordinary professional workrooms such prints are rather out of the ordinary routine, and the dishes, etc., are often not large enough to take such without folding over, and creases and bruises are almost unavoidable, especially when single-handed. Such creases are a prolific source of blisters; but the most annoying are those small blisters about the size of a small pea, covering nearly the whole of a small print. They do not appear until the washing after fixing, but they often entirely disappear on drying, and come up again when the prints are re-wetted for mounting. They will often again disappear on drying, but occasionally, in rolling down the print, some of the blisters break, and the print is spoilt. This kind of blister is very annoying when prints are toned by the "sulphide" method, as they not only increase in size and number, but often become stained yellow, apparently owing to the difficulty of washing out the various chemicals used in the process.

Just before Christmas, when working against time, one batch of paper showed large crops of these small blisters, and a great many prints were spoiled. It was curious that one batch of paper blistered, while others of the same make and brand did not show blisters at all, although developed, fixed, and washed at the same time and in the same solutions as those that were covered with blisters.

A Remedy.

This state of things would have been serious at any time, but just then it was simply maddening, as there was no time to get fresh paper and to make experiments with it. Fortunately I remembered, while cudgelling my brains for a remedy, that we were often troubled with the same kind of thing in the bygone days of albumen printing. The remedy in those days was to immerse the prints in methylated spirit as soon as they were fixed, and before washing at all. This same remedy was tried, and proved a complete success. The bromide prints were taken straight from the fixing-bath and placed in a dish containing methylated spirit, and allowed to remain for ten minutes, and then washed in the usual way. No blisters appeared in subsequent operations, even toning with sulphide. The spirit can be used over and over again, and put aside for further use,

out freshened up with a little new spirit when used again. The mixture of spirit and water formed when drying negatives or prints that are wanted quickly can be saved and used for the prevention of blisters. Although this method prevents the formation of blisters, I do not like it, for, apart from the cost (which is but trifling) and an additional operation (which is not a great deal of trouble), I have an idea that a bromide print dried, or treated with methylated spirit, never has the same brightness and clearness as those dried spontaneously, so I prefer a paper which does not blister. Why one batch of paper should blister and another of the same brand treated in the same way should not is a question I cannot answer.

Large Blisters.

It has been suggested that the large blisters, which some bromide prints show when toned with sulphide, are due to grease on the surface of the raw paper. This seems a very good explanation.

tion, and is probably the right one. But I do not think it applies in the case of the small blisters, which appear in a few minutes after the removal from the fixing-bath to the washing-dish. Neither does the difference in temperature of the different solutions explain it, as some prints from another batch of paper developed and fixed at the same time showed no blisters at all. The cause is probably some difference in the raw paper before coating.

We all know that difference of temperature causes blisters. Only last week carbon prints when removed from the warm developing water to cold alum solution were covered with minute blisters, but when the prints were put into warm alum solution no blisters appeared.

I would advise any one who is suddenly afflicted with blisters of the kind that appear in the washing after fixing to try the methylated spirit cure.

HAROLD BAKER.

THE CORRECT ADJUSTMENT OF HAND-CAMERA FITTINGS.

Nor so many years ago the professional photographer would scarcely have regarded the hand camera as a serious tool. All this, however, is now changed. The hand camera is in daily and hourly use for purposes which could not be successfully met by the employment of a stand. The professional, generally speaking, has enlarged his outlook, and now goes in for much work which was previously abandoned. Frequently work has to be done on the spur of the moment, and a stand camera, of course, becomes impossible. It would certainly seem wise, therefore, to devote a little attention to some likely sources of inaccuracy in various hand-camera fittings which, if not prevented, may seriously vitiate the worker's calculations, and possibly lead to failure. These remarks will also, no doubt, be of interest to the large body of amateurs who habitually pin their faith to a hand camera in preference to the stand variety.

When Fitting a Diaphragm Shutter.

In the first place, it is well worth while to carefully examine the shutter and diaphragms, from the standpoint of their practical performance as compared with that theoretically allotted to them. It is not intended to touch upon the question of shutter speeds, for it has become quite a commonplace that the actual speeds of a shutter may differ markedly from its reputed speeds, and any photographer can, for a few pence, have the point settled to his own satisfaction. We will simply offer the caution that testing from time to time is necessary, since mechanical shutters are by no means constant in action, even a slight variation in temperature often sufficing to alter the speeds. It would, therefore, appear to be good policy to invest in a simple shutter-testing apparatus, of which there are several on the market. It is, however, a more serious matter than this to which it is specially desired to draw attention. A large number of both hand and stand cameras are now fitted with between-lens shutters having an iris diaphragm. Now, where these shutters are sold with the lens, or properly fitted by a competent optician, there will be nothing wrong. Unfortunately it sometimes happens that the photographer purchases lens and shutter separately, or has the latter fitted to an existing lens by a dealer's assistant, whose sole idea of the conditions to be fulfilled is that the parts shall screw together comfortably.

Focal Length and Shutter Aperture.

The result is probably disastrous, for a most important point is, in this case, almost sure to be overlooked, namely, the value of the diaphragm apertures. The shutter with its iris diaphragm is, as a rule, intended for use with a lens of a certain

focal length, and the scale of apertures is engraved on that presumption. Take, for instance, a shutter designed for a lens of 5 in. focus, with a largest aperture of F. 8. This size of opening will, of course, measure $\frac{5}{8}$ in. in diameter. If, now, the same shutter were to be employed with a lens of 8 in. focus, it is obvious that, unless the diaphragm scale were altered, the unsuspecting photographer who imagines that he is giving an exposure at F. 8 is in reality stopping the lens down to F. 12.8 and wasting over fifty per cent. of the available rapidity. Even an alteration of the scale will not always suffice, for the largest opening of the diaphragm may still be smaller than desirable. No account has been taken of the difference often existing between the effective aperture and the diameter of the diaphragm, which may be ignored as not affecting the present argument.

Test the Working Aperture.

The foregoing is a remarkably insidious error, extremely likely to occur, and infallibly leading to a large number of under-exposed and spoilt negatives. In a case which lately came under the writer's notice a well-known worker had for years been using a hand camera fitted with a high-grade lens at F. 6.3, but handicapped by a diaphragm shutter which reduced the largest aperture to something under F. 8. Evidently, the photographer will be well advised to test his diaphragm openings by a few simple measurements, unless both shutter and lens are obtained together under circumstances which preclude the possibility of error.

The Direct-Vision Finder.

In regard to finders it is strange that the advantages of this description of finder are so little recognised, since it forms by far the most practical and convenient appliance for the purpose. The kind referred to consists of a light rectangular wire frame having an opening the same size as the plate. This is arranged to fix on the rising front or on the lens, while a small circular peep-hole or sight is adjusted on the upper portion of the camera back. If this is correctly done, the arrangement enables the worker to see, immediately, the exact view included on the plate, right side up and of full size. Another advantage of this pattern of finder is that the actual picture is seen, not an image or representation of it; so that, especially in the case of figures or moving objects, the photographer is far better able to choose the best moment of exposure.

The Advantage of Two Finders.

In spite of its many good points, we seldom see this kind of finder fitted to hand cameras. Possibly one obstacle which mili-

tates against its adoption is its lesser portability, as compared with the smaller patterns. This objection is, in practice, more imaginary than real, and the device might easily be designed to fold compactly away when not in use. More serious is the necessity of raising the camera to the level of the eyes, when photographing figures, etc., at close quarters. The few occasions when it is desired to hold the apparatus at a low level may be anticipated by having the camera fitted in addition with the ordinary type of finder.

The Focussing Scale.

After what has been said, it would seem almost superfluous to recommend an examination of the focussing scale, if one is attached to the camera. And yet this is by no means so unnecessary as might be thought. It is not denied for a moment that every effort has probably been made by the manufacturer to ensure the accuracy of the scale, and that, in fact, it will be absolutely reliable if purchased with the lens as originally fitted. Tastes, however, differ with regard to lenses, and one customer may perhaps require the removal of an existing lens in favour of another which he prefers. This being the case, it may very well happen that a standard pattern of hand camera remains in stock, fitted with a different lens to that supplied by the maker. If this is of the same focal length as that for

which the focussing scale was graduated, well and good; if not it may mean many spoilt negatives before it dawns on the purchaser that a new scale is required. A very amusing instance may be quoted which occurred quite recently. A photographer purchasing a popular pattern of focal plane camera, desiring the removal of the rapid rectilinear lens with which it is usually sold, and the substitution of a world-renowned anastigmat at treble the cost. Unluckily it escaped the notice of both vendor and purchaser that while one lens was of five inches focus the other was of six inches, and the consequences, when the camera came to be used with the unaltered focussing scale, involved much unjustifiable abuse of the lens maker.

It will have been noticed that no fault has been found with the actual construction of hand cameras. This is only as it should be, for if the photographer is willing to pay a reasonable price he will very rarely find anything to complain of in this respect, since the manufacture of hand cameras has now reached a pitch of excellence and exactness which reflects the highest credit on those concerned. The only difficulties likely to occur are, as has been pointed out, rather due to the incorrect conjunction of fittings not adapted to each other than to any flaw or defect of workmanship; and in nine cases out of ten are avoidable by a little thought at the time of purchase.

A. LOCKETT.

SUPPLEMENTARY LENSES.

THE use of supplementary or additional lenses has become fairly common with hand cameras of the fixed focus type, and they are extremely useful, as they enable work to be tackled which would otherwise be quite beyond the scope of this type of camera. There is an equally wide field of usefulness for them, also, in conjunction with the ordinary focussing camera, and they deserve more attention in this direction than is usually paid to them. To many, however, they are practically an unknown quantity, and to others the subject seems hedged round with difficulties because their action is not fully grasped. The subject has also, quite unnecessarily, been complicated with mathematical calculations and formulæ, which, whilst extremely interesting to the theorist who thinks in logarithms and talks in cosines, is in many cases actually unintelligible to the man who uses a lens. There is not the slightest need for the subject to be complicated by such considerations, because the moment it becomes necessary to heed the refinements of mathematical calculations, a supplementary lens, in the sense that we are now using the word, is an impossibility, as will be seen later on.

To Lengthen or Shorten Focus.

The purpose of a supplementary lens may be either to lengthen or shorten the focus of the camera lens, or, to put it in another way, a supplementary lens will enable the angle included by a lens to be altered at will. To shorten the focus, a convex or positive lens must be used, and to increase the focus a concave or negative lens is required; but as these lenses must be chosen with some regard to the camera, it would possibly be as well to consider their use first with a fixed focus, and secondly with a focussing camera.

Fixed Focus.

It is, of course, a well-known fact that with a fixed focus camera the nearest point in focus is dependent, *ceteris paribus*, on the stop aperture; therefore, if we have a lens of a given focus, we are absolutely precluded from obtaining a sharp reproduction of an object which is nearer to the lens than a given point,

which said point is closer to the camera the smaller the aperture used; but there is a limit to the smallness of the aperture even in copying, and still more so in outdoor work. It is in such cases, therefore, that the supplementary lens is useful; because the lens being fixed at its equivalent focus from the sensitive plate, it can only give a sharp image of such objects as emit parallel rays. In this, then, lies the whole secret of the choice of a supplementary lens with a fixed focus camera. It must be of such a focus as to transmit to the camera lens parallel rays, and as this only occurs when an object is at the equivalent focus of a lens, it is obvious that focal length of a supplementary lens that shall give a sharp image of a near object at a given distance must be equal to that distance. Thus, if we wish to obtain a sharp image of an object at three feet from a fixed focus camera, we must use a supplementary lens of 3 ft. focus.

It will at once be obvious that the only supplementary lenses that can be used with a fixed focus camera must be positive lenses. With a focussing camera, however, it may be desirable not only to occasionally shorten, but also to lengthen the focus, and we then have other methods to consider, but as we have already pointed out, the calculations are extremely simple, and can be computed by the very simple processes of multiplication and division.

Calculations.

Of course, to the man with a battery of lenses the present notes are quite superfluous, but there are many who, only possessing, say, two lenses, may on occasions feel the necessity of having subsidiary help, and yet be loth to purchase an extra lens, which there may be occasion to use practically only once or twice a year. A special job may arise for which a lens of extremely short focus must be used, or, of course, on the other hand, one in which a long focus lens is required, and in fact, a telephoto lens will be the most satisfactory. Let us first consider, then, the case of a short focus lens being required. What we want to know is the focus of a supplementary lens that must be used to produce the required focus,

and, using the well-known rule, we obtain the following very simple calculation:—

$$\text{Required focus} = \frac{\text{actual focus} \times \text{supplementary lens focus}}{\text{actual focus} + \text{supplementary lens focus}}$$

and ascribing to these the values of 6 and 9 respectively we get

$$6 = \frac{9 \times f}{9 + f}$$

and thence

$$\begin{aligned} 54 + 6f &= 9f \\ 54 &= 9f - 6f \\ 54 &= 3f \\ \therefore f &= 18 \end{aligned}$$

which is the focus of the supplementary lens required. But simple as this is, we may put it in another way thus: Multiply the required focus by the actual focus, and divide by the difference between the same, then we get:—

$$\begin{aligned} 6 \times 9 &= 54 \\ 9 - 6 &= 3 \\ 54 \div 3 &= 18 \end{aligned}$$

When it is required to lengthen the focus we know that we must use negative lenses, so all we have to do is to insert the minus sign.

If we have a supplementary lens of known focus, and wish to know what focus will result when it is combined with the camera lens, we use the old rule of multiplying the foci together and dividing by their sum, so that if, as in the above case, we have a camera lens of 9 in. focus and a supplementary lens of 18 in. focus, we get:—

$$9 \times 18 \div 9 + 18 = 6$$

If the supplementary lens is a negative or concave, we again use precisely the same formula, only with the insertion of the minus or negative sign, thus:—

$$9 \times -18 \div 9 + (-18) = -162 \div -9 = 18$$

These calculations are so simple that they are within the capabilities of all, but the formulae are not correct. The error lies in the fact that we have totally ignored the distance of

separation; but as this distance of separation must be measured from the nodal points of the supplementary lens and the camera lens, and to the average worker these are absolutely unknown points, we have totally ignored them.

For the construction of a makeshift telephoto lens a negative lens should be chosen of about half the focus of the camera lens, and the distance of separation must always be greater than the difference between their foci, but may of course be varied considerably outside this limit.

The Choice of the Supplementary.

The next point to consider is the position of the supplementary lens, and putting on one side altogether the theoretically correct position, it may be placed before, behind, or between the lenses of a doublet, or in front of or behind a single lens. It is really a matter of indifference, though it is most convenient to fit them in the lens hood. Far more important than this is the form of the lens and its correct centring. The best form is the meniscus; next to that the plano-convex or concave. We have hitherto suggested that these supplementary lenses should be considered merely as makeshifts, and if looked upon in this light ordinary spectacle lenses may be used, but the working of their surfaces and the centring is so inferior that they may seriously impair the definition and even upset the corrections of the lens with which they are used, but as this may be to some extent cured by the use of small stops, it will suffice to draw attention to the point, and recommend that if the supplementary lens is to be considered as a permanent part of the outfit, then it should be adapted by an optician, who will supply an optically worked lens.

The only other point to which we need draw attention is the question of alteration of ratio aperture, for if we reduce the focal length and keep the aperture constant, then the ratio aperture must be increased, and as this can be so easily calculated it is unnecessary to dwell longer upon it, only pointing out that this applies only to cases in which a focussing camera is used, for if a fixed focus be used, then there is no alteration of focus, and the ratio aperture is the same.

THE WEEK IN HISTORY.

Fox-Talbot and Development.

On February 19, 1841, Fox-Talbot wrote a description of an experiment which he had made five months before. The experiment was the development of a latent image on his sensitive paper. The description occurs in a letter to "The Literary Gazette," and was published also in "The Philosophical Magazine" for 1841, page 90. That Talbot should have waited so long before announcing his result is, of course, explained by the fact that he was taking out a patent for this process. This he did, as I have already noted, on February 8, and he therefore felt at liberty to disclose in part the advances he had made. But he did not publish a full description of the process until June 10, by which time presumably, the patent had been sealed. His letter of February 19 runs as follows:—"One day last September I had been trying pieces of sensitive paper prepared in different ways in the camera obscura, allowing them to remain there only for a short time with the view of finding out which was the most sensitive. One of these papers was taken out and examined by candlelight. There was little or nothing to be seen upon it, and I left it lying on a table in a dark room. Returning some time after I took up the paper, and was very much surprised to see upon it a distinct picture. I was certain there was nothing of the kind when I had looked at it before, and therefore (magic apart) the only conclusion that could be drawn was that the picture had unexpectedly developed itself

by a spontaneous action. Fortunately, I had recollected the particular way in which this sheet of paper had been prepared, and was therefore enabled immediately to repeat the experiment. The paper, as before, when taken out of the camera, presented hardly anything visible; but this time, instead of leaving it, I continued to observe it by candlelight, and had soon the satisfaction of seeing a picture begin to appear, and all details of it came out one after the other.

Talbot afterwards stated (in "A History and Handbook of Photography," by G. Tissandier) that September 20 and 21, 1840, were the days on which he made these observations.

Sir John Herschel.

I have already referred to the work of Sir John F. W. Herschel, and we shall see later how he originated, independently of Talbot, a process which was like Talbot's in all respects save that he fixed his prints in hyposulphite of soda. That process he described to the Royal Society about three weeks after Talbot read his paper on February 21, 1839 (see below). Herschel continued his photographic experiments, and on February 20, 1840, communicated to the Royal Society a long paper which he entitled "On the Chemical Action of the Rays of the Solar Spectrum on Preparations of Silver and Other Substances, both Metallic and Non-Metallic, and on Some Photographic Processes." This paper, which appears on page 1 of the "Phil-

sophical Transactions for 1840," describes more than one method which has since come into general use.

Bleaching with Mercury.

For example, he examines the bleaching action of a solution of mercuric chloride or corrosive sublimate. "This," he writes, "at once and completely obliterates the picture, reducing it to the state of perfectly white paper, on which the nicest examination (if the process be perfectly executed) can detect no trace, and in which it may be used for any other purpose, as drawing, writing, etc., being completely insensible to light. Nevertheless, the picture, though invisible, is only dormant, and may be instantly revived over its face by merely brushing it over with a solution of a neutral hyposulphite, after which it remains as insensible as before to the action of light. And thus it may be successively obliterated and revived as often as we please. It hardly requires mention that the property in question furnishes a means of painting in mezzotints (i.e., in commencing on white paper, and working in the lights), as also a mode of secret writing and variety of similar applications."

It is easy to see how intensification has evolved from the substitution of other blackening reagents for the hyposulphite in the above method.

Herschel's Aim at Emulsions in 1840.

Reading further in this paper, it is curious to note how Herschel's first efforts were directed towards obtaining a liquid or emulsion which, "by a single application, whether by dipping or brushing over," should impart sensitiveness to his paper. Had he been experimenting with silver chloride instead of with the nitrate, photography might have leapt at one bound to the position which it reached in the eighties by slow and tortuous evolution. Writes Herschel: "The presence of organic matter having been considered by some late chemists an essential condition for the blackening of the nitrate of silver, I was induced to try, in the first instance, a variety of mixtures of such organic soluble compounds as would not precipitate that salt." But he met with no success in these researches although he went the length—I say "length," for obvious reasons—of extracting alkaline urates for the experiments from a boa constrictor in his possession!

Spectrum Sensitiveness.

The chief subject of this paper, however, is the action of the spectrum on sensitive compounds, and its absorption by liquids. Though we date the era of modern orthochromatism from Vogel in 1873, it is well to remind ourselves that Herschel used the spectrum, as a means of photographic investigation, in these very earliest days, and that the modification of the sensitive surface to render it impressive of rays of different refrangibility was one of the facts which he evidently kept clearly before him.

Photogenic Drawings—The First Published Process of Permanent Photography.

When Talbot read his paper of January 31 to the Royal Society ("The Week in History, January 27"), he dwelt in eloquent terms upon the power and wonder of his process, how it outstripped the artist's pencil in speed, and was correct to a hair's-breadth in its delineations, but of the process itself he said nothing at all. His second paper of February 21 was entirely technical, and is important as describing the first published process for obtaining a permanent photographic print. The original in Talbot's handwriting and scored with the marks of some editorial pen, is still preserved in the archives of the Royal Society.

The communication explains how to prepare the paper and how to fix the images. For the first, Talbot dips a good writing paper into a weak solution of common salt, wiping it dry, he applies silver nitrate solution to one surface, and dries the paper by the fire. He finds that if the salt solution exceeds a certain strength, the sensitiveness of the paper suffers. He finds also that after a week or two the sensitiveness of the paper is greatly reduced, but can be restored by application of the

silver nitrate. In other words, he finds the need of excess of silver nitrate, but does not attribute sensitiveness to that fact alone, but rather, as was shown last week, to its effect in producing a "perfect chloride."

The First Fixing Process.

He tried solvents of silver chloride as fixing agents, but he met with no success, no doubt because the darkened chloride also dissolved to a large extent in his fixing bath. Then he turns to a curious process. He uses iodide of potassium or chloride of sodium so as to produce an iodide or chloride of silver which is unalterable in light. He exhibits a copy of lace fixed by iodide five years before. "But my usual method of fixing," he proceeds, "is different from this, and somewhat simpler, or, at least, requiring less nicety. It consists in immersing the picture in a strong solution of common salt, and then wiping off the superfluous moisture and drying it. It is sufficiently singular that the same substance which is so useful in giving sensibility to the paper should also be capable under other circumstances of destroying it, but such is, nevertheless, the fact.

"Now, if the picture which has been washed and dried is placed in the sun, the white parts colour themselves of a pale lilac tint, after which they become insensible. Numerous experiments have shown to me that the depth of this lilac tint varies according to the quantity of salt used, relatively to the quantity of silver. By properly adjusting these, the images may, if desired, be retained of an absolute whiteness. I find that I have omitted to mention that those preserved by iodine are always of a very pale primrose colour, which has the extraordinary and very remarkable property of turning to a full gaudy yellow whenever it is exposed to the heat of a fire, and recovering the former colour again when it is cold."

HISTORIUS.

Photo-Mechanical Notes.

Zinc for the Enameline Process.

IN regard to Mr. Pigg's note last week on the perishing of zinc under heat, it will be noted that he does not venture on any explanation. The phenomenon has been ascribed to the fact that zinc expands on heating, but on cooling does not assume its original size. This would account for the more open structure shown in the photo-micrograph of the heated zinc. But the fact that zinc "perishes" at a high temperature is no reason why anyone should discard it for half-tone work, as the enameline process can be worked with it perfectly, provided certain precautions are taken.

The first is, a thin glue solution containing chromic acid; the second is, to use a hardening bath for the resist before burning in; and the third is, to burn in only very lightly, so that the enamel is only burned to a light straw colour. Under these circumstances we have known zinc to be etched, fine-etched, and then to stand an edition of 200,000 without in the least disturbing the enamel. A good enamel solution consists of:—

Fish glue	...	...	...	...	10 oz.
Water	...	...	...	...	30 oz.
Ammonium bichromate	...	...	...	...	2 oz.
Chromic acid	...	...	...	...	½ oz.
Ammonia (.880)	...	...	...	...	½ oz.

The chromic acid must be dissolved in some of the water and added drop by drop while stirring after the glue, water, and bichromate have been well mixed; finally the ammonia is added. The hardening bath consists of:—

Water	...	...	...	...	50 oz.
Methylated spirit	...	...	...	...	5 oz.
Ammonium bichromate	...	...	...	...	3 oz.
Chromic acid	...	...	...	...	½ oz.

The plate, after development, dyeing, and well washing, is laid

in this for from one to five minutes. It is best to "spot" plates that are to be lightly burned in, before burning in, as afterwards it is difficult to see any minute defects. After etching, plates can be easily painted out for fine-etching if magnesium carbonate is first rubbed in.

Process in India.

Major-General Waterhouse delivered a lecture at the Bolt Court School of Photo-Engraving and Lithography, Fleet Street, E.C., on the 9th inst., in which he dealt with the precautions and difficulties involved in the reproduction work directed by him for many years in the office of the Surveyor-General of India. Since his return to Europe in 1897 there have been changes in the methods adopted by the Government Process Staff, but parts of the paper which we are enabled to quote should prove of service to photo-engravers and others who may take positions in the East.

Wet Collodion in Hot Climates.

"The negatives for photo-zincography," said General Waterhouse, "have always been taken by the wet collodion process. Though slow, and presenting a good many inconveniences in working, it is more reliable, much cheaper to work on the large scale, and at the same time gives better and clearer results than gelatine plates. Most of the plates are only used once for printing the transfers; then cleaned off and the glasses used again. Thus dry plates become very wasteful in comparison when used in large numbers. For special work, chiefly half-tone of small size for heliogravure, dry plates are used with advantage.

"In a hot country like India there is a good deal of difficulty in working wet plates. For a great part of the year in Calcutta the temperature in the glass-house would probably be over 100 deg. F., in the day time even up to about 118 deg. F., and not much less in the dark rooms, so that many special precautions have to be taken. In the first place the silver bath should not be too strong; the standard strength was about 7 per cent., or 35 grains per ounce, and the bath must be kept sufficiently acid with nitric acid, to prevent fog, without thinning the image too much. We always used it in flat trays, but care must be taken not to allow the bath to become over rich in iodine, which it readily does if not kept up to strength. Baths also require pretty frequent sunning.

"The collodion used was made up in the office, from a mixture of pyroxyline and Schering's celloidine, iodised with the iodides of cadmium and ammonium, with some bromide of cadmium and a little iodine, and it contained a considerable proportion of alcohol, which was necessary in coating large plates; usually equal parts ether and alcohol were used for the mixed collodion and iodised.

"In hot weather the plates were very liable to dry during exposure, and it was necessary to pack them well with wet blotting paper while in the dark slides.

"The ordinary iron-developer was used with a large proportion of alcohol and acetic acid, to ensure the ready flow of the solution over the plate. The developer contained about 5 per cent. of ferrous sulphate, and 2½ per cent. each of alcohol and glacial acetic acid. The development was not carried too far, and if the lines appeared at all veiled a solution of iodine in iodide of potassium was applied and quickly washed off again. The plates were then fixed. As a rule the plates were not varnished, but to prevent peeling they were coated with a solution of gelatine about 4 per cent."

Direct Photo-zincography without a Camera.

For the reproduction of line drawings, maps, etc., it was usual at one time to employ the transfer process of photo-zincography, but in consequence of the coarseness of the lines, from spreading in transfer, a direct process was employed, the details of which were given by Major-General Waterhouse as follows:—"The plate is coated with a mixture of fish-glue, gelatine, and bichromate of ammonium, ex-

posed under a tracing, and then washed carefully to remove the soluble glue from the lines. When fully developed the lines appear sharp and distinct in clear zinc. Before development the plate may be stained with an aniline dye like a process block, to render the progress of development clearer. The plate is then inked up with a hard resinous ink thinned with turpentine, and applied either with a roller or by rubbing over the plate with a pad. The hardened glue on the ground is then removed by the immersion of the plate in a bath of very weak hydrochloric acid, which softens the glue without attacking the zinc, and enables it to be removed from the ground by rubbing with a piece of flannel. The last traces of glue are removed by rubbing the plate with carbonate of magnesia moistened with water. The plate is then dried, cleaned, touched up, if necessary, and can then be etched with nutgalls and gum as usual, and printed from. The process has many advantages in increased sharpness and freedom from distortion as well as in cheapness compared with camera work, but it requires special drawings."

Some notes by General Waterhouse on the climatic conditions of India as affecting photographic work and workers must stand over until next week.

Half-tones in Lithography.

In application of half-tones to lithography a patent (No. 10,855, 1904) has been granted to F. W. Sears, Berhampore, Wellington, New Zealand, for the process which is described in detail in the specification, but is sufficiently evident from the two claims:—(1) In the manufacture of half-tone engravings for lithography and other printing, the use of a half-tone positive with pure high lights produced by photographing through a screen the negative obtained by photographing the matter. (2) The improved process for making half-tone engravings for use in lithography and other printing, such process consisting in first photographing the desired matter, then photographing the negative thus obtained through a screen so as to produce a half-tone positive with pure high lights, and then printing from such positive (if for an intaglio) on to a metal plate or stone in the usual manner, or from such positive obtaining a contact negative and then printing from such negative on to zinc or aluminium sheets or stone.

It is difficult to see where the novelty comes in, since it is the common practice, in making intaglio half-tones to work from an ordinary negative and make a screen positive, this has been done probably for the past ten years, and is, if we mistake not, the subject of an old patent of Mr. Max Levy, and a recent one of Mr. Cameron Swan. And if it is correct, as Mr. Newton stated in an article published in the *BRITISH JOURNAL OF PHOTOGRAPHY* of January 20th, viz., that the using of screen positives to make half-tone negatives from has been in use since 1903 in London, there does not seem much novelty in the second part of the claim.

PHOTO-MECHANICAL PATENTS.

Application for Patent.

MATRICES.—No. 2,238. "Process for the manufacture of matrices for the galvano-plastic reproduction of printing blocks." Gustav Fischer, 6, Bream's Buildings, Chancery Lane, London.

SIR JOHN CASS Technical Institute.—On Tuesday last the fourth of a series of popular lectures was given at this institute by Dr. Charles A. Kohn, the principal, on the "Chemistry of Photography." Dealing more especially with the chemistry of the photographic film, the lecturer traced the gradual development of photography from the daguerreotype to the artistic productions of the present day. The composition of the film of the modern dry plate was carefully explained by means of numerous experiments, which included the actual making of a dry plate.

THE ROYAL PHOTOGRAPHIC SOCIETY.

The New President.

MAJOR-GENERAL WATERHOUSE, who was elected on Tuesday last to the Presidency of the Royal Photographic Society, has been occupied with practical and scientific photography for practically the whole of his life. In the years 1861 to 1862, when an officer of the Bengal Artillery, he was deputed to photograph the native tribes in Central India, and, in 1866 was transferred to the Bengal Staff Corps, on appointment to the charge of the photographic operations in the office of the Surveyor-General of India, a position which he occupied until 1897. During this period many improvements and innovations in reproduction processes were worked out under his direction. Photo-zincography, photo-collotype, and photographic engraving were the processes which chiefly benefited by these investigations, which



Photograph by]

[Zambra.

MAJOR-GENERAL J. WATERHOUSE

Elected President of the Royal Photographic Society,
February 14th, 1905.

led also to the waxed-sand method of heliogravure. In 1871 he was deputed under Colonel (now Lieut.-General) J. F. Tennant, R.E., C.I.E., to assist in photographing the total eclipse of December 11, at Dodabetta, in the Nilgherry Hills, and again, in 1874, to take charge of the photographic observations of the transit of Venus (December 8), at Roorkee. In 1875, he had charge of the Indian expedition to observe the total solar eclipse of April 6, at Camorta, in the Nicobar Islands, on which occasion his attention was first turned to the action of colour-sensitisers by Dr. Vogel.

General Waterhouse was the first, in 1875, to experiment with eosine as a colour sensitiser, and to publish its action on the sensitiveness to yellow of silver haloid salts. This observation was followed by a long series of researches on colour sensitisers for gelatine plates

for which he was awarded the Progress Medal of the Royal Photographic Society in 1890. In the same year he investigated the reversing action of thiocarbamides in an alkaline developer, and pointed out its possible applications in photo-engraving. Since his return to Europe, in 1897, General Waterhouse has investigated the sensitiveness to light of silver and other metals, and has published a number of researches into the early history of the camera obscura, the tele-photo lens, and the photo-sensitiveness of silver salts, besides many other contributions to the "Photographic Journal."

During the years 1898-1900 he acted as Honorary Secretary of the Royal Photographic Society, and his election to the Presidency is a fitting recognition of services which have been ungrudgingly rendered to the Society on all occasions.

Exhibition.

THE Photographic Society of India held recently a "salon" at its club rooms in Calcutta, and, if we may believe a newspaper report, the collection includes specimens of photography in bromide, platino-type carbon, and "gum-bicarbonate" processes. The Society has our sympathies in the manner of its reporting in the lay Press, where it is also stated that one "photo stands out as one of the most unique in the whole collection." But the exhibition appears to have brought together a miscellaneous collection of photographs of considerable interest. Professional work was represented chiefly by Messrs. Johnston and Hoffmann, who obtained a gold medal for their "Interior of the Zenana Jasmine Tower, Agra," and a silver medal for a portrait of Mrs. Lucia King as Lady Macbeth. Messrs. Herzog and Higgins were awarded a silver medal for a picture entitled "Delhi Durbar." There were altogether thirty-seven exhibitors who sent in about 172 subjects, which were divided into seven classes. In the first class for a collection of photographs, the Society's gold medal was awarded to Mr. George Wilson for his set of four pictures in Bartolozzi-red carbon prints representing studies of children. The silver medal fell to Mr. F. M. Muriel for his studies in trees on platinotype. The process used in these photographs were singularly adapted to the subjects. In Class 2, for portraits, Mrs. Seaton was awarded the silver medal for a child study entitled "First Steps." This was a charming little subject and admirably composed. The bronze medal fell to Dr. Pearse for a portrait. This was a very characteristic study and showed careful work. In the third class, landscapes, marine, and architectural subjects, the gold medal was awarded to Kumar, Raja of Bobbili, for a marine study in bromide. One interesting exhibit was an enlargement of a "Panorama of Lhasa," by Messrs. Johnston and Hoffmann, from a negative by Mr. Claude White.

FORTHCOMING EXHIBITIONS.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club, Largerplatz No. 3, Vienna III., 3.

February 16-18.—Norwich and District Photographic Society. Hon. Secretary, E. Peake, Rydal House, Earlham Road, Norwich.

February 21-March 7.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 14; for pictures, February 17. Hon. Secretary, E. J. Felce, 83, Adam's Avenue, Northampton.

February 25-March 4.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congress Street, Birmingham.

February 25-March 11.—Edinburgh Photographic Society. Entries close February 11; for pictures, February 15. Hon. Secretary, J. S. McCulloch, 3A, North Saint David Street, Edinburgh.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
 March 14-17.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 16-30.—International Photographic Exhibition, Earl's Court. The Organising Managers, 119-125, Finsbury Pavement, London, E.C.

March 20-25.—The Cripple Gate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

March 30-April 3.—Chiswick Camera Club. H. Gentry, 39, Fairfax Road, Chiswick.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between January 30 and February 4, 1905:—

COLOUR PHOTOGRAPHY.—No. 1,906. "Improvements relating to preparing colour-sensitive plates or films for a process of colour photography." W. N. Lascelles Davidson, 55, Chancery Lane, London.

VAPOUR LAMPS.—No. 2,004. "Improvements in electric vapour lamps or enclosed arc lamps." Charles Orme Bastian and George Calvert, Birkbeck Bank Chambers, Chancery Lane, London.

DRYING PLATES OR FILMS.—No. 2,082. "Improvements in apparatus for drying photographic plates or films." A. J. Chapman, 107, Mansfield Street, Kingsland Road, London.

WASHING AND DRYING PLATES, ETC.—No. 2,083. "Improvements in apparatus for washing and drying photographic plates or films." J. Hazell and A. J. Chapman, 107, Mansfield Street, London.

CAMERAS.—No. 2,093. "Improvements in photographic cameras." W. J. Lancaster, 24, Temple Row, Birmingham.

MAGAZINE HOLDERS.—No. 2,120. "Improvements in magazine holders for photographic plates and films." J. F. Spong, 18, Southampton Buildings, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

GELATINE.—No. 1,477, 1904. "In making gelatine and glue from bones, the use of oxidising salts is claimed as an improvement in the maceration of the bones and in the after clarification and bleaching of the gelatine liquor. Permanganates and peroxides are among the substances used." Otto Schneider, 44, Burgschmietstrasse, Nürnberg, Germany.

FLASH POWDERS.—No. 27,267, 1904. "For smokeless and non-

explosive flash powders, an alum or sulphate of copper is the novel ingredient patented in conjunction with the metals, magnesium, or aluminium. These flash powders are mixed with oxides or carbonates of alkaline earth metals, or with glass powder to produce a slow-burning 'time' powder. Typical formulæ are:—
 1. Flash powder.—Magnesium, 10 parts (or magnesium, 2 parts; aluminium, 2 parts); chrome alum, 10 parts. For 'time' powder.—Magnesium, 100 parts (or magnesium, 80 parts; aluminium, 20 parts); chrome alum or copper sulphate, 100 parts; lime oxide, carbonate, or glass, 20 parts." W. P. Thompson and Co., 322, High Holborn, W.C.; for Dr. G. Krebs, Offenbach-on-Main, Germany.

FLASH POWDERS.—No. 27,268, 1904. "For the manufacture of a non-explosive smokeless powder mixtures of metallic aluminium or magnesium (or both) are made with silicic acid, boric acid, nitrates of alkali, and alkali earth metals; with amorphous phosphorus or silica for quicker combustion, and with carbonates of alkali or alkaline earths, silicic acid, etc., for slower combustion. By the additions of oxides and carbonates of the alkalies or alkaline earths respectively, the amorphous phosphorus and the nitrates may be prevented from burning with the evolution of a large quantity of smoke which contains phosphorus acid and phosphoretted hydrogen, which are injurious to health; this fact has been mentioned in American Patent No. 528,515. The addition of suitable oxides of carbonates prevents the development of smoke and of noxious fumes. It may be mentioned that silicic acid and boric acid are used in flashlight powders, as, for instance, in the powder patented in Germany under No. 101,528, but this powder contains neither amorphous phosphorus nor nitrates, and therefore the silicic acid and boric acid serve a quite different purpose. Typical powders.—1. Flash: Magnesium, 100 parts (or half of which may be replaced by aluminium); alkaline nitrate, 200 parts; amorphous phosphorus, 5 parts; magnesium silicate, or carbonate, glass powder, or the like, 5 parts. The lights may be coloured by additions of certain salts." W. P. Thompson and Co., 322, High Holborn, London, W.C., for Dr. G. Krebs, Offenbach-on-Main, Germany.

FLASH POWDERS.—No. 27,465, 1904. "For the manufacture of powders which are non-explosive and produce very little smoke protection is claimed for mixtures of magnesium or aluminium, with compounds of the heavy metals, which can act as carriers of oxygen. Suitable compounds for this purpose are oxides, carbonates, and sulphates of iron, lead, and copper, alone or in combination. A typical formula is:—Magnesium, 100 parts; aluminium, 50 parts; oxide of iron, 30 parts; copper carbonate, 20 parts; magnesium sulphate, 5 parts." Hans Lückte, Paul Arndt, and Ernest Leopold Löwengard, 8, Zellstrasse, Wandsbek, Germany.

Mr. VICTOR TAYLOR, hon. secretary of the Photographic and Pictorial Survey and Record of Essex, writes to say that the photographic and pictorial survey of the county has been begun by the Essex Field Club. At a meeting called for the purpose on November 24 he was asked to take the matter in hand, and the necessary rules and by-laws having been agreed to, the whole thing has now been in working order for a fortnight past. The officials will be happy to receive contributions to the funds of the survey and also photographs and prints for the permanent collection. Lord Rayleigh has given his patronage to the work, Mr. F. W. Rudler (president of the Essex Field Club) is the president, and Mr. W. C. Waller, of Loughton, treasurer. The secretary states that he will be glad to correspond with societies of kindred nature, archaeological societies, and photographic societies, and with anyone willing to give assistance in the work of the survey.

New Apparatus, &c.

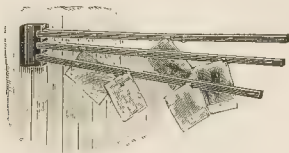
Feculose, a New Mountant. Made by W. Wotherspoon, Glenfield Starch Works, Paisley.

It is conceivable that there are many photographers who will question the need of new mountants. They have used starch as long as they can remember, and they have found starch good enough for them. We ourselves have often insisted on the desirability of starch as an adhesive, its chemical and photographic purity, the ready preparation of the paste in a perfectly sweet condition, and the tenacity with which it holds the mounted print. But we do not therefore contend that it satisfies every requirement of the photographer. *Autres temps, autres mœurs*, and now that emulsion papers are so largely in use, and now that the glossy print equally with the heavy toned paper are included in the output of many photographers, it is discovered that there are qualities of starch paste which are undesirable, notably its penetration of the paper and its tendency to cockle thin mounts. Moreover, the amateur worker seems to find endless difficulties in the proper making of the mountant. For these reasons there is much to be said in favour of the various other adhesives which have been placed in photographers' hands within recent years. The latest of them is Feculose, a fine, white dry powder, which apparently can be kept unchanged for any time under proper conditions. On testing it for acidity, we find it to be perfectly neutral, in which condition the prepared paste can be kept by addition of a little preservative. Our own preference is to make fresh each day, but if an antiseptic is to be added we should advise thymol in the proportion of about 2 grains per oz. weight of the paste. The paste is made as follows:—The powder is thoroughly mixed with four or five times its weight of water, and heated for ten minutes, preferably in the inner compartment of a double vessel of the "porringer" type, with water boiling in the outer vessel. If made in an ordinary saucepan, it is allowed to simmer for fifteen minutes without coming actually to the boil.

The mountant which results is a thin, glutinous medium of great tenacity, which is applied with the greatest ease, and excellently suits, so far as we can discover, the varied prints which the photographer is called upon to handle. Prices and samples of Feculose are obtainable from the makers at Paisley, or from the London house, 19, Laurence Pountney Lane, E.C.

A Combined Plate Rack and Print Dryer. Sold by John J. Griffin and Sons, Limited, Sardinia Street, Lincoln's Inn Fields, London, W.C.

A system of three bars hinged to a support, which is screwed to

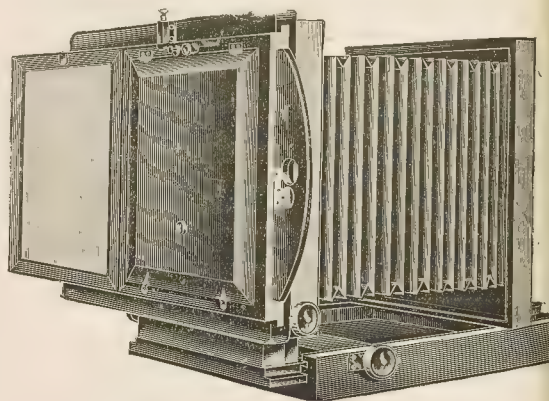


the wall is all the mechanism of this useful piece of apparatus. Each bar is fitted with brass clips by which the prints, twenty-four in all, are attached, whilst the topmost bar is slotted in places for the reception of negatives. The rack costs 3s.

A New Studio Camera, made by the Camera Construction Co., Eagle Works, Durham Grove, Hackney, London, N.E.

We have recently inspected a camera, the makers of which aim at meeting the wants of a photographer who cannot afford a high price,

but must nevertheless have an instrument with which he can do all ordinary work, and which is capable of withstanding wear and tear. In designing a camera on these lines the Camera Construction Co. have adopted a very solid construction; the instrument is for the studio only. The whole of the woodwork is mahogany, and the brass fittings are of the ample dimensions which ensure convenient handling. The novel feature of the camera is the repeating back, which is $9\frac{1}{2}$ by



$9\frac{1}{2}$ inches, and accommodates two half plates, a whole plate, or smaller sizes. It permits the duplicating or triplicating exposures on one or more plates, and is set for this purpose beforehand so that the operator has only to push the slide forward, and has no need to withdraw his attention from the sitter. The camera has double swing back, rising front, loose lens panel, and a total extension of 30 inches. Its price in the $9\frac{1}{2}$ by $9\frac{1}{2}$ size is £6 10s.

It is proposed to form a photographic society in connection with the Willesden Polytechnic, Priory Park Road, Kilburn. A preliminary meeting was held at the Polytechnic on Monday last.

The catalogue of Mr. William Hume, 1, Lothian Street, Edinburgh, reaches us in its latest edition, and it need scarcely be said that its thirty-two pages are occupied with specifications and illustrations of enlargers and accessories in great variety. Mr. Hume will send the list free, and it is certainly one which anyone contemplating an enlarging outfit, great or small, will be well advised to procure.

A MENACED National Beauty Spot.—It is an ancient tradition at Bristol that native-born citizens always sleep with one eye open. But they must have assuredly shut both eyes and their minds as well to allow the beautiful Avon valley to be vandalised by hideous quarrying for road-making materials. A local correspondent of the "Globe" says that this ruthless work is now being carried on at express speed, and neither the Corporation nor the Board of Trade shows the least disposition to save one of the finest beauty-spots in the whole kingdom from becoming a ghastly eyesore. It is just as if Richmond were to have remained passive when the glorious view from the terrace was threatened by building operations on the other side of the river. But the desecration is much less pardonable at the Avon than that would be. There are lofty cliffs on both sides, those on the right bank being bare and almost perpendicular, while on the left Leigh Woods clothe the slopes from ridge to foot. There is no prettier bit of sylvan scenery in England, and, viewed from Clifton Downs across the river, is picturesque charm is surpassing. This, then, is the lovely spot marked down by the civic Huns and Goths for the quarryman's dynamite performances. It is not even that the quarrying must needs be carried out on the face of the wooded cliffs; the ugly scooping could be done on the reverse side, and so be imperceptible from the opposite point of view.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
17.....	G.E.R. Mechanics' Institution	<i>Natural History Photography.</i> Mr. G. T. Harris.
17.....	Aberdeen Photo. Association	<i>Interiors of Public Buildings.</i> Mr. A. Walker, I.L.D.
17.....	Watford Photographic Society	<i>Watkins' Method of Time Development.</i> Dr. C. H. Hall.
20.....	Hastings Camera Club	<i>The Cathedral of Winchester.</i> Mr. S. G. Kimber.
20.....	Southampton Camera Club	Lantern Slide Competition.
20.....	South London Photo. Society	<i>Marine Photography.</i> Mr. F. J. Mortimer.
20.....	Bowes Pk. and Dis. Ph. Soc.	Exhibition, Reception of Pictures.
21.....	Royal Photographic Society	<i>A West Country Minister.</i> Mr. E. W. Harvey Piper.
21.....	Glasgow Southern Ph. Assn.	Opening of the Fourth Annual Open Exhibition.
21.....	Nelson Photographic Society	<i>Magnesium and Candlelight Photography.</i> Demonstrated. Mr. F. W. Waker.
21.....	Rodley and Dis. Photo. Soc.	<i>Wanderings Over the West Riding.</i> Mr. Holmes.
21.....	Brenford Photo. Society	<i>Enlarging.</i> Discussion opened by Mr. J. G. Wright.
21.....	Birmingham Photo. Society	<i>A Large Aperture.</i> Mr. F. E. Wardall.
21.....	Thornton Heath Photo. Society	<i>Bronze Work.</i> Mr. J. H. Avery.
21.....	Balgownie and Dis. Ph. Assn.	Annual General Meeting.
21.....	Hove Camera Club	<i>The Cathedral of Winchester.</i> Mr. S. G. Kimber.
21.....	Everton Camera Club	<i>A Visit to the United States.</i> Mr. W. S. Johnson.
22.....	Windsor Camera Club	<i>Lantern Slide Making.</i> Mr. E. Oetzmann.
22.....	G.E.R. Mechanics' Institution	<i>Photomicrography of Starches.</i> Demonstrated. Mr. J. H. B. Jenkins, F.C.S.
22.....	Cricklewood Photo. Society	<i>Through Normandy and Brittany.</i> A series of Slides lent by Messrs. T. Cook & Sons, Ltd.
22.....	Photographic Club	<i>A Paper by Mr. P. R. Salmon, F.R.P.S.</i>
22.....	North Middlesex Photo. Soc.	<i>The Elements of Pictorial Photography.</i> Mr. H. Snowden Ward.
23.....	Hull Photographic Society	<i>Gun-Bichromate.</i> Demonstrated. Mr. Thomas Heaps.
23.....	Rugby Photographic Society	<i>Photo Lithography.</i> Mr. B. B. Dickinson, M.A.
23.....	Optical Society	Annual Meeting.
23.....	Southport Scientific Societies	<i>British Sea Snails.</i> Illustrated. Mr. E. Kimbault Diblin.
23.....	Liverpool Amateur Ph. Assn.	<i>The Dee from Arran to Hülbre.</i> Dr. J. W. Ellis.
23.....	Camera Club	<i>Recent and the Recent Discoveries in the Forum.</i> Mr. W. A. Casson.
23.....	Leigh Photographic Society	<i>Lantern Slide Making by Reduction.</i> Dr. H. S. Hall.
23.....	London and Prov. Photo. Assn.	<i>Orthochromatic Photography.</i> Mr. A. J. Bull.
23.....	L.C.C. Sch. of Ph.-Engraving	<i>How Paper is Made.</i> Mr. R. W. Sindall, F.C.S.
23.....	Richmond Camera Club	<i>Lantern Lecture on Pompei.</i> Mr. C. H. Davis.
23 and 24	Bowes Pk. and Dis. Ph. Soc.	Exhibition.

ROYAL PHOTOGRAPHIC SOCIETY.

THE annual general meeting was held on Tuesday last, the 14th inst., Major-General J. Waterhouse in the chair. The report of the Council for the year 1904 was taken as read. This and the balance sheet for the year had been in the hands of members for some days, and the discussion which followed had for its subject the items in these documents. It is stated in the report that the scientific photographs collected by the society for exhibition at St. Louis will be exhibited at Russell Square on their return from America. The membership has increased by 21 during the year, a figure which includes 84 enrolments and 57 resignations. The affiliation now numbers 148 societies within its ranks. In regard to finance the cost of the exhibition was £37 less than in previous years, but there was a total falling off in the receipts of £133, made up of £50 admission, £37 advertisements, and £46 space charges. The profit on the exhibition was £35. The society has been at increased office charges of £55, and the cost of the "Journal" has been £65 more than in the previous year. Two house exhibitions have been held by M. Robert Demachy and Mrs. G. A. Barton respectively. The library has grown considerably, and the new catalogue is promised for the end of March. The research laboratory, advocated by Sir Wm.

Abney, has received financial support to the amount of £133 19s. 6d., but the Council appeal to the members for the further help which is necessary to establish the scheme.

Considerable discussion, formal and informal, of the report took place, chiefly in reference to finances, the annual exhibition, and the withdrawal of medals from the pictorial section. A number of suggestions and recommendations were put forward, but the whole proceedings were somewhat desultory in character, and as they dealt chiefly with the internal working of the Society no useful purpose would be served in reporting them. Some sharp criticism was indulged in by some members of the action of the late Council in peremptorily withdrawing the medals from the annual exhibition, but the feeling appeared to be more against the way in which the step had been taken than against the action itself.

The New Officers.

The scrutineers of the ballot reported the election of the following officers:—

President, Major-General J. Waterhouse, I.A.; vice-presidents, Sir W. de W. Abney, K.C.B., F.R.S., the Right Honourable the Earl of Crawford, K.T., F.R.S., J. C. S. Mummery, Sir J. W. Swan, M.A., F.R.S.

Treasurer, John Sterry.

Ordinary members of the Council: A. W. W. Bartlett, H. W. Bennett, P. H. Emerson, B.A., Douglas English, B.A., T. E. Freshwater, F.R.M.S., Sir W. J. Herschel, J. A. Hodges, F. Hollyer, F. Ince, Dr. G. Lindsay Johnson, M.A., M.D., Rev. F. C. Lambert, M.A., Furley Lewis, Ernest Marriage, C. H. Oakden, E. Sanger Shepherd, C. W. Somerville, John Spiller, F.I.C., F.C.S., W. Thomas, H. Snowden Ward, B. Gay Wilkinson.

Judges—Technical and Scientific Section: T. Bolas, F.I.C., F.C.S., Douglas English, B.A., T. E. Freshwater, F.R.M.S., Chapman Jones, F.I.C., F.C.S., E. Sanger Shepherd, E. J. Wall, Major-General J. Waterhouse, I.A.

A portrait of Major-General Waterhouse, with some notes on his contributions to photography, appears on another page.

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at 51, Baker Street, W., on Friday, February 10, 1905. Present: Messrs. Alfred Ellis, Wm. Grove, Martin Jacolette, E. C. Elliott, S. H. Fry, H. Edmonds Hull, A. Mackie, Lang Sims, R. Fellows Willson, Wm. Gill (Colchester), P. Lankester (Tunbridge Wells), and H. C. Spink (Brighton). Mr. Alfred Ellis in the chair.

The assistant secretary intimated that in accordance with the decision of the last meeting an arrangement had been made with THE BRITISH JOURNAL OF PHOTOGRAPHY to insert notices of the assistants' certificates scheme at the heading of the Situations Vacant and Wanted columns of that paper. He reported that the parties to the arbitration case decided at the last meeting had expressed their satisfaction with the result, and that the case had been settled in accordance with the finding. He also reported a similar case between a member and a firm of postcard printers, which had been settled by correspondence. In both the above cases, which were between members on the one side and non-members on the other, the non-members had since joined the Association.

A letter was read from a member complaining that a neighbouring photographer whose name did not appear in this year's "Handbook" advertised himself as a member of the P.P.A. The Hon. Secretary was instructed in the subject.

A letter was read from Mr. Warrington, hon. secretary of the Liverpool branch, referring to a recent severe illness. The hon. secretary was instructed to express the Committee's sympathy and good wishes.

A rather complicated matter respecting the price-cutting of bromide postcards, in which a charge against a member of the Committee had been made was successfully refuted, was discussed and dealt with. A point of considerable importance to photographers was involved, but it was deemed advisable not to publish the particulars.

It was reported that up to date forty-eight replies only had been received to the inquiry made of the members as to their views on the subject of a Benevolent Fund. Twenty members disapproved, and twenty-eight approved, promising subscriptions in the aggregate to the amount of £19 6s. 6d. annually. It was agreed to deal with the matter finally at the next Committee meeting.

A long discussion took place upon the proposal of Mr. S. H. Fry at the annual general meeting that provision should be made in the constitution of the Association for the admission of assistants who hold certificates to Associate membership, or to some similar position with regard to the Association. This matter also was adjourned to the next meeting.

Matters connected with the assistants' certificates scheme were discussed, and details with regard to the examination of applicants' papers were dealt with. Messrs. Alfred Ellis, Ernest C. Elliott, and Wm. Grove were appointed to form a Board of Examiners for operating, printing, and retouching.

In view of the frequency of cases being submitted to the Association to deal with as arbitrators, it was decided that, to avoid the delay and other disadvantages involved in bringing the cases before a Committee meeting, it was advisable to appoint a Board of Arbitration, and five members of Committee were thereupon appointed.

Before separating, the members of Committee present decided to hold an informal dinner, at which it was agreed that any other members of the Association who might like to be present would be welcome. The arrangements, when made, will be announced.

THE OPTICAL SOCIETY.

MEETING held Monday, February 13, at 20, Hanover Square, London, W.—A paper was read by Mr. W. E. Phillips on "Measurement of Absorption in Tinted Glasses," in which he described the use of the Flicker photometer for this purpose, the method being drawn up for application to the Simmance Abady photometer of the Flicker type. The principle of the photometer, he explained, was the bringing of two surfaces, illuminated by two sources of light, alternately into view at a certain periodicity. If unequally illuminated, a throbbing or flicker effect will be noticed. This effect may be due to the pupil of the eye failing to keep time with the rapid change of intensity of illumination of the two screens. The fact that two surfaces, each illuminated by light of a different colour, can be measured for intensity in this way is ascribed to the difference in the senses of lightness and colour, the former being much keener and quicker in action than the latter. Professor Herring had stated his belief that the senses were different; one might be present without the other. In the Simmance Abady type of Flicker photometer light from the two sources is received upon a wheel of pure white material, which is rotated at a known and controllable speed by a clockwork motor. The periphery of the wheel is formed of two equal conical surfaces, and when it revolves the intersection of the two surfaces crosses the line of sight. The two surfaces are seen alternately on looking through an eyepiece. The photometer being placed between the two sources of light, so that they are at right angles to the line of sight and parallel with the axis of the wheel, the effect produced by each light is seen when the wheel rotates. The author employed a bench 2 metres in length when making the measurements. The illuminants were enclosed in blackened boxes with an aperture in the front. The first adjustment is made to equalise the illuminations of the unscreened lights, and then the glasses, the absorptions of which are to be measured,

are inserted, and a second reading taken. The most satisfactory source of light was found to be either an Argand burner for gas or a small glow-lamp with straight filaments, supplied with current from an accumulator.

LEEDS PHOTOGRAPHIC SOCIETY.

ON Tuesday evening, February 7, Mr. R. Stockdale, M.A., gave a demonstration on "The Carbon Process" before the above society. Mr. Stockdale recommended sensitising the tissue with a $2\frac{1}{2}$ per cent. or 3 per cent. solution of bichromate of potash. When making up the solution, add a piece of ammonium carbonate about the size of a walnut to a quart of potassium bichromate solution. This will keep the tissue in good condition for a longer time. The tissue was probably in best condition when three or four days old. A 5 per cent solution made the tissue more sensitive, and therefore suitable for denser and more contrasty negatives. The "Akuret" actinometer was economical and fairly easy to judge, and was recommended.

As transparency tissue contains more pigment, it was specially useful for making transparencies for enlarged negatives, or lantern slides from negatives which were rather dense and would not yield good results on ordinary lantern plates. The glass support needed no preparation, but should be scrupulously clean. A safe edge was always necessary, or frilling occurred. A sponge could be used to assist development, and also a camel-hair brush charged with hot water. The lecturer stated that the Rotary Co. had recently issued some carbon tissue on a transparent film for support. This was printed through the support, and so did not require transfer, and therefore yields direct and not reversed prints. These could be used direct or stripped if required. In this case no safe edge was needed, as there was no stripping of the support of the tissue prior to development. For certain classes of subjects this should be very convenient.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION. MEETING held February 9, at the White Swan, Tudor Street, Mr. R. Beckett in the Chair.

Mr. Snowden Ward gave a lecture on "Photography for the Press," taking as his text the advice: "Study the editor through his journal," and only submit work that is likely to suit that journal. Photographers, as a rule, only look at their own side of the question, forgetting that the editor has also to have an opinion. An editor cares little for technique, or pictorial quality, so long as the stuff is what he requires to fill his paper and illustrate his point. The whole lecture was interspersed with anecdotes well and wittily told, all of which illustrated in a lucid manner the various points raised. In the discussion, opened by Mr. Thomas, copyright was mentioned by the Chairman, and Mr. Mackie quickly put on his best judicial air, and, armed with "British Journal Almanac," was ready to expound the law. But time was short, and Mr. Snowden Ward said that he was glad to find that his first proposal to talk upon copyright would have been appreciated.

CROYDON CAMERA CLUB.

FEBRUARY 8.—The new pigment printing method, introduced by the Autotype Company, under the name of "Auto-Pastel," was demonstrated by Mr. Braham. As the process has already been described, and its working indicated in these columns, recapitulation is unnecessary; but one or two practical points, evolved from further experience, may usefully be mentioned.

Auto-Pastel, broadly speaking, may be said to have a strong family likeness to gum-bichromate, inasmuch as it is a direct printing method, without transfer, is susceptible to a large amount of control, and in skilful hands—as was illustrated by Mr. Braham—with good effect. The actual manipulation, however, differs—the image must be developed, or brought into being, by gentle abrasion, a broad

camel's hair brush being a satisfactory tool for the purpose; hot water is also a necessary adjunct. In another and rather important respect it also differs from "gum," for, given a reasonably accurate exposure (which should err on the side of over, rather than under), then purely mechanical development will in each case result in a straightforward representation of the negative, the sporting element of uncertainty, which characterises its prototype, being conspicuously absent. It must not, however, be assumed that in the case of normal development all the fine detail and gradations of the negative will be reproduced. The process is essentially one for broad and striking studies, as shadows are to a great extent massed, and detail subordinated; indeed, the lecturer expressly stated that it was not intended to supplant, or even rival, the carbon process; each had its sphere and its usefulness.

Mr. Braham showed a capital contrivance for developing, which would appear to be equally applicable for carbon work. It consisted of a rectangular wooden frame, on which coarse muslin was stretched, forming a sort of shallow tray; this was allowed to float in the hot-water tank, the print resting on the muslin, just underneath the surface of the water. The lecturer also described and showed how any part of the picture might be lightened in tone by repeated applications of the brush, other portions being, if necessary, held back by a reversal of the process; small high lights could be emphasised by means of cork, or paper stumps, and even trees, reflections in water, and so forth, indicated by their aid. When the print was dry, further artistic manipulations might be carried on with ink-erasers, and possibly with sand-paper, a jack plane, and a coarse file, though it must be admitted Mr. Braham did not suggest the use of the last three.

In answer to a question, Mr. Braham said that since the issue of their printed instructions it had been found that the paper worked even better with soft, harmonious negatives than with the fairly strong negatives previously recommended. An animated and appreciative discussion followed, which terminated with a hearty vote of thanks to Mr. Braham and the Autotype Company for bringing an interesting method of pigment printing before the members of the club.

HULL PHOTOGRAPHIC SOCIETY.

Mr. T. F. BROGDEN, of Scarborough, gave a lecture last week on "Hand-Camera Work." In the first place he said it was necessary to possess a suitable camera, lens, and shutter for the work it is intended to do. He used a hand-camera with Cooke $\frac{5}{8}$ in. lens and Unicum shutter, but recommended, where the pocket would allow of it, an F/4 lens and focal-plane shutter when it was practically possible, to be equal to everything which might turn up under all conditions—dull days and difficult subjects. He strongly emphasised the personal element in all work done, with simplicity of subject. Numerous examples were given, by lantern slides, where at the time of exposure only a certain portion was actually seen, but after development foreign matter was seen to be present, and here it was necessary to do away with that which spoils the original idea. The lecturer made these points very clear, showing how several of his "Royal" exhibits had received this treatment. With hand-camera work we were only allowed one exposure with any given subject, and so we must understand our instrument and plate, etc. Under-exposure should be avoided, for no developer would make good its defects. It was advisable to dilute the developer. The lecturer advised the use of a large stop always, and if circumstances were favourable he preferred to increase the speed of the shutter rather than stop down the lens. A little judicious over-exposure was always advisable.

Commercial & Legal Intelligence

At Bromley recently the magistrates investigated some extensive thefts of photographic apparatus. The stolen property was of the total value of nearly £30. The accused, against whom there were four separate charges, was Walter Ware, residing at Broom Hill, Orpington. He had not been regularly employed for some time past, and Mr. Richard Cartwright Davenport, the prosecutor, a tradesman of London Road, Bromley, had found him occasional employment. The prisoner took advantage of his visits to prosecutor's premises to rob him of goods in a wholesale manner, and then pledge them. The prisoner pleaded guilty, and was sentenced to six months' hard labour.

LAFAYETTE, LIMITED.—Last week the seventh ordinary general meeting of Lafayette's, Limited, was held in Dublin. Mr. S. S. McCormick, J.P., presided. Mr. Aug. Klingner read the report, which recommended a dividend of 14 per cent. for the half-year, making 10 per cent. for the year, and carrying forward £518 6s. 8d. which was unanimously adopted. Mr. William Fry, jun., in proposing the re-election of the retiring director (Mr. McCormick), congratulated the company on its flourishing condition. In the original prospectus the directors estimated the annual average profit at £6,600, but this balance-sheet showed they had made £7,985. Messrs. Stokes Bros. and Pim were re-elected auditors.

PHOTO AND ART PRINTING COMPANY, LIMITED.—Registered February 3, by A. L. Mason, 122, Victoria Street, S. W. Capital, £27,500, in £1 shares (7,500 Preference). Objects: To carry on the business of photographers, photographic and general printers, lithographers, artists, engravers, modellers, publishers, stationers, paper makers, chemists, booksellers, bookbinders, etc. No initial public issue. The first directors (to number not less than two nor more than five) are to be appointed by the signatories. Qualification (except first directors) £300. Remuneration (except directors acting as managers), £100 each per annum (chairman £150), and 10 per cent. of the surplus profits after a dividend of 6 per cent. has been paid on the Preference and Ordinary shares, divisible (maximum additional remuneration, £1,000). Registered office, 122, Victoria Street, S.W.

A SCORE for the Defendant.—At the Bolton County Court on Wednesday, before his Honour Judge J. K. Bradbury, Mr. W. Russell appeared on behalf of Mr. Taylor, photographer, Manchester Road, defendant in an action brought by Frederick Charles Morris, electrician, of 7, Mawdesley Street, to recover the cost of work done for defendant. Plaintiff in December, 1903, undertook to put an electrical installation in defendant's premises, to be used for the purpose of photography. He put in switches of 15 amperes in place of 20 amperes, which defendant alleged was required for the purpose of making the installation complete. Plaintiff contended there was no difference between the 15 and 20 amperes, that the installation was adequate, and that the work was satisfactory. He produced the certificate of an electrical engineer, which he said freed him from any further liability. On behalf of defendant it was submitted that plaintiff had failed to perform his contract, and that the amperage was not of the required capacity. Mr. Russell called three witnesses, and his Honour found a verdict for defendant, with costs.

ACTION Against an Enlarging Firm.—Before Sheriff Campbell Smith, in the Dundee Small Debt Court, last week, Miss Macleod sued Alf. Margard, trading as the Crown Art Co., for 30s., in lieu of wages. In course of cross-examination of the defender it was suggested that the business was carried on on the Tanqueray system, but his Lordship was not satisfied that the business was carried on in this way. The defender stated that the pursuer had been in his

employment for one week. Amongst other places she had visited Barrow-in-Furness, and had received a return ticket. It was understood, however, that she was to tour round that district for three months. After a few days, however, pursuer said she wanted to go home. Witness wanted to get her ticket in order to prevent her going home, and ultimately he got it. He thought he had a right to it, as pursuer had broken her engagement. Pursuer was paid 15s. for the week. In regard to the breaking of the engagement his Lordship held that defender was in the wrong, and granted the sum sued for with expenses.

At the Liverpool Bankruptcy Court on Thursday last, Alfred Stephen Leslie, who was described as a cinematograph exhibitor, living in Belmont Road, Liverpool, came up for his public examination. The liabilities were stated to be £616, and assets £44. The bankrupt said he got an appointment from a corporation as lanternist to attend lectures, and, later, he bought a bioscope for £36, which was part of some money he received under an aunt's will. With this he gave shows on his own account, but did not accumulate money by it. After that he made an arrangement with the proprietor of the Irving Theatre, Seacombe, and he had paid the proprietor £78 in connection with the original cost of taking the pictures and preparing the films. His engagement was for three weeks, and his share of the net profits came to £15 the first week, £6 for the second, and nothing for the third. The theatre proprietor was now returned as a creditor. Since 1893 he had been insolvent, and there had been nothing but writs and summonses all the time, which had cost him about £150 to ward off. In addition to his general impecuniosity, a serious and long illness in his own family had cost him at least £100 in doctor's bills, etc. The last 18 months he had been pledging his lanterns and other things, and there were now 40 creditors, out of a total of 128, who had got judgment against him. The examination was adjourned to March 9.

TORQUAY Photographer's Failure.—The first meeting of creditors and public examination in bankruptcy of Samuel James Porter, photographer, 4a, Strand, Torquay, was held at Exeter on Friday last. The gross liabilities were stated to be £2,476; expected to rank for dividend £622; assets £235; deficiency £386. The cause of failure alleged by debtor were depreciation of property, and being obliged to move his Torquay business, and heavy rental of Torquay business premises. The Official Receiver, in his printed observations, said:—"The debtor states that he commenced business at Ventnor, Isle of Wight, in 1890, with a capital of about £190. About seven years ago he opened a branch at Torquay, five years ago another at Paignton, and three years since at Exeter. He sold the Ventnor business about two years ago, the Paignton business in September last, and the Exeter business in November, 1903, the Torquay business being the only one now carried on by him. The fully-secured creditors include the bankers for £134 7s. 8d., who hold a guarantee, and the guarantor holds for security for that and his own debt of £54 6s. 9d., two bills for £135 given by the purchaser of the Exeter business, and six bills for £10 each given by the purchaser of the Paignton business. The last of these bills falls due in July, 1906. There are two fully-secured creditors for £900, holding first and second charges on a freehold house at Paignton. The partly-secured creditor for £710 holds a mortgage on a long leasehold house at Ventnor, of the estimated value of £550. The landlord of the Torquay business is a creditor for £180 balance of rent to Christmas last, of which he claims in full six months' rent, £112 10s., and as security for the remaining rent he holds a life policy worth about £15, and three bills amounting to £100, part of the purchase money of the Paignton business. The unsecured creditors for sums over £10 each include three for £194 for money lent, one for £15 for furniture, and the remaining creditors are all for goods supplied."

News and Notes.

A **GRAND PRIX** (highest award) has been conferred upon Messrs. Burroughs, Wellcome, and Co. for the pharmaceutical and other products exhibited by them at the Cape Town International Exhibition.

THE death is announced of Mr. Thomas Woods, of Birr, at the age of ninety. The deceased gentleman held the position of medical officer at the Birr Dispensary until a few months ago. He was an ardent cyclist and photographer, and practised both amusements within a few weeks of his death.

MESSRS. HEDINGHAM AND Co., Photographic Enlargers, etc., late of 15, Isledon Road, Holloway, N., write us that in consequence of their largely increasing business they have removed to more commodious premises situate at 5, Whitehall Parade, Archway Road, London, N.

At a meeting of the Hillsboro Society last week, Mr. C. H. L. Turner, representing the Rotary Photo Co., gave a demonstration on "Rotox" and "Rotograph" bromide and gaslight printing. He also showed the Rotary Co.'s specialities in carbon tissues, carbon stripping films, and the new patent stripping films for three-colour photography.

LAST Saturday at the Photo Art Club, Aberdeen, a lecture and demonstration on enlarging was given by Mr. D. Duff. The successful members in the "mouning" competition were: first, Mr. Stephen; second, Mr. Jarvis; and third, Mr. Dalgity. The judges, Messrs. Findlay and David, laid special emphasis on the skill and taste displayed in the prints taking first and second places.

PHOTOGRAPHIC Survey and Record of Surrey.—The annual meeting will be held in the Croydon Town Hall on March 11, at 5.45, when an address will be delivered by Viscount Middleton. The same evening an exhibition of some 1,300 prints will be opened, and will be on view on the following Monday, Tuesday, and Wednesday, from 3 to 5 and from 7 to 9 p.m.

LEEDS Photographic Society.—On Tuesday evening, February 21, Mr. Godfrey Bingley, the President of the Yorkshire Photographic Union, will lecture before this society on "Oxford and Cambridge." The annual conversazione, which was to have taken place on February 21, has been fixed for March 1 in the Philosophical Hall, Park Road.

MESSRS. BEAVAN AND SONS, Lowther Arcade, Carlisle, notify us that they have opened at the above address as a photographic dealers, and have in stock a good supply of plates, papers, etc., by all the leading makers, and a good dark room for amateurs. They also lend cameras (up to 15 x 12) out for hire by the day or longer—a convenience, we should think, to amateurs wanting to take large pictures. Mr. Beavan has been with Messrs. G. W. Wilson, Aberdeen, for over ten years, and will be pleased to place his experience at the disposal of his customers, who can obtain from him their copy of THE BRITISH JOURNAL OF PHOTOGRAPHY.

THE Sheffield Photographic Society held its monthly meeting on Tuesday night last, when an interesting lecture was given by Mr. Alex. Keighley on "Flower Photography." The lecturer was one of the first to make a special study of photographing flowers amidst their natural surroundings, and in this particular branch of photography he has excelled himself. The usual style of plucking the flowers, placing them in a stiff vase, and endeavouring to make them look natural was conspicuous by its absence. The lecturer conducted his audience through each month, showing beautiful examples of the flowers which were typical to the time of the year.

THE Bowes Park and District Photographic Society held their lecturette competition on Monday evening, February 6, at their headquarters, Unity Hall, Wood Green. Mr. A. J. Craston demonstrated his method of carbon printing, sensitising and developing

prints before the meeting. Mr. E. H. Young gave a humorous paper on "Economical Photography," showing how a photographic outfit, including camera, can be constructed for something less than one shilling. The resulting print he was reserving for the forthcoming exhibition. Mr. H. C. Bird gave a paper on "A Method of Controlling the Gradation of Bromide Prints." The result of the voting was: Mr. H. C. Bird, first; Mr. E. H. Young, second; Mr. A. J. Craston, third.

New Societies.—Another new photographic club is being inaugurated in Glasgow, and by a special arrangement with the local manager of the Kodak Company their rooms in Buchanan Street will be placed at the disposal of members of the club one evening each week. This will include the use of dark room, enlarging apparatus, and a reference library. The names of intending members are being received by Mr. Frank C. Petrie, interim hon. secretary, 4, Lorne Terrace, Maryhill. A society has also been formed recently in the east end of the city, "The Glasgow Eastern Co-operative Camera Club," and meetings are held every alternate Wednesday in Sword Street Hall. A syllabus has been arranged, and the secretary, John M. Hamilton, 85, Evelyn Street, Dennistoun, will be glad to receive additional names.

The President of the Royal Institute of British Architects, in his recent address to the students at the Institute, made some remarks which are well worth the attention of people who think for themselves on art questions. He uttered a warning against the popular habit of confusing archaeological interest and artistic value, and deprecated the common tendency to allow a mere sentimental consideration for picturesque antiquity to pervert æsthetic judgment. He declared that historical associations, by their appeal to a love of romance, are apt to give to old buildings a fictitious value in the eyes of the public, and to cause these buildings to be accepted as fine architectural examples, when they really lack those beauties of design which would justify them in being regarded as suitable subjects for study; and he argued, correctly enough, that this concession to sentiment was likely to have a bad effect upon both the taste of the modern architects and the quality of their art.

Stolen Goods.—At Taunton Police Court, last week, Arthur Harris, a respectable-looking young married man, who has been employed as a photographic printer at the establishment of Mr. Henry Montague Cooper, photographer, East Street, was charged with having stolen six photographic lenses and two cameras, of the value of £21, the property of his employer. The defendant pleaded guilty, and expressed his sorrow. He said he had had a good character, and was in his last place fourteen years. He had never committed an offence before, but he was pressed for money, and he pawned the articles for small amounts, hoping to be able to redeem them before they were missed. Mr. Cooper said that he had found the defendant a capable and attentive workman, and he did not wish to press the charge against him. It was very painful to him to take proceedings, and he asked the Bench, if possible, to deal with the defendant under the First Offenders' Act. The Mayor said the defendant had a great deal to be thankful for in that he had been in the employ of a gentleman who was so lenient towards him. The Bench would bind him over to come up for judgment if called upon within six months.

A New Photographic Accessory.—The latest development of the craze, so prevalent amongst a certain class, for imitating the ways of those moving in a different stratum of society has of late assumed the form of being photographed seated in a motor-car. A writer in the "Sun," commenting on this species of affectation, says:—"The people to whom these remarks refer do not own cars, and are never likely to do so, but their craving to be thought aristocratic leads them to fall a prey to the bait held out by a certain class of photographers. It costs considerably more, of course, to be depicted in

this way than in the ordinary style, because the car has to be hired by the photographer, and the services of an expert driver are necessary to coach the "gentleman how and where to place his hands," and generally to comport himself as if motor-driving were but an incident in his every-day life. No doubt the instructor performs his duties in this respect in a conscientious manner; but it is beyond his powers to impart to the temporary occupants of the car that air of complete indifference to their surroundings which nothing but constant association can secure. This is especially the case with the "ladies," who invariably wear a half-scared expression on their faces as if they were by no means sure that they are in altogether safe keeping, and not liable to be run away with by the car at any moment. Those photographers who turn their attention to this class of business do not advertise the fact. They simply make hints to those of their clients to whom they think the suggestion is likely to appeal. Should such be the case, an appointment is made for another day, and, instead of having their "picture taken" standing together arm in arm, or resting negligently against the immemorial "what-not," the customers relinquish all idea of being taken at the time, and return home to await the new appointment. The photographer provides everything, from the "fur" overcoat and gloves for the gentleman, to the veil and cloak for the lady, and the expert arranges the latter's veil and hat as if she were about to brave the fury of a fierce nor-easter. Later on the photo is enlarged, and framed, to excite the envy of the acquaintances of the persons portrayed, who are not aware what an age of shams we are living in.

The principal disadvantages of flashlight (said Mr. J. G. Everett in the course of a demonstration at the Royal Albert Institute, Windsor) are:—First, the quantity of smoke produced; second, the difficulty of spreading the light over a sufficiently large area to prevent the appearance of harsh shadows and hard contrasts in the negative. The remedy for the first of these difficulties is to use plates as rapid as possible and as large a stop as is admissible, and so reduce, as far as one can, the quantity of magnesium to be burnt. With reference to the second difficulty, the following points may be useful to remember: In blowing the spray of magnesium into a flame use a fairly wide tube and blow gently. This will give a large sheet of flame, and the shadows can be further softened by placing some kind of reflector, such as a mirror or a white sheet or card, in such a position that it will reflect the light upon those parts that would otherwise be in the shade. When the source of light is to be one of the explosive mixtures frequently used for the purpose the powder should be spread out before ignition so as to produce as large a flash as possible, and it is even better to use two flashes a little distance away from one another. It is necessary that the two flashes should take place simultaneously, as otherwise the second will show up the "start" which the sitter is almost certain to make when the first goes off. The most convenient method of firing these flashes is by means of electric fuses, and if the two fuses are both worked by the same switch the operator may depend upon his flashes taking place simultaneously. One frequently notices in portraits that have been taken by flashlight a peculiar startled expression about the eyes. The probable reason for this appearance is that the room was darkened just before taking the photograph. The darkening of the room causes the pupils of the sitter's eyes to expand to an extent which appears abnormal when seen by daylight, and it also causes the sitter to unconsciously strain his eyes in order to see what the operator is doing. It is quite unnecessary to darken the room when taking a flashlight photograph, as provided the light from the lamp used does not shine directly into the camera the lens could be left uncovered in an ordinary room for some little time without appreciably affecting the ultimate result. It is also advisable to place the flash somewhat above the sitter's head, as this will give the portrait a more natural appearance.

Correspondence.

- * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

BRENTFORD PHOTOGRAPHIC SOCIETY'S EXHIBITION.

To the Editors.

Gentlemen,—I beg to enclose you an entry form of the forthcoming Brentford Exhibition, and should esteem it a favour if you could find space in your next issue for a notice of the exhibition, drawing attention of probable exhibitors to the fact that pictures can be sent between the South London, Brentford and Cripplegate Exhibitions, free of carriage to the exhibition.

Also we are again having an open class, amongst others, for pictures (any subject) that have not been previously exhibited.

On a former occasion this class was a great success, and we feel sure it will again appeal to exhibitors, therefore our wish to make it as universally known as possible. Brentford being outside the London Postal District, exhibits in this class will not be debarred from selection at the Salon or R.P.S.—Yours in anticipation,

FRANK H. READ, Exhibition Secretary.

"Ferndale," Clifden Road, Brentford,

February 9, 1905.

ADVERTISEMENT.

To the Editors.

Gentlemen,—Your little hint of novel advertising, offered by our American Cousin, who hung the sign of "Time is Flying," etc., was the cause of racking our brains for a cheap advertisement of a like kind. We have hit it remarkably well, and daily the crowds gather around our windows with expectant faces, scanning each photograph with the hopes of recognition. The reason for the same is easily explained. A notice of reward of £20 has been printed in the ordinary form, which will be paid to the persons giving information that will lead to the conviction of the persons who entered our studio, on a specified date, and without cause or reason deliberately smashed our cameras. We have placed in the window a photograph of the parties concerned, which we trust will lead to their early identification.

Signed, etc.,

Needless to add the faces are those of a couple of well-known local comedians, taken as ugly as they can possibly be taken, with this notice written above:

"We are sorry, but our faces slipped."

People smile when they see the catch, and we know we are being cheaply advertised.—Yours faithfully,

ATHERTON AND Co.

5, St. Peter's Road, Great Yarmouth.

[We are interested in hearing the experience of our correspondents. Perhaps they, and others, may be glad to hear that a short series of articles on advertising, in regard to the business of a photographer, will commence in an early issue.—Eds.]

HONORARY PHOTOGRAPHERS.

To the Editors.

Gentlemen,—I have read with great interest the correspondence dealing with the "honorary photographer" scheme proposed by the proprietors of "Woman's Life," and I quite agree with the attitude taken by your correspondents. A similar scheme was inaugurated some time ago by another paper, and the following little incident—founded on fact—should give a clue to the "further remunerative business" likely to accrue to the photographer foolish enough to accept the office of "Honorary Photographer":—

Scene: A photographer's studio. Time 8 a.m.—Photographer discovered arranging things for day's work. He has no cares. He sings blithesomely. The sun shines ditto.

Enter Assistant.—"Morning, Sir. Going to be a fine day I think; lots of people out. This is the sort of weather to bring 'em in. By the way, I see you have been appointed 'Honorary Photographer' to the 'Weekly Thundermug.' I suppose you will soon be moving into a bigger shop?"

Hon. Phot.—"Er—ye—es, I suppose so."

9 a.m.

Enter stout lady and six offspring. The four eldest are budding hooligans, the youngest is in arms.

"'Ere we are at last. Now, mister, I 'av'nt had my phiz took for ten years come next Whit Monday, but my nevvie, what keeps the little paper shop off the Balls Pond Road, 'as 'ad a bundle of specimen copies of the 'Weekly Thundermug' sent 'im, so we've cut out the coupons what gets the photographs took at your shop, and 'ere's twenty-four of 'em. That's a photo for each of us, 'aint it, and two for little Willie? So look lively, guv'nor, and slip into it."

Hon. Phot.—"O lor!" (He slips into it.)

12 noon.

Hon. Phot. (surveying studio wrecked in places by the hooligans).—"Thank goodness that's over. Now, Tomkins, has anybody called?"

Assistant (breathlessly).—"Called! I should say so. There are nineteen servant girls, five errand boys, and a drunken navy out side now. They have all got 'Weekly Thundermug' coupons, and the navy has already had a fight with the postman and insulted two old ladies who came about a wedding group, and half-a-dozen other regular customers. He says he won't shift until he has had his three-p'orth of clock torture, if he's got to sleep here all night."

Hon. Phot.—"O lor! Dash! likewise blow! Here, go out and put the shutters up. Say I've gone abroad and won't be back for a month."

Assistant left struggling with drunken navy.

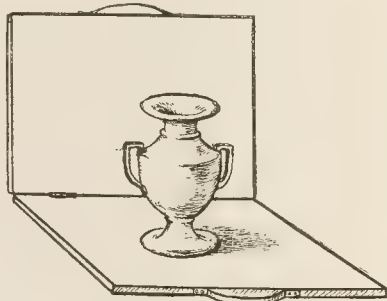
—Yours truly,

EX-HONORARY PHOTOGRAPHER.

A USEFUL ACCESSORY FOR THE TECHNICAL PHOTOGRAPHER.

To the Editors.

Gentlemen,—The technical photographer who is called upon to photograph all sorts of odd objects is often at a loss for a suitable background, particularly if he has to do the work away from his own studio, as is usually the case. The handiest thing I have found so far is a pair of boards, about 2 ft. square, hinged at the centre and with a leather strap screwed on at each end to serve as handles to carry the boards. The boards are covered on the inside with a good quality of black velvet, evenly glued on. Now if these boards be opened and one laid on a table with the other at right angles, we have both a base and a background for our object. Velvet



is recommended, because although a white background is more frequently required than a black one, yet if the board is made white it does not remain so very long, but soon becomes dirty and marked with handling and pin-holes, whereas the velvet will be as good as ever after much use if it is brushed occasionally. Then with a roll of new, uncreased white and grey paper the operator has three backgrounds at his command, neither of which will cause work on the negative, as is so often the case with extemporised backgrounds.—Yours faithfully,

TECHNICUS.

Answers to Correspondents.

* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.

* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.

* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

F. Henderson, 72, Queen's Road, Aberdeen. Photograph of Herbert and Janet Scott.

W. Eastoe, Castle Hill House, Caistor, Lincolnshire. Photograph of "The Walk," or "Beatched Farm," Bimbok, Lincolnshire.

Prior, 23, Edgcombe Place, Stoke, Devonport. Three Photographs of three of the Plymouth Celebrities, entitled, "Pennycross Bill," "Jubilee Bill," and "Fogey."

E. Hargreaves, Millom, Cumberland. Four Photographs of the Rev. Ivor G. Farrar, M.A.

Dunn, 38A, Brighton Road, Redhill, Surrey. Photograph of the Interior of the Mission Room, High Street, Redhill.

rs. M. Le Tourneux, 249, Regent Road, Salford. Photograph of the Rev. J. Hennessy.

T. Healey, Carfax Studio, Horsham, Sussex. Photographs of Dinner Meal, Dinner Parade, Dormitory, and Trades, before dinner, all at Christ's Hospital.

M., FREEZE, and several other querists will be answered next week.

LEVY, PARIS.—Thank you for the note.

E.—There is no benevolent association now in existence.

J. R. Y. K.—1. A. 2. A large aperture anastigmat and a telephoto attachment.

ARCH LIGHT.—We do not know the address, but care of Royal Institution, Albemarle Street, London, W., would probably find him.

J. SELLWOOD and F. LORD.—We cannot fall in with your suggestion, and if you wish to dispose of the apparatus you should advertise it.

CULLIFORD.—Your query has been handed to us by the printers.

Your easiest plan is to have the label drawn or printed and then make a negative, and you can then obtain as many pulls as you like on ordinary flat celluloid positive films or the thin.

ORY MINIATURES.—Would like to know of a house that supply plain ivory miniatures from negatives or prints.—A. B. C.

This work is undertaken by any of the trade printers, for whose addresses consult the advertisement columns.

REUTLINGER POSTCARDS.—Would like to know if Reutlinger postcard products are copyright in England. If so, who can I apply to for the right to reproduce?—A. B. C.

Yes, we believe they are all copyright, and that the same is vested in the Rotary Photographic Company, Union Street, Moorfields, E.C.

VISIBLE INK.—Can you give me through the columns of your valuable journal recipes for making an invisible ink that will keep, or name of book in which I can find same?—G. A.

The following formula is given in our ALMANAC:—Chloride of cobalt, 50 grs.; distilled water, 1 oz.; glycerine, 50 minims. Dissolve in the above order. This is invisible till warmed.

UBBER BALL.—I have a time and instantaneous shutter; the air has gone out of ball because of a small prick in the ball. How could I inflate it? Or, if necessary to have it repaired, please say who would put it right again?—SHUTTER.

It certainly is not worth while tinkering about with any mending dodge, considering that a new ball and tube can be

bought from the makers of the shutter, or any dealer, for fifteenpence.

PLATINUM-TONING ON C.C. PAPER.—In your article on above in issue of 27th ult. it is advised that oxalic acid be used, as being least open to objection. Would you kindly inform me the correct strength of acid to use and the quantity?—R. D.

The bath advised by Namias is:—Potass. chloroplatinite, 1 gm.; distilled water, 1,000 gm.; pure hydrochloric acid, 5 gm.; oxalic acid, 10 gm. The British weights are:—15 grs., 35 ounces, 80 grs., and 150 grs. The object of the hydrochloric acid is to convert the soluble silver salts into chloride, an advantage as regards pure whites.

ELIMINATION OF HYPO.—Will you kindly give me your opinion as to how long it is necessary to wash negatives to thoroughly eliminate all traces of hypo? I have heard various times mentioned by several different West-end operators. Of course, I refer to washing in an ordinary syphon tank. An operator who has photographed Royalty gives two hours; yet his master says one hour is ample. Another operator says thirty minutes. We have decided to abide by your opinion.—OXONTIAN.

Provided the negatives are fixed in a bath made alkaline, by the addition of one ounce of ammonia to 12 pints of hypo solution, for fifteen minutes, the whole of the hypo may be eliminated by thirty minutes' washing in a syphon tank.

HYPO ELIMINATORS.—I shall esteem it a favour if you will kindly inform me if you consider hypo eliminators work satisfactorily, as it would be a great boon to me if I could find some satisfactory method for considerably shortening the time required for washing prints after fixing in hypo. Will you also kindly recommend the eliminator you consider most satisfactory, and give the price of same and where obtainable?—G. A. D.

We must confess that we consider plain water the best hypo eliminator, and as all prints can be freed from hypo in one hour by repeated soaking in water and changing the same every ten minutes, the time involved is not much; still, the best of the chemical eliminators is potassium percarbonate, which can be obtained from nearly all dealers at about 7d. per ounce.

CAMEO PORTRAITS.—Can you inform me what preparation is put on the back of prints so that they may be pressed out in relief? Also, upon what sort of pad must the prints be placed to press upon, and any other particulars as to the method of making relief photos at home without having to have blocks made?—S. E.

By pressed out in relief we presume you mean what are known as "cameo portraits." Presses for reducing them may be had from any of the large dealers. The press is of the screw type, and is furnished with thick metal plates, with openings of the size desired. At the bottom of the press is a thick rubber pad. The print is put into position under opening, and the necessary pressure applied, to produce the relief, by the screw.

LANTERN WORK.—(1) What is the advantage of using regulators on gas cylinders when at work? (2) When used, can the gas supply be controlled by the jet taps? (3) For a good light how many feet of gas would be used in an hour?—W. MARTIN.

(1) The advantage of using regulators is that the gas is delivered under a constant pressure during the whole of the time of the show; obviously if there is no regulator used, the more the gas is used the less the pressure. (2) Most certainly. (3) It is impossible to answer this satisfactorily, because there are no data as to whether a blow through, or mixed jet, single or biunial, with a single lantern and blow through jet, the consumption of oxygen is about 5 cubic feet per hour; with a

mixed jet the consumption of oxygen is a little under this, and that of hydrogen a little more.

LOST SKETCH.—A lady having left a sketch of a gentleman's here for me to frame, it has got mislaid. I have searched everywhere but cannot find it. I have offered to copy and enlarge any photo she likes to bring of him. She not agreeing to this, I offered her 30s. in compensation. This she will not accept, but says she will take it into court. Could you advise me in any way?—E. LEACH.

There is, so far as we can see, absolutely nothing to be done but to allow the lady to proceed, and then for you to take a solicitor's opinion, who would probably advise you paying a small sum into court, when the onus of proof of the value of the sketch would rest with the plaintiff. Still we should advise you to have yet another search.

RIGHT OF REPRODUCTION.—A well-known firm of postcard publishers wrote me for my permission for them to reproduce certain photographs of a well-known theatrical. I gave them permission on condition that my name appears at foot of all prints, etc. The photo is not copyrighted, but was taken at my expense and invitation. I have just discovered that my name does not appear, but the publishers publish their name as the photographer. If I copyright these pictures, and they insist on omitting my name, can I claim any compensation?—PERCY.

If the photograph is now copyrighted, further issue of the reproduction can be interdicted, and damages can be claimed, but the owner of the copyright would have to prove that he had sustained damage, which is not always such an easy thing to do.

ANGLE.—Will you kindly answer the following questions?—What would angle be with (a) 6 inch focus on 6, and 8 inch plate; (b) 7 inch focus on 6 and 8 inch plate; (c) 9 inch focus on 6, 8, 11, and 14½ inch plate; (d) 14 inch focus on 8 and 11 inch plate; (e) 16 inch focus on 6, 8, 11, and 14½ inch plate?—STUDIO.

In the B.J. ALMANAC for 1905 there will be found, on pp. 1152 and 1153, a table and notes that will enable anyone to find this out for themselves. However, we do not mind doing it for our friend. (a) On 6 inch plate, the angle is 53 deg.; on 8 inch, 67 deg.; (b) on 6 inch, 46.5 deg.; on 8 inch, 59.5 deg.; (c) on 6 inch, 36.5 deg.; on 8 inch, 48 deg.; on 11 inch, 62 deg.; on 14½ inch, 77.5 deg.; (d) on 8 inch, 31 deg.; on 11 inch, 43 deg.; (e) on 8 inch, 28 deg.; on 11 inch, 38 deg.; on 14½ inch, 48.5 deg.

SHOP HOURS ACT.—Our town is about to adopt the Shop Hours Act, and I should be glad of your opinion (1) whether photographers are affected as regards studio work? If so (2) what about outdoor work? Also (3) can a trade stand out of the movement if they all agree to do so?—J. S.

In our issue for January 13, p. 22, there is a short note on the Shop Hours Act which puts the case very plainly. (1) Photographers are, we think, undoubtedly affected as regards studio. (2) Certainly not as regards outdoor work. No Act or local authority can prevent a man from taking negatives outdoors, whether for trade or other purposes, at any hour of the day and night. (3) If the majority of a trade oppose the application of the Act to their business, then "the local authority shall apply to the central authority to revoke the order in so far as it affects that class of shops."

STUDIO QUERY.—Will you please give me your help on the following questions?—What style of studio would be best to build in garden facing south (size of studio, 8 ft. by 20 ft.; size of garden is about 20 ft. by 45 ft.)? Also, please say what the height ought to be and how much wood at each end, and what colour paint and blinds to use for inside.—F. G.

You say in a garden "facing south," but you do not say the position the studio is to occupy or from what quarter it will be lighted—north, east, south, or west. The dimensions you give will be small for a studio if you require it for professional work, and, as you have space at command, we should advise you have it larger. Not knowing the aspect the studio will have, we cannot advise as to the blinds, etc. We should recommend you to get Bolas' work, "The Photographic Studio," a guide to its construction; it will give you a lot of useful information. It may be had through any of the dealers.

STUDIO QUERY.—I should esteem it a great favour if you would kindly advise me upon the construction of a photographic studio—height, length, breadth, amount of glass, side and top. The light would have to be either east or west. Which would be most suitable? I thought east light, with holland-colour blinds. The available space at my disposal would be suitable or convenient for a studio about 35 x 15 or 16 feet. If you give me an idea I will get plans drawn, and would like to submit them to you.—STUDIO.

The size given will be admirable for a studio. Either an east or a west light will do very well, but if the studio were of the ridge-roof form you could have both lights, which would be a convenience, as you could use the west light in the morning and the east in the afternoon, thus avoiding the sun troubling you. With this length and width six or seven feet at either end may be opaque. If you send a rough sketch of your idea we shall be pleased to advise you further. See answer to "F. G."

RETOUCHING.—Enclosed are four cabinet photographs, two retouched and two not retouched. Would you please give me your opinion of my retouching, and what salary I might ask for as a retoucher? I am eighteen years of age.—POT.

(1) All prints sent for our opinion upon retouching should be fully printed, toned, and fixed to show the detail. Untoned and unfixd prints cover a multitude of sins, both of omission and commission. Your retouching is too mottled in effect and broken up in the touch, and also very weak in the modelling. The whole of the working should be finer and the blending of the touches better attended to. Your best point lies in the fact that you are fairly good in preserving the likeness. A few lessons from a smart and experienced teacher would soon put you right, for there is room for very great improvement in your finish. (2) The salary you are worth is difficult to state; you are very young yet, and if you are relying solely upon your retouching, we should think about £1 per week; but, to be candid with you, the one print shows only second-rate work, and the other print not even that. But do not be depressed on this account; you have youth in your favour.

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No. 2338. VOL. LII.

FRIDAY, FEBRUARY 24, 1905.

PRICE TWOPENCE.

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EX CATHEDRA.

The Constitution of Cyanine.

The abstract of a paper by Dr. Miethe, which we publish on another page, may frighten the reader who is not accustomed to the graphic formulæ of the chemist. But the abstract may give to those working with the dyes a hint of the possible variants which the chemist can produce. In another sense the paper is interesting. The constitution of cyanine has hitherto been taken as set forth in the text-books, and it will be something of an achievement if its photographic use and a photographic chemist's investigations of it should result in the revision of the accepted views. A former editor of this journal is reputed to have coined a phrase expressive of photography's humble part in research—"the Cinderella of the Sciences." Cinderella promises to transform herself into the fairy princess.

Rise in Price of Iodine.

A further increase in the price of iodine took place last week, when the Convention controlling the supply of crude iodine announced the figure of 10½d. per ounce. The present advance is one of a number which has steadily raised the cost of the raw material employed by manufacturers of iodine compounds from 3d. to the figure at which it now stands. The demand for iodine is chiefly in the drug trade, although the increased cost will be felt to a certain extent in photography. The position of the Iodine Convention appears to be an exceedingly strong one, and, according to the "Pharmaceutical Journal," there is a prospect of prices being pushed still higher. Even as the market stands now, it is estimated that the cost of production is nearer 2½d. than 10½d., a ratio which justifies

the reputation possessed by the Iodine Convention of being the best managed of such combinations.

The Chemical Society.

Photographic questions which may arise in the proceedings of the Chemical Society should be assured of support from the presidential chair, which is newly occupied by Professor Raphael Meldola, F.R.S., in succession to Dr. W. A. Tilden. Professor Meldola is one of the few scientific chemists who have taken a sympathetic attitude towards the chemical and theoretical problems of photographers. Nearly twenty years ago he delivered a course of lectures on the principles of photography to his students at Finsbury Technical College, and their republication in book form as "The Chemistry of Photography" has afforded the student an easy and agreeable introduction to the chemical facts and theories which underlie photographic practice. Although Professor Meldola has served on the Council of the R.P.S., and is reputed to number the camera among his means of recreation, his bent has been chiefly towards the scientific side, and he quotes the late Colonel Russell to the effect that photography would be a most interesting subject were it not for the pictures!

Postcards to and from Germany.

Our note of last week on the recent concession of the German Postal Department in permitting a written message on the address side of the card left in doubt the case of postcards passing between this country and Germany. We now learn, however, that the regulations of the Postal Union do not permit of such cards passing from one country to another, even when both allow of the circulation of the postcard in their own dominions. For this reason postcards having a written communication on the address side must be fully prepaid as a letter when posting to Germany.

The Carbon Process.

On another page, our friend "Historicus" describes Swan's original process of double printing, in which the temporary support as well as the exposed tissue was coated with a solution of indiarubber, and, when the solvent had evaporated, the two coated surfaces were pressed together in a rolling press. This seems a somewhat troublesome process, yet it was one that for some time was worked commercially by the Messrs. Mawson and Swan at Newcastle. We recently saw an excellent print, produced by them from a 15 by 12 negative by the late Mr. H. P. Robinson, "Waiting for the Boat," which was the presentation print of the old South London Photographic Society for 1866. This print, for delicacy of the half-tones and fineness of detail, is not surpassed by the most perfect carbon prints

of the present day. After Johnson's method (see "The Week in History," page 86 *ante*) and Sawyer's flexible support were introduced, rubbered paper went out of use in England.

* * *

Double Transfer with Rubber.

It may, however, interest our readers to learn that it is still used on the Continent by the firms that publish the fine reproductions of the paintings in the different national collections, and printed in carbon. They are by the double transfer method, and the temporary support is rubbered paper. It is, however, not worked as it was by Swan. The exposed tissue is not coated with the rubber; it is simply immersed in water; together with the rubbered paper, and the two squeezed together in just the same way as in the case of Sawyer's flexible support. When the print is finished, the transfer paper applied and become dry, the back of the support is passed over with a sponge charged with benzole, and the support stripped off. This, it is true, is a costly method of working, as the support, at the present price of rubber, costs as much, if not more, than the tissue itself, and it cannot be used a second time. But the publishers of the reproductions say that they cannot get the same excellence in their work by any other method of working the double transfer method of carbon printing.

* * *

Spontaneous Combustion of Celluloid.

Within the past month several cases have been reported in the German technical papers in which articles of celluloid spontaneously took fire. We hasten to qualify the sense in which we use the word spontaneous. Strictly speaking, there must always be a predisposing cause of combustion, and in writing now of spontaneous ignition we have in mind a chemical change of this kind occurring without actual access to a flame. The celluloid which has thus burst into flame has been chiefly in the form of ornamental articles of feminine toilet, such as the tortoiseshell hair-comb with which the suburban Daphne is able to crown her elaborate coiffure at a small expense. A correspondent of the "Chemiker Zeitung" records an accident which befel his wife as she knelt before a perfectly closed and not over-heated stove. Her celluloid comb caught fire, and the hair over an area of twenty square centimetres was severely scorched. Another husband describes a similar occurrence, but in this case the lady having washed her hair was seated near the stove waiting for it to dry. Still another instance is cited, in which the lady occupied a seat in church, at least 6 ft. from a stove, and in like manner fell a victim to the inflammable adornment of her hair.

* * *

Celluloid and Celluloid.

It is a pity that the facts as stated by the correspondents we have quoted are lacking in details. We should wish to have data as to temperatures and the composition of the celluloid before accepting without qualification statements which are opposed to the chemical properties of celluloid, and to the large experience of the photographic trade in handling it. Celluloid heated up to 280 deg. F. gradually softens. Between that temperature and about 400 deg. F., decomposition takes place and inflammable vapours are copiously given off. But nobody supposes for a moment that the temperature of any part of the comb even in the hair of the blonde German ladies could reach anything like these temperatures, and the only possible explanation which the facts, as crudely stated, appear capable of is that the articles were composed of celluloid of anomalous composition. It is not common to add mineral bodies to celluloid, but the presence of a

pigment is not at all improbable, and this latter, if of an oxidising character, might have supplied the conditions for ignition at a comparatively low temperature. The case is on record of a paper lamp-shade, coloured yellow with lead chromate, which spontaneously took fire, and some dangerous addition to the pure material would seem to have been made for the purpose of producing an ornamental article.

* * *

The Record of Pure Celluloid.

There can be no stronger refutation of the charge against celluloid of spontaneous inflammability than its career in the photographic trade. We cannot call to recollection nor find recorded anything of the kind, and that fact is the more important when it is considered that celluloid film, as part of photographic stock, is liable to be stored in all sorts of places without proper regard to temperature. A sharp distinction must be drawn between an article of unknown composition and a product which by the very necessity of the case has to be of the purest form obtainable. No evidence has been submitted to prove in the case of celluloid as used for photographic film that there is any liability to spontaneous ignition under possible conditions of temperature, which conditions, it may be added, are almost hundreds of degrees from the theoretical danger point.

* * *

Our Photographic Trade with Germany.

Some interesting figures are given in one of our German contemporaries as to our trade in photographic materials with Germany, from which we extract the following figures:—

	Imported to England in		Value.
	1903.	1904.	
	Kilogs.	Kilogs.	£
Optical Glass.....	33,300	16,200	20,124
Colour prints and Photos.....	2,559,100	2,700,900	1,100,621
Optical and Photographic Apparatus ..	13,400	19,800	46,737
Photographic Paper	572,500	627,500	340,089
Dry Plates	Nil.	Nil.	Nil.

	Imported from England in		Value.
	1903.	1904.	
	Kilogs.	Kilogs.	£
Optical Glass.....	Unknown.	Unknown.	—
Colour prints and Photos.....	98,500	142,600	84,580
Optical and Photographic Apparatus ..	Nil.	Nil.	—
Photographic Paper	33,800	27,700	11,399
Dry Plates	9,600	23,300	Unknown

We have included the figures for 1903, so that comparison may be made, but have not calculated out the value. Assuming that two dozen quarter-plates weigh one kilogramme, and this is approximately correct, and that the value is 2s., we can fill in the value in the last line of the lower table with the figure £4,660. Then Germany imports into England £1,406,522 worth of goods more than she takes from us. These figures do not take into consideration our Colonial Empire nor the trade in photographic chemicals, in which the difference would be very much greater, for probably the value of chemicals imported into Germany is infinitesimal. It would be as well to point out that "colour prints and photos." includes three-colour prints and other photomechanical processes, and possibly lithographs.

* * *

German Photographic Paper.

We learn that the shareholders of the Elberfeld Paper Factory Company, which is perhaps the most flourishing concern of its kind in Germany, have sanctioned the trebling of its original capital of £50,000. In 1903 the company paid an 18 per cent. dividend, while 1904 saw the shareholders in possession of one of 20 per cent., and they have naturally concluded that an increase of their capital would be a sound investment. It was stated at a recent meeting of shareholders that the money would be devoted

to purchasing the plant and materials requisite for the manufacture of photographic papers, from which large profits are expected. It is also significant that the factory at Steglitz (near Berlin), Germany's biggest photographic paper factory, also found itself unable to keep abreast of orders with its present plant, and had, therefore, decided to acquire fresh capital.

* * *

Geological Photographs. The British Association Committee for the collection of photographs of geological interest has issued its fifteenth annual report, and reports again a greater number of contributions than in any previous year. It is satisfactory to find that the interest shown by photographers in this application of their art is steadily growing, and that their services are generously appreciated by the geologists. Yorkshire is most largely represented, although Mr. Jerome Harrison sends 270 prints. The committee invite the honorary help of photographers in all parts of the kingdom, but particularly in the twenty-one counties on the "black" list, from which no work has yet been forthcoming. The report and a circular containing a number of notes on the technical side of geological photography is obtainable from the secretary, Professor W. W. Watts, Holmwood, Sutton Coldfield.

* * *

Dissolving Platinum. Some additions to the list of substances which attack metallic gold were mentioned in these columns a week or two ago. A paper on a somewhat similar subject now appears in the "Annales de Chemie et de Physique," in which the authors, Andre Brochet, and Joseph Petit, record the solvent action of potassium cyanide upon a large number of metals. A solution was used containing 250 grammes of potassium cyanide per litre. Among these experiments those on platinum are as interesting as any to photographers, since the authors find notable solution of the metal to take place in the cyanide solution. This, however, occurs only at a boiling temperature in the case of polished platinum foil, and no solution was observed to take place in the cold. Platinum black, however, might prove amenable to treatment with the cyanide, and we believe that the suggestion of cyanide as a reducer of platinum prints has been made.

* * *

The Hewitt Mercury Lamp. Modifications of the Cooper Hewitt lamp, as it has already been exhibited in this country, are stated to be in progress in America. According to a recent patent of Mr. Cooper Hewitt, the gas or vapour is effected by an intermittent flow of a current of practically the same value but of higher potential, the energy represented by the intervals between the impulses being intermittently withdrawn from action and reappearing in the form of an increased quantity in the rapid periodic currents. By the passage of current the voltage is lowered to a point where the usual resistance to starting re-forms, whereupon the checked current rebuilds or re-establishes itself, its electrical pressure rising until the breaking-down pressure is again attained, after which the same succession of actions is repeated. The result is stated to be an increased brilliancy on the part of the lamp due to this increased consumption of energy per unit of time, while the effect upon the eye becomes that of a light due to a continuous flow of current of greater quantity.

* * *

Nitro-Cellulose. A number of experiments which should assist in giving definiteness to formulæ in which nitro-celluloses are used for whatever purpose have recently been made by W. Will, and are described in

a recent report issued in Berlin. The author has sought to ascertain the influence of nitro-groups on the hygroscopic properties of cellulose, and in doing this he first takes as a standard of hygroscopicity the difference between the weights of the materials when dried in an ordinary oven at 40 deg. C. to a constant weight, and when exposed to an atmosphere fully charged with moisture at a temperature of 25 deg. C. for twenty-four hours. On examination of a large number of nitro-celluloses, varying in their contents of nitrogen from 8.20 to 13.21 per cent., he finds that the sum of the percentage of nitrogen of the hygroscopic moisture was constant in all cases with a value of about 14.6. This figure is unaffected by such operations as pulping, gelatinisation, treatment with dilute acids or alkalis or partial elimination of the nitrogen. The hygroscopic moisture depends solely on the percentage of nitrogen and shows no connection with the solubility of the nitro-cellulose in a mixture of ether and alcohol. The above generalisation, it must be understood, holds good only in reference to hygroscopic moisture as above defined. If the nitro-cellulose is dried over sulphuric acid or at different temperatures or for a longer time, the constant alters. Under the standard conditions, however, it would seem that Herr Will's figures should be of service in controlling the manufacture or supply of pyroxyline, since a fairly correct measure of the percentage of nitrogen can be made from the determination of hygroscopic moisture.

POINTS IN COPYRIGHT LAW.

In the "Answers" column this week two queries are replied to both of which are simple in themselves, yet each involves a point that may be of some interest, one in particular to those who make a feature of copying or enlarging for others. This query, in effect, is this: A postcard, marked "copyright" is brought to have an enlargement made from it. Are we infringing the copyright if we make it? The reply is certainly in the affirmative if there is a copyright in the picture, and that is not the property of the person who gives the order. Now, there is no necessity that a picture, the copyright of which has been registered, should be marked copyright, and, from the query, it may be fairly assumed that if the one in question had not been so marked it would have been dealt with as the customer desired—an enlargement made from it in due course. Had that been done, and the copyright in it had been registered, what would be the position of those who executed the order? This brings us to a point of considerable importance to those who copy and enlarge for the trade.

Suppose, for example, a picture is sent to them in the ordinary course of business to be reproduced in one form or another, and there is an existing copyright in it and they are not apprized of the fact, what is their position if action is taken for infringement? They are innocent agents in the matter, but, unfortunately for them, they will be liable to action as well as the one who commissioned them to do the work, and it will be no defence to plead that they were not aware that there was a copyright in the picture. We shall here quote from Mr. Macgillivray's excellent work, "The Law of Copyright" (page 179): "If a publisher procures a printer to strike off copies of an infringement, the printer is liable though he is entirely innocent. It was argued in *Baschet v. London Illustrated* that the printer was only liable if he printed for his own use, and if another caused or procured him to print, it was only the person causing or procuring who was liable. It was held that both the employer and employee were liable for the same offence." Here is another point in connection with

innocent agents that may be of interest to some. We again quote from the above work: "It will not avail a shop-keeper who sells pirated pictures as postcards and the like to plead that he was not aware that they were copyright." The above is sufficient to show the risks that those who, say, enlarge for the trade may at times run if they execute orders that are sent them if the works happen to be copyright ones. When a photographer sends one of his own original negatives it may fairly be assumed that he has the right to use it, but if the negative be a copy from another photograph, or picture, the case may be different. There may, possibly, be a copyright in that, and the sender, as well as those who execute the order, may both find themselves in trouble.

The second query of our correspondent also contains a point of some little interest. Does the printing of "copyright" upon a photograph ensure its being copyright? In all cases it does not, for we know that some few photographers mark their prints "copyright" although the copyright in them has not been registered by them, and that they were not legally entitled to the copyright if it had

been. We have seen portraits of sitters, taken in the ordinary course of business and paid for, marked "copyright." This is quite illegal. Copyright exists directly the picture is taken, but it is vested in the one who pays for it, and not in the photographer, unless it is duly assigned to him, and that must be done in writing. The printing of the word "copyright" with the name of the photographer on the mount implies that the copyright is his, and has been duly registered. The object, evidently, being to deter the sitters, or others acting for them, from reproducing copies of it, which they have a perfect right to do. It is illegal to attempt to prevent anyone from doing anything that they are legally entitled to do. The imprint copyright on an unregistered photograph, therefore, is obviously illegal. The marking of an article "patent" which has not been patented is illegal, and subjects the offender to substantial penalties—the maximum one being £20. Even if a patent has been applied for, and provisional protection granted, it is again illegal to mark the thing "patent," and very substantial penalties have been inflicted for so doing.

A NEW LIGHT FOR PHOTOGRAPHY.

IV.*

The Bastian Lamp.

On making inquiries some time ago as to the possibility of this lamp being adopted for photographic purposes, I was informed that it was only intended for general lighting, and that it was not contemplated to make it in a form suitable for photographic work. This was from the business agents for the lamp, but Mr. C. Orme Bastian, the inventor, on seeing my remarks in *THE BRITISH JOURNAL OF PHOTOGRAPHY* for February 3, wrote me pointing out that he could make his lamp as large and powerful as necessary for photographic work, and invited me to call at his works to see the various forms of the lamp he is now making. I am very pleased to have had the opportunity of investigating the Bastian lamp because it is really ingenious and has many commendable features. One naturally takes, moreover, a patriotic interest in an English invention, which in itself demonstrates that clever ideas do not all come from the other side of the "herring pond."

The Genesis of the Lamp.

Mr. Bastian has already made a reputation for himself through the introduction of a simple and cheap electric meter, and it was whilst experimenting with a mercury break switch in connection with his everyday work that he noticed the intensely luminous arc formed on breaking the mercury contact, this leading him to conceive the notion of utilising it for lighting purposes. Until that time he knew nothing about mercury-vapour lamps, and it was only upon inquiry that he found others had been on the same idea before him. However, he set to work on entirely original lines, and has evolved a lamp quite unlike any of the forms hitherto introduced or proposed.

Construction in Outline.

The lamp is arranged for suspending from the ceiling, and the top part is very much like the head of an arc lamp in appearance. With the cover on, it looks like a "bowler" hat and is not much larger. Underneath the rim, which is formed by a saucer-like enamelled reflector, the only mechanism visible is a couple of clips coming through from the head of the lamp to take the mercury tube. The latter is a zig-zag tube about $\frac{1}{4}$ in. thick and measuring over all about 5 in. Originally, I am informed, the tube is 10 in., and is crinkled down to

5 in. It is hung so that the undulations are in a horizontal plane, but at each end there are two short lengths of tube, very much like the end of a clinical thermometer, dropping down vertically. These are to contain the mercury when it has done its work of starting the arc. Platinum wires are sealed into the ends of the tube, and form the electrodes. The walls of the tube are tolerably thick, and the glass is one of the Jena varieties and withstands great heat. After the mercury is put in, the tube is connected to a vacuum pump and exhausted, whilst at the same time the mercury is boiled in the tube to drive off the occluded gases. No special pains are taken to get a high vacuum; indeed, Mr. Bastian says he rather prefers a little air in the tube as it lessens the impact of the mercury shaking about in the tube during transit. In some of the tubes he showed me minute air-bubbles were to be seen. The mercury is not specially purified, but no doubt the heating drives off most of any organic impurities. When the tube has been placed in its holder in the lamp head the action is that when the current is switched on it passes through a series coil, that is to say, a magnet coil traversed by the main current going to the lamp tube. The effect of this is to pull up the magnet core in the coil and tilt the lever on which are the two clips holding the lamp tube. The mercury which has been resting in the tube and forming a path for the current breaks away from one end and makes an arc, which is then maintained by the mercury vapour. The mercury is now resting in the reservoir at one end of the tube, and some is left in the reservoir at the other end. We thus have practically a mercury arc similar in a sense to the arc formed between two carbon points and maintained by carbon vapour. There is a difference, however, in the fact that the mercury, being in vacuo, is not consumed, as is the carbon. An intensely luminous greenish white light is the result.

Light for Electrical Expenditure.

On examination of the light spectroscopically we note that Mr. Bastian has been able to obtain an appreciable amount of the red, orange, and yellow rays into his light, and this may probably be the result of the high E.M.F. he prefers to maintain at the terminals. The lamp will work on any voltage from 100 to 300, and 200 to 240 is a preferable voltage. He cuts down the supply voltage by about 20 per cent. by means of resistance coils in the head of the lamp. These coils serve for

* The previous articles appeared on February 3, 10, and 17

regulating and steadying the lamp, which would otherwise make a "dead short" when the current was switched on. Two lamps can be placed in series on 500 volts. The current taken by the lamp is remarkably small, being only $\frac{1}{2}$ ampere. For this it gives an illuminating power of about 140 candles, measured by the ordinary standards, but its actinic power is much greater, photographically measured. I tested the light at a distance of 4 ft with Wynne's meter, and found that it took three minutes to darken to the quarter-tint. This may seem slow, but it must be remembered that the lamp tested was an ordinary one used for office lighting. By multiplying the tubes and making them longer it will be possible to proportionately increase the volume and strength of the light. A Hewitt tube, which is about 4 ft. long and $\frac{3}{8}$ in. diameter, darkens the actinometer paper to the same shade and at the same distance in thirty seconds, the current being $3\frac{1}{2}$ amperes in this case.

Life of the Tubes.

Mr. Bastian believes he will be able to arrange a number of tubes together in a suitable form for photographic work, switching on all at once. This will probably be better than having larger tubes. A great merit of the Bastian lamp is the comparative cheapness of the tubes, which can be renewed for 6s. each in their present form. Their life is guaranteed at 1,000 hours, but they may be good for 2,800 hours. If there is anything wrong with a tube it will show its faults within the first ten minutes. There is no danger of spoiling a tube by connecting up to the wrong poles, nor in case the lamp fails

to light up or goes out, as the mercury bridges the gap between the electrodes when the tube is in its "off" position. This is one of the patented features of the lamp, distinguishing it from all other types, as the invariable rule is to have the electrodes separated when the lamp is "off," so that the tube must be tilted to run the mercury down and make a contact.

Amalgams Instead of Pure Mercury in the Lamp.

Mr. Bastian showed me some interesting experimental lamps he has made with amalgams of various metals. One lamp of cadmium-mercury amalgam is very promising, giving a softer and somewhat more agreeable light than the plain mercury. A sodium-mercury amalgam was even better, giving a light more approaching that of the carbon filament. One ingenious way of modifying the greenness of the light was to put in parallel with the mercury tube another tube of larger diameter containing a special carbon filament just brought up to an orange glow. When a matt glass globe was placed over the lamp the effect was very pleasing.

Mr. Bastian has experimented with amalgams of almost all the metals, and a most interesting lamp is one containing rubidium, which was described as giving a "crushed-strawberry" colour. The colour appears, however, only intermittently and seems to be most pronounced when the voltage is raised. When at its best the light shows a brilliant red band in the spectrum.

In conclusion, I may say that the Bastian lamp in a form suitable for photographic work will not be on the market just yet, but when it is it will, I venture to predict, be exceedingly useful and highly popular.

WILLIAM GAMBLE.

THE CHEMICAL INWARDNESS OF THE CYANINE DYES.

THE following brief and popular abstract of Dr. Miethe's paper in the "Berichte" (No. 8, 1904, p. 2008) will explain not only the new view of the constitution of these dyes, but also the method by which Drs. Miethe and König prepare the recent numerous cyanine sensitizers of gelatino-bromide emulsion. Each dye, it will be noticed, has a chinoline and a chinaldine component, and by selecting these constituents, first modified by introduction of halogen, amidogen, and other groups, the later variants of ethyl red have been produced.

Even the scientific dilettante may be excused if he recoils in horror from a page of organo-chemical research in compounds of high complexity, and few classes of carbon compounds can "go one better" in point of intricate linking of their constituent atoms than the derivatives of quinoline, otherwise chinoline, which form the basis of the cyanine dyes. To begin with chinoline itself, its formula, C₈H₇N, tells us next to nothing. We must know its "constitution," and that is represented thus:—

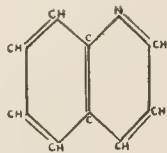


Fig. 1.—Quinoline or chinoline.

N. Now, chinoline is only the starting point on the way to cyanine and isocyanine. It combines with ethyl iodide, forming chinoline ethyl iodide:—

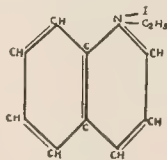


Fig. 2.—Chinoline ethyl iodide.

and this again undergoes conversion into

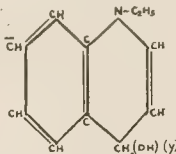


Fig. 3.

being derived from two molecules of benzene (which have joined at two points), in one of which the C H has been replaced by

The remaining member of these weird dramatis personæ in the chemical drama is chinaldine, or quinaldine. It is simply

chinoline with one of the hydrogen atoms taken away and replaced by the radical methyl. Its picture formula is:—

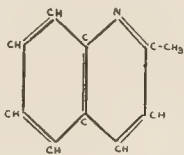


Fig. 4.—Chinaldine or quinaldine.

and, like chinoline, it forms the ethyl iodide and the O H compound which we have numbered rather than named. Now we can come to the real point raised by Dr. Miethe, which is not so hopelessly above the elementary chemical student as might be thought. How is ethyl red made? By the action of chinaldine ethyl iodide on our friend No. 3 of the chinoline family. The two molecules unite with the splitting off of water. In the chemical under-world many transactions and amalgamations are signalled by the emission of water, in fanciful contrast to the human sphere, where absorption of liquid is observed at similar functions. However, the ethyl red which is thus formed has been held to have the constitution:—

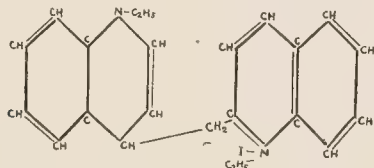


Fig. 5.—Ethyl red: Constitution as hitherto supposed.

We have taken the liberty of turning the chinaldine ethyl iodide molecule upside down, in order that its behaviour may be more clearly discerned; not that it is in the slightest affected thereby.

Here is the constitution of ethyl red, according to the orthodox view. Not according to Dr. Miethe's. He affirms it to be incorrect, and he extends his strictures to the cyanines as a class. And the reason? Well, ethyl red is a substance which combines with two atoms of iodine; and in formula No. 5 the only place for the two iodine atoms is in union with one or other of the nitrogen atoms. In either case the compound which results is a per-iodide. But ethyl red, treated

with iodine, does not behave like a periodide, and it would seem that some other constitution of the complex molecule must be found. Dr. Miethe argues, from certain experiments, that the chinoline ethyl iodide does not form our friend No. 3, but a somewhat similar body, γ chinolon.

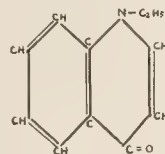


Fig. 6.— γ -chinolon.

In doing this, two atoms of hydrogen are given off, and they reduce the chinaldine ethyl iodide to the substance:—

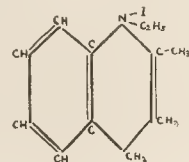


Fig. 7.—Reduction product of chinaldine ethyl iodide.

which latter combining with the γ -chinolon forms ethyl red, thus:—

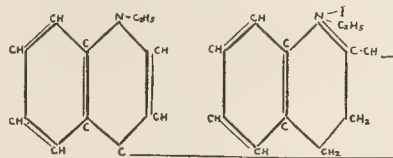


Fig. 8.—Ethyl red, according to Miethe.

This the reader will see is a different kind of linking from the previous one. Now it can take up two atoms of iodine without masquerading as a per-iodide, which it is not. For the iodine can enter the molecule at two separate points, attaching itself to the carbon atoms. The same argument applies to other cyanine dyes, and the theory of their formation is mollified if Dr. Miethe's theory prove to be correct.

THE WEEK IN HISTORY.

The Genesis of Carbon Printing.

If Sir J. W. Swan derives pleasure from the celebration of anniversaries or from dwelling in reminiscence on his share in photography, then he has my condolences on the date on which he applied for his "carbon" patent in the year 1864. His application was entered on February 29, so that carbon printing has only celebrated one quarter of the birthdays which might have been its, if its inventor had been a day earlier or later. Though the patent has the general title, "Improvements in Photography," it is concerned with a very particular department of the art. It claims protection for a method of developing prints in bichromated gelatine from the back. Swan was not the first to recognise the fact that if you want to develop a print in "chrome-gelatine," you must attack it at its soluble surface. In other words you must stick down the face of the exposed film to some support and develop the back. Further than this, Swan was not the first to devise some sort of a process by which

this could be done. Burnet, Blair, and Fargier had dealt with the problem, but none of them had arrived at a solution which could be applied commercially. This was accomplished by Sir J. W. Swan, as was also the re-transfer of a print to a final support, and the manufacture of a pigmented tissue or paper which could be supplied ready for use, or needing only to be rendered sensitive.

The First Transfer Processes.

As described in the patent specification, the transfer process was as follows:—The exposed print was floated on a solution of indiarubber in benzole of strength about six grains of rubber per ounce, and containing in some cases also a little gum-dammar or gutta-percha. A piece of paper was treated in like manner, both allowed to dry, and then pressed together, with the exposed surface of the print in contact with one side of the rubber-coated paper. This was done in practice by passing the two, in contact, through a rolling press. Rubber was the cement

used if the prints were to be transferred a second time in order to obtain a print non-reversed as regards right and left, but if the reversed print were left permanently on the first transfer paper, a cement of albumen or starch was recommended. "I then," continues the patentee, "submit the mounted tissue to the action of water sufficiently heated to cause the solution and removal of those portions of the coloured gelatinous matter of the tissue which have not been rendered insoluble by the action of light during exposure in the printing frame or camera. Where paper has been used as a part of the original tissue, this paper soon becomes detached by the action of the warm water, which then has free access to the under-stratum or back of the coloured gelatinous coating . . . I allow the water to act upon the prints during several hours, so as to dissolve out the decomposed bichromate as far as possible. I then remove them from the water and allow them to dry."

The Wet Collodion Process.

The first decade of photography was an anticipation of its position sixty years later. It was an epoch of negative-making on flexible materials. True the metal plate of the Daguerrotype was largely in evidence, but, for the rest, practice and progress concerned paper negatives. Nevertheless there was an under-current of reaction from paper processes, and efforts were made to prepare glass plates for the reception of the sensitive silver salts. Albumen was the material chiefly in favour for this purpose, and numerous processes in which it is used will be found scattered through the literature of this period. It was not, however, until 1851, that photography on glass plates entered the realm of practice. In that year, in the March number of "The Chemist," appears a paper "On the Use of Collodion in Photography," by Frederick Scott Archer. It describes in detail the method employed by him, and so I quote from it, though I do not imagine that modern workers will elect to prepare their silver iodide as Scott Archer did.

From Paper to Collodion.

I find from numerous trials (wrote Archer) that collodion, when well prepared, is admirably suited for photographic purposes as a substitute for paper. It presents a perfectly transparent and even surface when poured on to glass, being in some measure tough and elastic, and will, when damp, bear handling in several stages of the process. I will now give a

short outline of my method of using it. The first step in the process is to prepare the solution of collodion. There are several ways of doing this, but I will briefly allude to two.

Pour a quantity (say, one ounce) of collodion into a bottle containing dry iodide of silver. Shake them well together, and then allow the excess of iodide to settle. The collodion will, in this way, take up a certain quantity of the silver salt and become opaque; it should then be transferred to another bottle containing iodide of potassium, to be again well shaken up until the iodide of silver is entirely dissolved, and the solution becomes perfectly transparent.

Or this:—To a solution of iodide of potassium in spirits of wine, add a small quantity of iodide of silver to saturate the iodide of potassium; if, however, the latter salt be in excess, add a small quantity of this solution to the collodion, between five and ten grains (by measure) to one ounce of collodion will be sufficient, and if any of the iodide of silver should precipitate, a small quantity of iodide of potassium must be added to dissolve it.

Collodionising and Sensitising.

The next step is to spread this solution evenly on a plate of glass. This can be done by pouring a sufficient quantity on the glass to run in a body freely. When it has entirely covered the glass plate, let the super-abundance be drained off at one corner into the bottle again; this operation cannot be done too quickly, for the ether rapidly evaporating would prevent the collodion running evenly over the surface of the plate from becoming too thick.

The plate is now plunged into a bath of nitrate of silver, allowed to remain there for a few seconds, and then washed in water. (This washing is intended to remove all the ether from the surface of the collodion, which, if allowed to remain would cause an unevenness in the sensitiveness of the surface, producing streaks or spots.) Immediately after washing, it may be exposed to the action of light for the time necessary to obtain a picture. The picture can be developed either by gallic or pyrogallie acid . . . After the picture is developed, the film of collodion should be loosened from the edges of the glass plate with a flat glass rod. By doing this it will easily separate from the plate, and can be allowed to float freely in the water bath previous to being placed in the bath of hyposulphite of soda and then again thoroughly washed. HISTORICS.

SOME PROBLEMS IN SHUTTER DESIGN.

[A Paper read before the Royal Photographic Society.]

AN examination of the Patent Office records for the last twenty years shows that hardly any part of the apparatus used in photography has been more the subject of invention than has the exposure shutter. And yet the modern shutter, the product of all this study and invention, is admittedly very far from perfect. A writer in "Photography" has recently characterised shutters in general by saying:—

"You set them for 'time,' and they open for all eternity, or you set them for 'instantaneous' and make the speed a quarter of a second, and they don't open at all. If the shutter should by any chance succeed in both opening and shutting, the only speeds it will give correctly are those that are not marked on the indicator."

This is of course a caricature. It conveys truth by exaggeration.

There are, indeed, some excellent shutters on the market; and in particular I would mention the Goerz "Sector" shutter, the Bausch and Lomb "Volute," and a number of focal plane shutters.

But the truth regarding shutters is well expressed by Mr. Chap-

man Jones in his book on the "Science and Practice of Photography," where he says of focal plane shutters:—

"If an exposure of each part of the plate of from one-hundredth to the one-thousandth of a second is required, probably this type of shutter is the best; indeed, it is the only commercial shutter that will give the shortest exposure mentioned. But it should never be used when a shutter at the lens is possible, because it distorts the image of the moving object."

And of between-lens shutters he says:—

"Such shutters, if good, are very costly and very excellent; if cheap, they are not reliable. It is not usual in a cheap shutter of this kind, marked, to give exposures extending down to one-hundredth of a second, to find that the two or three most rapid exposures are practically the same, and none of them shorter than about the thirtieth of a second."

The Ideal Shutter.

For some time I have been studying to produce a commercial—that is, inexpensive—between-lens, diaphragmatic, automatic shutter,

which, however, is not yet quite ready for the market. It is only the problems of tool making, involved in its production in quantities on an interchangeable and economical basis, which delay its final production.

My main object, however, while describing this shutter, is rather to lay before you certain fundamental considerations regarding shutters and shutter action which so far as I know have not yet been publicly discussed.

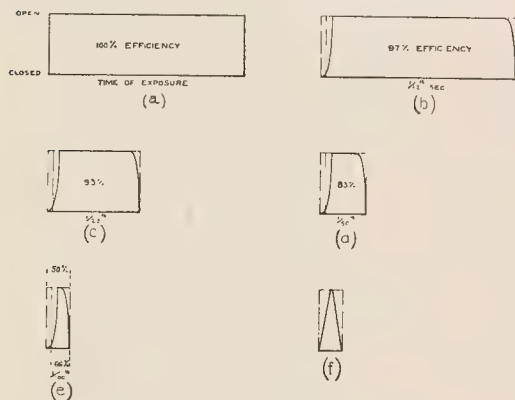
The ideal photographic shutter, among other things, occupies no time in opening, and none in closing, and remains fully open during the whole interval of exposure. This effect is attained by the focal plane shutter, which acts by uncovering successive portions of the plate which receive at once the full volume of light passed by the lens.

With such a shutter, the duration of the exposure is a direct measure of the exposure value, and the exposure may be graphically represented by the rectangular diagram *a*, Fig. 1, and stated as having an efficiency of 100 per cent.

Between-Lens Shutters and Efficiency.

From between-lens shutters, which act by uncovering successive portions of the lens, we cannot, however, get an efficiency of 100 per cent., because during the opening and closing of the shutter the volume of light received by the plate respectively increases and diminishes, and is at its maximum only while the shutter remains fully open. When this interval is long in comparison with the time occupied in opening and closing, the efficiency of a between-lens shutter may be high; and diagram *b* represents the action, during a total time of one-twelfth of a second, of a shutter which occupies only one-hundredth of a second in opening and closing. With such a shutter the total duration of exposure is, within 3 per cent., and therefore for all practical purposes, a measure of exposure value.

Diagrams *c* and *d* show the corresponding efficiencies of exposures lasting for one-twenty-fifth and one-fiftieth of a second respectively,



85 SHUTTER EFFICIENCY DIAGRAMS.

Fig. 1.

Diagram *e* shows the action of the shutter when it commences to close immediately it becomes fully open. If this shutter moved at a fixed velocity in opening and closing, and if the light passed by the lens increased directly in proportion to the shutter movement, then the triangle *f* would represent its action, and its efficiency would be only 50 per cent.

What is the "Speed" of a Shutter?

But the shutter blades do not move with a fixed but with an accelerating velocity; and a diaphragmatic shutter admits light, not in proportion to its movement but to the square of its movement. Thus we have an acceleration of motion coupled with an acceleration of

light effect which together produce a diagram of the general form of *e*. In such a diagram, the length of the base, the duration of exposure, is very far from representing the exposure value. It does not even adequately express the duration of effective exposure, for we may, as the diagram shows, cut off the left-hand corner and thus reduce the duration of exposure by one-fourth, without taking away more than about one-hundredth part of the area of the diagram which represents the exposure value. This part of the duration of exposure being obviously, then, a negligible quantity, it is clear that the common practice of measuring only the total duration of exposures when testing the value of shutter "speeds" is of even less value than is commonly supposed.

The every-day practical photographer who aims to get accurately exposed negatives, and who relies for this purpose upon the "speeds" marked on his shutter, needs that those "speeds" shall be, not the total durations of exposure, but the net effective exposures. On the other hand, the comparatively rare case of the photographer who calculates the limit of exposure duration necessary to avoid blurring of a moving object is the only one in which the measurement of exposure duration is of vital importance. I therefore think it most unreasonable that the accuracy of speed marking upon shutters should be criticised only from the standpoint of exposure duration, as is done notoriously at the present time. I would make the effective exposures the "speeds" marked upon a shutter, these being what are required for ninety-nine purposes out of every hundred; and I would give, if necessary, for the odd hundredth case a statement of the actual exposure durations.

I have used the term "speed" of a shutter so far in the ordinary sense, which, however, is wrong and should be avoided. Speed indicates velocity; but with such shutters as we are considering the velocity of motion is constant for all exposures. What varies is only the interval of time during which the shutter remains open. Time, then, and not speed is the word which carries the meaning we wish to convey.

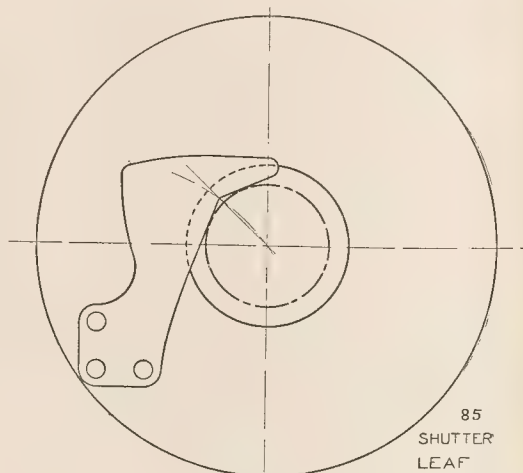


Fig. 2.

"Hand" and "Automatic" Exposures.

The improper use of the word "speed" has arisen from its legitimate use at the time when, in ignorance of the principles already discussed, we varied the times of exposure by varying the speed of the shutter's motion. From the same early days we inherit the terms "time" and "instantaneous," which are now misapplied to dis-

tinguish between exposures determined by hand and those which are governed by pneumatic or other action automatically. Hand and automatic exposures are more suitable terms.

A Modified Iris Diaphragm.

The same process of development has left with us, in the ordinary diaphragmatic shutter, some of the defects of the original



Fig. 5.

Iris diaphragm upon which it was based. Messrs. Dallmeyer and Beauchamp, in 1838, were, I believe, the first to apply the idea of

the Iris diaphragm in the construction of shutters, and Messrs. Bausch and Lomb, Goerz, and others have since improved upon it.

But not much has been done in the direction, in which for a shutter most improvement is needed, of reducing the weight of the moving mass.

High velocity of the diaphragm in opening and closing is necessary to secure short exposures or high efficiencies; and this makes the reduction of mass a vital matter, especially with an automatic shutter where the store of energy is limited; for the energy required is proportionate to the mass moved and to the square of its mean velocity.

The original Iris diaphragm, and the shutters which have been evolved from it, consisted of a number of pivoted segmental leaves each forming one side of the polygonal opening, and all moved simultaneously by the rotation of an annular radially-slotted plate. Fig. 2 shows, however, that it is possible to make such segmental leaf contribute two sides to the polygonal opening, thus reducing the number of the leaves by half, and Fig. 3 is a shutter diaphragm which will open to .85 of diameter, formed by four such leaves having a total weight of only 13 grains, connected not by the usual heavy slotted plate, but by four crossed links weighing only 17 grains. The total effective mass is in this way reduced to a fraction of what is usual, the forces are balanced, and high velocity without shock is made possible. A simple reciprocating motion imparted to one of the link pivots will actuate this diaphragm.

WILLIAM TAYLOR.

[The remaining portion of Mr. Taylor's paper will appear next week.—Eds. B. J.]

TIME DEVELOPMENT.

RECENTLY, before the Society of Arts, a paper was read by Mr. R. Child Bayley entitled "Time Development in Photography and Mechanical Methods of Carrying It Out." The chair was occupied by Mr. George Davison. The lecturer introduced the subject by comparing the conditions of development of wet and dry plates. Wet plate development, essentially a process of silver intensification, had to be controlled by inspection, and it was implied that the methods of developing gelatine plates by examination were perpetuated by the present-day photographer out of his experience in wet plate, or had been handed down to him by the older workers. In the early use of bromide as a corrective of over-exposure no attention was paid to erroneous tone values, and the lecturer dated the inclusion of correct gradation in the consideration of such methods from Mr. W. E. Debenham's suggestion to take as the basis of the Warnerke plate speed, not the faintest perceptible image recorded by the instrument, but only those parts in which there was a printable image. The basis of time development, the lecturer proceeded, was supplied by the researches of Hurter and Driffield on sensitometry, and the effects of developers on gradation. The alterations in the developer as they are generally made by photographers did not affect the density ratios of the negative. It was possible to alter the curve of densities enormously, but not by alterations in the developer of practical importance. "Given a developer which does not fog the plate, which is free from solvents of the silver salt, such as ammonia, the only way in which the straight part of the curve can be modified is in the angle, which, when produced, it makes with the base line." Arrived at this point in the review of development methods with which the lecturer prefaced the treatment of his subject, we may quote the paper in extenso from the "Journal of the Society of Arts":—"Although, generally speaking, this remark

holds good of alterations of the active developing agent, as well as of alterations in the strength and composition of a solution in which the active agent is always the same, there are certain developers, the use of which shifts the point of intersection very considerably. The result is that with these developers the plate is faster or slower than it is with others, a fact pointed out by Hurter and Driffield in their very first paper. Such alterations, however, are not used as methods of control, although, where the shortest possible exposures are demanded, photographers may use such a developer as will make their plates give a faster reading than the re-agent which they generally employ.

Development and Incorrect Exposure.

"The variation which we get by alterations in the composition of the developer, such as used to be recommended for the cure of incorrect exposure, can be effected by alteration in the time of development, in the temperature of the developer, and in the composition of the developer, or in two, or in all three. As it is always desirable, where control is to be exercised, that the control should be direct and simple, it follows that, since all the useful control we can effect can be got with variation in the time only, there is no need to vary the other factors, and one uniform developer, applied at a known temperature, will do all that we can require of it, provided the exposures have been correct.

"Here, then, we have the basis of time development. The development of the plate is effected by a standard developer at a standard temperature, any control required being obtained by altering the time of development and that only.

The Practical Aim in Negative Making.

"Theoretically, we can alter the time of development in each case to obtain negatives to suit various printing processes, or to make

different classes of subjects suitable to the same printing process, and to some extent this is done. Thus we hear of negatives being made 'strong' because they are wanted for carbon work, or 'kept thin' for enlarging. At the same time, it often happens that the result aimed at in this way is not attained, and many a photographer whose work is of a varied character, uses two or three different printing processes, so that he may be able to print a negative by the method best suited to it, whether that method was what he aimed at in development or not. The utilisation of the entire range of a printing paper is comparatively unimportant, and a negative with a development factor of 1.2, expressed in the Hurter and Driffield manner, if correctly exposed, will give a result by most printing processes (except perhaps by straightforward enlarging on bromide paper), to which the most captious would not take exception.

It is interesting to note, in this connection, that using the developing powders supplied by Kodak, Limited, with Kodak film in the Kodak machine, to which I shall refer shortly, exactly as specified, gives us a development factor of 1.1 to 1.3.

A Working Average.

"This question of the development factor is an important one, as it is that on which there is the greatest degree of misconception. It has been urged against the proposal to develop for a fixed time that a development factor that suits a portrait does not suit a landscape or an interior. Strictly speaking, this is perfectly true. In the same way, to get the best possible results, quantitative experiments have shown us that we require a higher development factor for negatives that are to be printed in carbon than for those that are to be printed in platinum, for platinum than for ordinary silver paper, and so on. But actually, and in every-day practice, the professional portrait photographer is the only worker who aims definitely at a result suitable for one particular printing process and that only. The average photographer, amateur and professional, aims rather at an average result, he wants a negative which will suit him for any process he may fancy. Nay, more, he expects the same negative to give him a good contact print, and a good enlargement. Yet on the same printing paper, the former requires a very much higher factor than the latter, two-thirds as much again in point of fact.

"To do this he must aim at an average result, and to tell the truth, a plate that has been correctly exposed and developed for such an average result is so much better than nine-tenths of the haphazard results of incorrect exposure and 'controlled' development, that those whose photography has merely for its aim excellent prints, and is not carried out with a nobler polemical purpose, are more than satisfied with it.

"Such an average result, it will be found, is to be obtained by timing the development so that the factor is approximately 1.1, which it will be seen is not very far from the figures given by the Kodak method.

"If we have a correctly-exposed plate, and we develop it invariably in a standard developer at a standard temperature for a length of time to suit that particular plate, we shall find that it will give us a negative, not in every case as theoretically perfect as it could be made with more elaborate precautions, but a great deal more perfect than it could be made by any empirical procedure guided by mere ocular examination; and that not once, but every time, with a minimum of trouble and a complete immunity from light fog.

Under Exposure.

"So far, I have been speaking only of correctly-exposed plates. Let us now consider the question of incorrect exposures. The development applied to a correct exposure should be that best calculated to suit an under-exposed plate. For manifestly, if with much shorter exposure we could get the theoretically perfect negative by any modification of the developer, that would be the course to adopt in

practice every time. No one wilfully throws away rapidity in an emulsion. And, as a matter of fact, it is so. An under-exposed plate developed by time as if it were correctly exposed, gives us the best possible result we can hope to obtain. Clear, but lacking in vigour, if the under-exposure is not too great, the plate can be intensified up till it attains sufficient contrast to print. It will never be a 'perfect negative,' either theoretically or practically; and I am not aware that any method of making it so has ever been devised.

Over Exposure.

"The question of over-exposure is one which requires more consideration, because there are many photographers who believe that methods they employ enable them to determine during development whether a plate has been over-exposed or not, and if so, to remedy it so that in the final result the change brought about by the excessive exposure has been entirely counteracted during development, and the plate shall in no way differ from one correctly exposed and normally developed. The belief takes its origin in the old practice to which I have already referred, of judging a negative, not by the truthfulness of the whole of the gradations upon it, but by the visual appearance of its highest and lowest tones, by its clearness and contrast, in short. The most obvious difference between an over-exposed and a correctly exposed plate, when both had been developed until the highest lights were equally dense, was that the former had much more deposit in the shadows, and, in consequence, much less contrast all through. A method of development which gave the plate contrast and prevented much of the blocking-up in the shadows, was supposed to cure the over-exposure.

A Sense of Incorrect Tone Values.

"The moment methods of measurement more accurate than ocular examination were applied to such negatives, it was seen that, so far from the over-exposure having been cured, its effects were as marked in such negatives as if they had been developed in the ordinary way. The density of the highest light and of the deepest shadow had been made to correspond, perhaps, with those on the plate that was correctly exposed, but the intermediate tones were as untruthfully rendered in the abnormally as in the normally developed plate. It is a curious fact that, while this method of 'curing' over-exposure has satisfied that large body of photographers whose tastes are not sufficiently scientific to lead them to examine the subject for themselves, and whose artistic sense is not sufficiently keen to show them the essential falseness of the results so attained, I have known several workers, without the slightest claim to any knowledge of the principles of development, whose sense of tone value was sufficiently acute for them to detect at once that there was something, wrong in these cases of fancied cure. They could not put their fingers on the cause, as we can now, but the symptoms to their trained observation were patent.

The Remedy for Over-exposure.

"All the investigations of the last fourteen years go to show that over-exposure is not in any sense curable by methods at present available. Prevention, says the proverb, is better than cure; and some of those who think it their duty to defend practices long since shown to be unsound, only do so by revealing their incapacity to grasp and employ preventive measures. If over-exposure cannot be remedied, the question still remains, what is the best way of dealing with it?

"To answer that question, let me put another. If modification of the developer will not bring about the change we require, why should we modify it? The simplest and most efficient plan to secure results from over-exposed negatives is to develop them for the same length of time and then either to print them as they are, which presents no difficulty with development papers, or to reduce them with such a solution as the ferricyanide and hypo reducer until they

are sufficiently thin for the purpose required. But let me add once more that neither this nor any other device 'cures' the over-exposure. It only makes the best of a bad job.

The Importance of Correct Exposure.

"It will be seen, therefore, that the result of the investigations of exposure and development which so far have been carried out, points to two conclusions:—

- "1. The supreme importance of correct exposure.
- "2. The powerlessness of modification of the developer to remedy errors of exposure.

"I hope that I have made clear that from these two conclusions we can draw a third, namely, that if all our negatives receive identical development, identical, that is, as regards composition of developer, temperature of developer, and time of development—provided that treatment is the best for a properly exposed plate—it is at least as good for all as any series of modification can be.

"So far, however, we have only reached the conclusion that it is as good as other methods. We will now see whether such a method brings with it any other advantages. Manifestly, if we are going to treat all our exposures alike, the need for some method by which we can watch the development of the plate vanishes. We neither have to determine from its appearance whether to modify the developer or not, nor when development is complete.

"This brings two advantages in its train.

"The risk of light fog, or rather the degree of light fog is reduced, because every plate developed in the dark-room, as we know it, is fogged more or less; generally, I am afraid, more rather than less. No light worthy of the name is 'safe' for prolonged development; and although I am aware that such an objection may seem hyper-critical, and my audience may know that in their own practice those of them who develop in the dark-room get negatives to all intents and purposes free from fog, the enormous majority of the negatives which I see, and I see many hundreds in the course of a year, are fogged, and badly fogged, either from the dark-room illumination, or from an unsuitably compounded developer, or from both.

When to Stop Development.

"Quite apart from the risk of fog, the determination of the point at which to take the plate out of the developer is a difficulty even with the most experienced photographer, if his only means of ascertaining it is by looking through the negative at the light. The apparent contrast obtained is not necessarily the actual contrast, since it is affected very largely indeed by the thickness of the coating of emulsion on the plate, and to a small extent by the brightness of the light by which it is examined. This latter may be made constant, but the former cannot; and although modern machine-coated plates are remarkably uniform as far as any one batch is concerned, I have found considerable differences in the thickness of the coating on plates of the same brand but made presumably some days or weeks apart. When the conclusion of development is settled by the clock these sources of error disappear entirely, and hundreds or thousands of plates can be developed with a degree of uniformity which is to be attained in no other way.

Arguments for Time-Development.

"It is for these reasons that a good many years ago now I became a convert to the method of working known as time development. Its advantages may be summarised thus:—

- "1. It gives us perfectly uniform negatives when exposure has been correct, whether we develop daily, or only have a few to deal with every now and again.
- "2. It brings everything out that can be got out of an under-exposed plate, and removes the temptation to over-develop in the hope that more details may be obtained.
- "3. It gives us as good a result as can be got with over-exposed

plates, and prevents any risk of insufficient development which may be caused by the difficulty of judging how far development has gone when the plate is very opaque.

"4. It reduces light fog to a minimum, and in the case of roll films does away with it entirely.

"5. It overcomes entirely the difficulty of determining when development is complete.

"6. It can accommodate itself to the nature of the subject or to the printing process to be used, or may be settled once for all to give a good 'all-round' negative."

[The remainder of the paper, in which are considered the mechanical methods of time development, will appear next week.—Eds., B.J.]

Photo-Mechanical Notes.

Process Work in India.

In the lecture given at the Bolt Court School on 9th inst., a report of which appeared last week, Major-General Waterhouse referred to the climatic changes which trouble the worker in photographic processes. "In Calcutta," he said, "there were practically three seasons, with two indefinite intervals between them, viz., the cold season, from about the middle of November or beginning of December to the middle of February, the hot season, from March 21 to the middle of June, and the rainy, from the middle of June to the end of September. Therefore about the middle of February solutions had to be changed to hot weather formulæ, and in the middle of November to cold weather. In the same way after the middle of February the softer kinds of gelatine dry plates could not be used without ice or special treatment when developing.

"In regard to the effect of the Indian climate on health the advantage of Calcutta over Bombay and Madras was the cold weather from November to February, which gave just enough change to set one up. There were those, of course, who preferred the climate of Bombay and Madras to Calcutta. Another advantage of Calcutta is that the nights are nearly always sensibly cooler than the days, and this is a great point, especially as compared with the towns of Upper India, where there is no remission of heat night and day, and no feeling of relief. There are many openings now for young men in India, and none need be deterred by climate if in good health and steady livers."

Half Tones from Clay Models.

Now that there is such a demand for half-tones from clay models the good operator should look into the matter and find out the best way to work them in his shop. The usual method is to have an ordinary photograph made and work from that. This is all right to a certain point; but you can't always get a good photograph made. The average gallery man knows little about mechanical work and it takes time to explain it to him. But the best, and also the quickest way is to make your half-tone negatives direct from the clay. The matter only requires a little study and even if you do have to make three or four or even five trials it is not so expensive and is much quicker than sending the job out to the nearest gallery. And then you have in your two arc-lamps a sharper and more controllable method of illumination than any gallery. By leaving one lamp in its usual place and moving the other away you can get any depth of shadow desired. As a usual thing there is so much reduction from the original that the depth of the model is of no importance. Should this be apparent it is an easy matter to work with a set of smaller stops, less separation, and, if necessary, put out one of the lamps during part of the exposure in order to get contrast.

Making Stops of Cardboard.

Writing to "Camera Craft," an operator complains of difficulty in a run of work which included photographs with a great deal of light, flat sky. The skies "would not come smooth and even." Everything about his shop appeared all right. Negatives bright, clean, and sharp, and the print on the copper "looked" all right. But when it was etched it was all wrong. Apparently the difficulty was in the etching, but eventually it turned out to be in the negative. One of his stops was so carelessly cut that its deficiency from the rectangle was apparent to the eye. Comparison with the other stops showed a perfect tangle of lines. When this was known the defect was apparent in all the negatives. At certain intervals the crossing of the lines was irregular and the corners quite rounded. Of course the printing and etching only intensified this defect. On jobs with broken tints such a defect would not be noticed, but it goes to show just how important a perfect stop is. Make your stops with a compass and T square. A negative can be made with any kind of a stop provided it is accurate.

A Commercial Adjustable Diaphragm.

The difficulty of the operator quoted in the above paragraph would not have occurred had a diaphragm of the form recently put on the market by Messrs. Penrose and Co. been at hand. This stop, which is the design of Mr. W. J. Smith, a student in the Bolt Court School and a contributor to these "Photo-Mechanical Notes," possesses two adjustments. As seen in the figure, there are two sliding leaves,



which enable a square opening of any size to be obtained; extra leaves being provided for an elliptical stop, or a square one with two corners extended. The second adjustment provides for the angling of the opening to correspond with the screen ruling, according to the requirements of three-colour work. The one instrument thus accomplishes all that need be done with a diaphragm without disturbing any of the adjustments of the camera or lens. The diaphragm, which is made by Messrs. Taylor, Taylor, and Hobson, is stocked by Messrs. Penrose for the various sizes of "Cooke" process lenses. The standard system of marking corresponds with the graduation of the diaphragms already used by Messrs. Penrose, but the stop can be marked in inches or millimetres to suit individual requirements. The diaphragm should certainly prove of great advantage to process-workers.

WALLINGTON Camera Club.—The first annual exhibition of this club will be held at the Christ Church Lecture Hall, Wallington, on April 4, 5, and 6. Four open classes are announced, and the judges will be the Rev. F. C. Lambert and W. H. Rogers.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between February 6 and February 11:—

MOUNTS.—No. 2,362. "Improvements in photograph and card mounts." W. P. Thompson, 6, Lord Street, Liverpool.

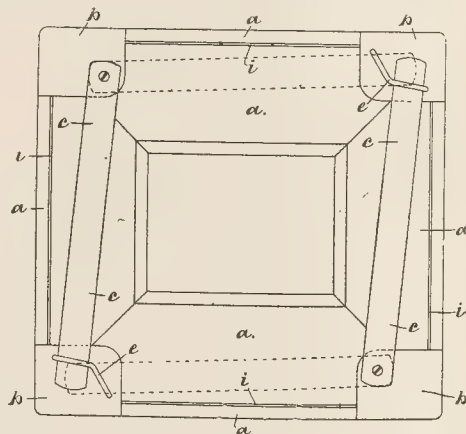
FRAME BRACKET.—No. 2,855. Folding frame to attach to ordinary gas brackets for holding photographic printing frames." W. Horseman, 25, Florence Road, Stroud Green, London.

SHUTTERS.—No. 2,874. "Improvements in or relating to photographic shutters." A. J. Boulton, 111, Hatton Garden, London, for Alfred Lippert, Germany.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PRINTING FRAMES.—No. 6,483, 1904. A frame for printing from negative on to paper lengthwise, crosswise, etc. The frame has all round it a broad margin, *a*, that is to say, it is relatively wide; and has at each corner a raised portion or block, *b*, forming two crossways across the centre of the frame, in which the removable back, which supports the paper, lies. On two of the opposite angles or raised portions, the spring holding bars, *c*, are hinged, and at the other angles the fastening staples, *e*, are disposed angularly, to receive the end of the holding spring bars, and they are so arranged that each spring bar will move



under each of the staples or holders at will, and therefore, whether the back be laid across in one direction or in the other, the spring bars can be moved across one way or the other to hold and press upon the back. The back has on it a projecting metal ledge, flange, or other equivalent projections, which is or are adapted to fit in corresponding grooves in the frame edge, and when in place this holds the back firmly in position—that is to say, the back cannot move when the hinged flap portion is raised to examine the print, or at any time. W. L. Parkinson, 3a, Imperial Chambers, Dale Street, Liverpool.

FLASHLIGHT.—No. 27,466. Protection is claimed for a flashlight cartridge, the case of which is aluminium, or copper-coated aluminium, from .1 to .3 millimetres in thickness, which metal, in burning, produces a light of great intensity. Hans Lüttke, Paul Arndt, and Ernst Leopold, 8, Tollstrasse, Wandsbek, Germany.

CAMERAS.—No. 5,204, 1904. A camera for ordinary and colour-photography (improved from Patent No. 26,873, 1902), in which the colour filters are carried by a pivoted segment, formed in two parts, which can be fixed in position for photographing in colours and separated for ordinary work. The change of filters when photographing in colours is affected at the same time and by the same pressure on the pneumatic ball as the change mechanism of the plates. Jean Frachebourg, 5, Rue Grange Batelière, Paris.

HAND CAMERAS.—No. 5,327, 1904. A reflector camera in which the mirror is pulled down into the reflecting position by a slotted bar instead of by cords. It is raised for exposure by a lever drawn down by a spring at one end, the other bearing up against the mirror. In front of the mirror a shutter or board or wing of light material is mounted. On a support, preferably on a board in front of the mirror, is mounted a shutter or wing which is made of light material. An aperture is cut in the board, through which the light from the lens passes. The shutter is placed so that when the mirror is at the top of the shutter it covers the aperture. When the mirror is being set, and when it has got into such a position that it will intercept the lens rays, it is caused to remove the shutter from the aperture. When the mirror is released to give the exposure, it ascends past the open aperture. It then comes in contact with the shutter and replaces it in its first position, covering the aperture and ending the exposure. S. D. McKellen, 14, Market Place, Manchester.

New Books.

"Die Theorie der Optischen Instrumenten." Band I. Die Bilderzeugung in Optischen Instrumenten vom Standpunkte der geometrischen Optik. Edited by M. von Rohr. Published by Julius Springer, Berlin.

This work, which is the first volume of a series dealing with the theory of optical instruments, is practically a revision of Dr. Czapski's "Theorie der Optischen Instrumente nach Abbe," published in 1893, and, as we learn from the preface, written by Dr. Czapski, he found it impossible to personally revise this, and thus sought the collaboration of the scientific staff of the Carl Zeiss Optical Factory, P. Culman, A. König, F. Löwe, H. Siedentopf, and E. Wandersleb; and Dr. von Rohr has edited this new book. One of the main advantages that has accrued through this collaboration is, of course, that individual subjects are treated by those experts who are particularly engaged in the practical part thereof, and thus, without overlapping, one avoids that one-sided view which must necessarily result, when one man deals with every subject.

The book is divided into ten chapters, which naturally fall into three groups, the first of which comprises Chapter I., "Die Berechtigung einer Geometrischen Optik" (the foundation of geometrical optics), by Dr. H. Siedentopf; Chapter III., "Die Geometrische Theorie der Optischen Abbildung nach E. Abbe" (the geometrical theory of optical image formation, according to E. Abbe), by Dr. E. Wandersleb; Chapter IV., "Die Realisierung der Optischen Abbildung" (the realisation of the optical image formation), by Dr. P. Culman; and Chapter VIII., "Die Prismen und Prismensysteme" (prisms and systems of prisms), by Dr. F. Löwe. These practically deal with the theories of reflection and refraction.

The second group consists of Chapters V., VI., and IX., which are "Die Theorie der Sphärischen Aberrationen" (the theory of spherical aberrations), "Die Theorie der Chromatischen Aberrationen" (the theory of chromatic aberrations), and "Die Strahlenbegrenzung in

Optischen Systemen" (the limitation of the rays in optical systems), by Drs. A. H. König and von Rohr respectively. The fifth chapter gives us, for the first time, a complete working of Abbe's invariant method of treating all the ten aberrations according to Seidel, and this for the first time enables one to see how much further Abbe's method goes than Seidel's. The titles of Chapters VI. and IX. speak for themselves. Chapter II., "Die Durchrechnungsformeln" (the formulæ of calculation), by Drs. König and von Rohr, and Chapter VII., "Berechnung Optischer Systeme auf Grund der Theorie der Aberrationen" (the calculation of optical systems based on the theory of the aberrations), by Dr. König, will be of considerable value to the practical optician, as therein are worked out examples of the calculations of a corrected system and the curvature of the glasses and the distances of separation of the lenses, and the diaphragm positions are fully discussed. Chapter X. completes this group, and is devoted by Dr. von Rohr to "Die Strahlenvermittlung durch Optische Systeme," which deals with the photometric relations of an optical system.

The value of this book is considerably enhanced by the extremely complete subject index and register of authors, and their works which are referred to or quoted in the text.

"The Inventor's Guide." By Jas. Roberts, M.A., LL.B. Published by John Murray, 50A, Albemarle Street, W. Price 2s. 6d.

"The Inventor's Adviser and Manufacturers' Handbook to Patents, Designs, and Trade Marks." By Reginald Haddan. Published by Harrison and Sons, 45, Pall Mall, W. Price 5s.

The first of these books is a simple, succinct explanation of the law and rules governing the Grant of Patents, and is founded on the more complete and comprehensive work by the same author, entitled "The Grant and Validity of British Patents for Inventions," and has been written with special regard to the new practices involved by the 1902 Act, which came into force on January 1 of this year. The author first defines what is a patent, differentiates briefly between valid and invalid patents and patentable inventions, and then enlarges on these terms; so that, after a careful perusal, one has a very clear sketch of what to do and what not to do, and we have no hesitation in saying that a careful study of the first three chapters alone would save would-be patentees considerable trouble and, at times, expense. The instructions for filling up and filing the necessary papers are exceptionally clear; as is also the effect of the new Act, and the instructions as to opposing patents, how to treat infringements, etc. The work is completed by a reprint of the 1902 Act, the new rules, and a copious index.

Mr. Haddan's book is a much more comprehensive work than the above, and deals with trade-marks and designs as well as patents, but it also has been brought up to date and partly rewritten, particularly with regard to the new procedure. Not the least valuable part of the book is the copious references to contested cases, and the very complete but succinct summary of the facts as to the granting of foreign and colonial patents. In a useful appendix too are the forms of applications for patents in the various languages. The trade-mark and designs sections are also complete and clear, and by the aid of the index, which is very elaborate, even the most ignorant would be able to find out any information that he may desire.

THE next meeting of the R.P.S. will be on Tuesday, February 28. Messrs. W. F. Ferguson, K.C., M.A., F.R.P.S., and B. F. Howard, A.M.I.E.E., F.R.P.S., will lecture on "Control of the Development Factor at Various Temperatures."

New Materials.

Collodion Lantern Emulsion. Sold by Penrose and Co., 109, Faringdon Road, London, E.C.

A brand of collodion emulsion is now being supplied by Messrs. Penrose specially for the making of lantern slides, transparencies, and ferrotypes. The emulsion can be exposed either wet or dry, and develops quickly. Glass plates should be cleaned in acid, slightly polished, and, after receiving a thin substratum, coated with the emulsion in the usual way. They dry very quickly, and the amateur worker will find no difficulty in preparing a number if he sets aside a good-sized box in which to shield them from dust during drying. The collodion works a good deal softer than wet collodion, and yields slides of the necessary softness and richness in the shadows. Nevertheless, by cleaning off all fog from the ground of the slide from a line drawing, the lines can be intensified to any required vigour. The usual toning agents can be applied to the slides for the production of warm tones. The price of the Penrose emulsion is 25s. per quart, and not less than a pint bottle, 13s. 6d., is supplied. Lower prices can be quoted on larger quantities.

CATALOGUES AND TRADE NOTICES.

The Thornton-Pickard Co. announce that their 1905 catalogue is now ready for distribution, and will be sent post free to all applicants. It contains particulars of the Company's new introductions, notable among which are:—Royal Time and Inst. Shutter: a new patented shutter of the roller-blind type, with all working parts inside the shutter box. Two-shutter Camera: a special pattern of the half-plate "Imperial Triple Extension" set fitted with time and instantaneous shutter in front and focal plane shutter built in the camera body; complete outfit with two shutters. Special Ruby Camera: a camera set of the well-known "Ruby" pattern at a popular price; sizes, quarter-plate to 10 by 8. Crown Outfits: an outfit of moderate price, combining many high-class features, suitable for stereoscopic and general work; half-plate and whole-plate sizes; double and triple extension models. Rotator Hand Camera: a box-form magazine hand camera to carry twelve plates, fitted with self-capping time and instantaneous roller-blind shutter, giving exposures from "time" up to one-ninetieth of a second.

Messrs. W. Watson and Sons, of High Holborn, have opened a branch establishment at No. 2, Easy Row, Birmingham, under the management of Mr. Glover, who has been with them for the last eight years. A full stock of their photographic apparatus and specialties in microscopes, X-ray, and high-frequency apparatus, etc. will be kept in the Midland capital.

Messrs. T. Naylor and Sons, makers of photographic apparatus, have removed from Greek Street to 13, Hanbury Works, Hanbury Street, Tottenham Court Road, W.C.

The monthly Elge list of cinematograph films reaches us from Messrs. Gaumont and Co., Cecil Court, London, W.C., and contains details of some of the trick sensation subjects now so popular.

Messrs. J. Winton Mason, 21, St. Peter's Street, Ipswich, send us a circular of prices at which they offer glazed P.O.P. postcards in large or small quantities at favourable prices.

QUICK WORK.—Messrs. P. Lankester and Co., of Tunbridge Wells, send us two postcards taken by flashlight at a Tariff Reform meeting. The exposures were made at 8.10 p.m., and the prints were delivered to the chairman at 9.30 by express letter post.

FORTHCOMING EXHIBITIONS.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club, Largerplatz No. 3, Vienna III., 3.

February 21-March 7.—Glasgow Southern Photographic Association. Hon. Secretary, W. A. Frame, 23, Bank Street, Hillhead, Glasgow.

February 24-March 4.—Northampton Photographic Society. Entries close February 14; for pictures, February 17. Hon. Secretary, E. J. Felce, 83, Adam's Avenue, Northampton.

February 25-March 4.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreave Street, Birmingham.

February 25-March 11.—Edinburgh Photographic Society. Entries close February 11; for pictures, February 15. Hon. Secretary, J. S. McCulloch, 3a, North Saint David Street, Edinburgh.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 7-8.—G.E.R. Mechanics' Institution, Stratford, E. Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.

March 14-17.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 16-30.—International Photographic Exhibition, Earl's Court. The Organising Managers, 119-125, Finsbury Pavement, London, E.C.

March 20-25.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

March 30-April 3.—Chiswick Camera Club. H. Gentry, 39, Fairfax Road, Chiswick.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 4-6.—Wallington Camera Club. Hon. Secretary, J. W. Corbett, Nithsdale, Onslow Gardens, Wallington.

April 5-8.—Nottingham Camera Club. Hon. Secretary, S. W. B. Vines, 102, Woodborough Road, Nottingham.

April 7-15.—Photographic Trade Exhibition, Portman Rooms, Baker Street, London, W. Manager Pictorial Section, W. Selfe, 70, Paragon Road, Hackney, London, N.E.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

May 1-31.—International Exhibition of Photographic Pictures Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

May 9-10.—Ballarat Camera Club. Hon. Secretary, G. Montgomery, 201, Sturt Street, Ballarat.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject
24.....	Aberdeen Photographic Assn..	Jumble Sale
25.....	Wimbledon and Dis. Cam. Club	<i>Photography at the Zoo.</i> Mr. W. H. Willshire.
27.....	Southampton Camera Club	Lecture Competition.
27.....	Camera Club.....	<i>Quiet Life among the Head Hunters of Borneo.</i> Mr. H. M. Lomas.
27.....	Rotherham Photo. Society	<i>Photography Prize Slides.</i>
28.....	Royal Photographic Society	<i>Control of the Development Factor at Various Temperatures.</i> Mr. W. F. Ferguson, K.C., M.A., F.R.P.S., and B. F. Howard, A.M.I.E.E., F.R.P.S.
28.....	Nelson Photographic Society	Y.P.C. Lantern Slides.
28.....	Thornton Heath Photo. Soc.	<i>Toning Bromide Prints and Lantern Slides—Intensification and Reduction by Chemical Tableids.</i> Messrs. Burroughs, Wellcome, & Co.
28 March.	Bristol Photographic Club	<i>Portraiture.</i> Mr. S. E. Nesame.
1.....	North Middlesex Photo. Society	Lantern Slide and Print Competitions.
1.....	Photographic Club.....	<i>The Rotary Three-Colour Carbon Print Process.</i> Mr. W. A. Sims.
1.....	G.E.R. Mechanics' Institution	<i>Intensification and Reduction.</i>
1.....	Cricklewood Photo. Society	Prize Slides. A very fine series lent by Messrs. Goetz.
1.....	Windsor Camera Club	<i>A Talk on Photography.</i> Illustrated. The Kodak Co., Ltd.
1.....	Edinburgh Photo. Society	<i>France Hais.</i> Illustrated. Mr. James Paton.
1.....	Boro' Poly. Photo. Society	Members' Night.
2.....	Liverpool Amateur Ph. Assn..	<i>Gum-Bichromate.</i> Demonstrated. Mr. J. Page Croft.
2.....	L.C.C. Sch. of Pho.-Engraving	<i>The Making of a Book.</i> Mr. Douglas Cockerell.
2.....	London and Prov. Photo. Assn.	Spain. Mr. J. A. Sinclair.
2.....	Gateshead Camera Club	<i>Platinotype Printing.</i> Demonstrated. Mr. A. G. Greaves.
2.....	Richmond Camera Club	<i>Camera Notes 1894 Prize Slides.</i>
2.....	Southport Photo. Society	Messrs. R. & J. Beck's Specialities—"Unofocal" Lens, &c. Demonstrated. Mr. William F. Slater, F.R.P.S.
2.....	Batley and District Photo. Soc.	<i>Lenses.</i> Messrs. Taylor, Taylor, & Robson.
2.....	Watford Camera Club	Conversation.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

A SMOKING concert was held on Thursday, February 16, in place of the usual supper, Mr. T. K. Grant in the chair. The musical arrangements, for which the chairman had kindly made himself responsible, kept a goodly company entertained until a late hour, and the thanks of the meeting was voted to those who by their interest and talent had contributed to the enjoyment of the occasion. The impending resignation of Mr. R. J. Kindon from the secretaryship brought forth friendly protest, but the appointment of a successor who will take the same active and enthusiastic share in the fortunes of the L. and P. is a task which must be accomplished within the next few months.

BOLTON AMATEUR PHOTOGRAPHIC SOCIETY

A PAPER on "The Trimming and Mounting of Prints" was read at this Society's meeting on February 8, by Mr. H. Mills. Commenting on the fact that the proportions of photographic plates are not those best adapted to the requirements of pictorial composition, the lecturer advocated a judicious use of the trimming knife. As regards mounting, Mr. Mills deprecated the general practice of placing the print centrally on the mount. Because of a well-known optical illusion a print so placed appears to be nearer the bottom than the top of the mount, and usually presents a top-heavy appearance. The placing of the print should always be carried out in such a way as to assist the composition of the picture, and the colour of the mount should in all cases be selected to harmonise with the tone of the print. The lecturer recommended home-made mounts cut from papers of the "nature series" description in preference to stock mounts of the "paste on" and "slip on" types. While admitting that the practice of masking a white

border round the print or ruling white lines on the mount is not conducive to artistic effect, the lecturer stated that sometimes the effect of a picture may be heightened by dark crayon lines round the print. A point to be borne in mind is that black and white prints should not be mounted on coloured mounts, but on mounts of some neutral (preferably grey) tint, the reason for this being that there is no colour in the print to harmonise or contrast with a coloured mount.

WHITBY CAMERA CLUB

A DEMONSTRATION on "The Making of Enlarged Negatives," by Mr. Woodhouse Parkinson, the honorary secretary, was given before the members of this Society on Friday last. The lecturer explained that the value of enlarged negatives lay in the fact that from them could be made prints by either the platinotype process, or the various chromate processes, carbon, gum-bichromate, artigue, etc., which could not be compassed by lantern enlargements in the same way as bromide enlargements. A great deal of control could be exercised, and pictorial effects attained. There were two methods, one to make a diapositive by contact, and enlarge from that, the other to make a full-size diapositive and a large negative by contact. He preferred the former way, and believed it was more generally employed. For the diapositive, the best results were to be obtained from a carbon transparency. An ordinary negative plate might be used, or, better still, a plate prepared with lantern slide emulsion. But carbon, if carefully worked, gave greater fineness of detail. Having got the diapositive, some suitable apparatus must be used for projecting the enlarged image on to the negative plate. A lantern as used in bromide enlarging was suitable, but Mr. Parkinson used a 15 x 12 daylight enlarger, in conjunction with a camera, and illuminated the diapositive with magnesium ribbon. For the enlarged negative he used Rotograph negative paper, and developed with rodinal.

ABERDEEN PHOTOGRAPHIC ASSOCIATION.—The annual "at home" in connection with the Aberdeen Photographic Association was held on Monday last in Kennaway's Rooms, Aberdeen. Mr. James S. Anderson, president of the Association, presided over a large attendance of the members and friends.

HARROGATE CAMERA CLUB. — On Thursday evening last a demonstration on printing papers was given by Mr. C. H. L. Jackson in the Builders' Exchange, Harrogate. Mr. Jackson also dealt with Rotograph negative paper, and the many advantages in using this in place of glass plates for making enlarged negatives for carbon printing, or when several large prints are required, was very ably illustrated. By making an enlarged positive all necessary retouching can be done on the paper side of this, and accurately judged. From this positive an enlarged negative is made by contact, and further retouching can again be done on the white paper back. If the final print is required in carbon, printing may be done from the reverse side of the negative, thus avoiding double transfer.

MR. HARRY DE WINDT, the well-known explorer, whose remarkable journey from Paris to New York overland created such interest some eighteen months ago, is about to undertake another expedition, this time through the little-known parts of Eastern Europe, in the interest of Messrs. George Newnes. A photographer of the Urban Bioscope Company will accompany Mr. de Windt to obtain living pictures. Articles on the expedition will appear in the "Wide World Magazine," and a series of letters in the "Westminster Gazette."

Commercial & Legal Intelligence

GRIANAN NA NGARDHEAL, LIMITED.—Registered February 14, with a capital of £500 in £1 shares, for the purpose of carrying on business as printers, booksellers, photographers, etc. Registered office: 59, Patrick Street, Cork.

PHOTO AND ART PRINTING COMPANY, LTD.—Registered February 3. Capital £27,500, in £1 shares (7,500 Preference). Objects: To carry on the business of photographers, photographic and general printers, lithographers, artists, engravers, modellers, publishers, stationers, paper makers, chemists, booksellers, bookbinders, etc. No initial public issue. Registered office, 122, Victoria Street, S.W.

AN Unsuccessful Claim.—At the Greenwich County Court, on Friday last, John Compton Lawton, trading as the Salisbury Electrical Engineering Co., at 141 and 143, New Kent Road, and late of 178, High Road, Le, sued Francois de P. Romani, trading as the Souviner Miniature Co., at 51, Ermine Road, Ladywell, for £19, for two arc lamps supplied and fitted. Mr. Parsley, plaintiff's manager, said that he went to the defendant's photographic studio, and he gave him the order for the lamps. He denied that defendant stipulated that they should each be of 1,500 candle power, suitable for printing purposes. For the defence, Mr. Doughty called the defendant and several witnesses who were present when the order was given. They swore that the lamps for printing purposes must be 1,500 candle power, and that Mr. Parsley was informed for what purpose they were required. Mr. Charles Rawlings, of the firm of Rawlings Bros., Ltd., electrical engineers, of Blackheath Village, called as an expert, said that he had inspected the lamps, and they were about 500 candle power each, and were not capable of printing photographs. His Honour said that it was clear that the plaintiff knew the purpose for which the lamps were required, and gave a verdict for the defendant with costs.

ALLEGED Photographic Fraud.—At the Clerkenwell Police Court, on February 18, Richard Lewis was charged with obtaining £1 12s. by means of false pretences from Charles Baker, draper of Gernault Place, Clerkenwell. It appeared that on February 9 the prisoner called on the prosecutor, and asked him if he would like his premises photographed. He said he was a canvasser for A. and G. Taylor, of Regent Street, W. The prosecutor agreed to have his shop photographed, and to purchase copies to the value of 12s. 6d. The prosecutor paid the prisoner 5s. deposit; the latter agreed to call the following day, and take a photograph of the premises. He fulfilled this part of the contract. On February 11 he called again and asked Mr. Baker to change a cheque for £1 7s. Not receiving the photographs, the prosecutor visited the premises of A. and G. Taylor, and from what he was told there, he put the matter in the hands of the police. It was ascertained that prisoner had been in the employ of Messrs. A. and G. Taylor, but left their service on February 4. When arrested by Detective-sergeant Cunningham, the prisoner said, "I have been on the drink lately and I am a fool." He further said, "I have an account at the London and Joint Stock Bank, and a balance of 14s 9d." Mr. Bros remanded the accused.

CATFORD and Forest Hill Photographic Society.—In the annual competition of the Society the awards were as follows:—President's prize for excursion pictures, F. H. Fenton. Other prints.—H. Solley 1, J. Mason 2, G. T. R. Collis 3. Mr. Pearce's prize for enlargements.—H. Solley 1, F. H. Fenton 2. Mr. Hart's prize for lantern slides.—H. Solley 1, Dawes 2, Rev. H. O. Fenton 3.

News and Notes.

GLASGOW Photographer Poisoned.—The death is reported as the result of drinking cyanide of potassium of Mr. Thomas William Steven, photographer, South Portland Street, Glasgow.

FELLOWSHIP of the Royal Photographic Society.—The following members have been elected Fellows of the Society:—Miss S. A. Acland, Mr. C. Thurston Holland, M.R.C.S., Mr. A. H. Starnes, Mr. T. K. Grant, Mr. Otto Fulton, Mr. Furley Lewis, Mr. F. J. Mortimer.

RAILWAY Lantern Slides.—Lantern slides showing places of interest on the London and North-Western Line are available for the purpose of illustrating lectures, etc., and a list of slides can be obtained on application to Mr. R. Turnbull, superintendent of the line, Euston Station, N.W. Slides have also been made of the subjects shown on the company's pictorial postcards, which practically show every phase of past and present railway working. It is thus possible for applicants to ascertain beforehand the nature of the slides. No charge is made by the company for the use of the slides, but they must be returned day following exhibition.

DURING the recess Sir Benjamin Stone, M.P., whose collection of photographs attracted so much attention at the St. Louis Exhibition, has been busy with his camera, the result being some notable additions to his permanent pictorial record of current national life preserved at the British Museum. Amongst his latest negatives are two reproducing with remarkable fidelity of detail the obverse and reverse of the new Great Seal of England, which had to be made in consequence of the King's accession. One side is photographed so as to show the design in relief, although it is actually a deep sunk intaglio die; and the other is photographed so as to show the intaglio effect of the die. Sir Benjamin Stone has also enriched his collection recently with some excellent pictures of Algerian scenery obtained while visiting the district some months ago.

THE Cyko Competition.—The awards in this competition, arranged by Messrs. John J. Griffin and Sons, Ltd., have now been made, and the following are the names of those fortunate enough to secure prizes. Class "A" (Guinea Cyko): 1st, S. E. Verstage, Meadrow, Godalming; 2nd, H. Featherstone, 66, Park Street Southwark, S.E.; 3rd, J. MacFarlane, Sandringham, Stapleton Road, Bristol; and W. C. Hope, St. Columb, Cornwall; A. H. Verstage, Park Villa, Godalming; H. D. King, 34, Beachcroft Avenue, Southall, Middlesex; F. Fletcher, Bridge Terrace, Thornton, Lancs.; J. A. Allison, Primrose Lodge, Manghold, Isle of Man; H. Scott Beauchamp, 42, Nunner Fields, Canterbury; J. D. A. Telford, 278, Dewsbury Road, Leeds; A. T. Millner, "Deene," Tooting Bec Road, Streatham, S.W.; R. K. Ludlam, 400, Heath Terrace, West Bromwich, near Birmingham; A. Wallhouser, 24, Delamere Crescent, Paddington, W.; Miss Alice M. G. Lloyd, "Deene," Tooting Bec Road, Streatham; W. A. Gastin, Main Street, Limavady, Co. Derry; W. E. Massingham, 77, Stokes Croft, Bristol. Class "B" (Pocket Cyko): 1st, C. P. Woodward, 51, Beach Farm Road, Southsea; 2nd, C. B. Donkin, Penmore House, Haslarn, near Chesterfield; 3rd, R. B. Ewbank, Bolton Rectory, Mealsgate, Carlisle; 4th, Miss Galtsmith, 6, St. Deny's Road, Southampton; and J. M. Jackson, East Kirklands, Hamilton, N.B.; F. R. Gulline, 16, Falconer Street, Newcastle-on-Tyne; F. D. Fearon, 12, Waldeck Road, West Ealing; A. Collins, 141, Alexandra Road, Croydon.

COMPLIMENTARY Dinner to Mr. A. W. W. Bartlett.—Mr. A. W. W. Bartlett, the late Secretary of the Royal Photographic Society was entertained by several of his friends at a dinner held at the Hôtel

d'Italie on the 16th inst. Among those present were J. C. S. Mummery, who occupied the chair, P. Bale Rider, who was responsible for the arrangements, W. G. Holman, J. H. Avery, Furlley Lewis, P. R. Salmon, Leslie Clift, C. H. Oakden, G. Lamley, J. McIntosh, W. E. Southcombe May, L. Selby, J. Brown, W. H. Willshire, J. R. Lynch, and several others. At the conclusion of the dinner Mr. Bartlett was presented with a handsome dressing bag, and the remainder of the evening given up to speeches, songs, music, etc.

THE prospectus of the pictorial section of the fourth Photographic Trade Exhibition, to be held in the Portman Rooms, Baker Street, London, W., from April 7 to 15, 1905, inclusive, has been sent us. The classes (open to all) consist of (a) landscape, seascape, and river subjects; (b) portraiture and figure studies; (c) architecture; (d) animals, still life, scientific, and any subject not included in a, b, c; (e) lantern slides (sets of 4); and the awards will be silver and bronze plaques in each class, and a gold medal for the best exhibit in the pictorial section. Mr. H. W. Bennett, F.R.P.S., is the judge, and exhibits must be sent to the Portman Rooms, Baker Street, London, W., not earlier than Saturday, April 1, nor later than Tuesday, April 4. Entry forms must be returned by March 20 to the Organising Manager, Walter Selfe, 70, Paragon Road, Hackney, London, N.E.

HIGH POWER MICROSCOPY.—The Friday evening lecture at the Royal Institution last week was given by Mr. J. W. Gordon, who discussed "High Power Microscopy." Sir James Crichton Browne was in the chair, and the audience included Lord Rosse, Lord Rayleigh, Mr. Justice Buckley, Sir Andrew Noble, and Sir William Crookes. Considering first the preparation of a microscopic object for exhibition under suitable conditions of illumination, the lecturer referred to the use of cross-lighting or "dark ground illumination," and in particular to Dr. Siedentopf's application of this principle to the exhibition of ultra-microscopic particles. In ruby glass, for instance, the colour was due to diffused particles of gold, so minute as to be beyond the imaging power of any microscope; yet by the aid of cross-lighting they could be rendered visible as diffraction discs, precisely as stars were visible in the firmament. The lecturer next mentioned some experiments, which were suggested by the paper of Lord Rayleigh's, but were still in a very early stage, undertaken with the view of utilising diffracted light to illuminate the object, and went on to refer to the fact, which was still imperfectly understood though pointed out by Helmholtz over thirty years ago, that the limit of useful microscopic power in a high-power objective was reached when the lens of the objective was of such focal length that its diameter was rather less than the diameter of the pupil of the eye. Beyond this limit increased scale was best gained by viewing the image formed by the objective through an eye-lens of high magnifying power. But this expedient carried with it the difficulty that the emergent pencil of light became extremely small—often no more than one-thousandth of an inch in diameter with microscopes of high power—and in consequence microscopists had settled down to the belief that for visual work no more than 1,500 to 2,000 magnification could be usefully employed. In fact, 400 to 600 diameters would more adequately represent the average scale of good critical work hitherto. A contrivance recently introduced to meet this difficulty consisted of a screen of ground glass placed in the microscope tube at the point where the image was formed; by this the incident pencil of light, however narrow, was broken up and thrown off again as a broad pencil, which could be submitted to high magnifying powers without deterioration. Hence by using a second microscope instead of the usual eye-lens enormous magnifications, hitherto unattempted, could be secured. It was necessary to keep the screen in motion, else its grain would become visible to such an extent as wholly to impair the details of the picture.

Correspondence.

- * * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*
- * * * *We do not undertake responsibility for the opinions expressed by our correspondents*

BLISTERS ON BROMIDES.

To the Editors.

Gentleman,—As an old pupil of Mr. Harold Baker, I cannot refrain from writing as regards his article in this week's issue on "Blisters on Bromide Paper." I had the same trouble last Christmas, just when time was very valuable, and found an absolute preventative in a bath of fairly strong salt and water immediately after fixing and before washing. A simple, effective, and cheap method.—Faithfully yours,

W. E. DIXON, Manager.

Brighthouse Photographic Co., Ltd., Briggate, Brighthouse.

THE PERMANENCE OF TONED BROMIDES.

To the Editors.

Gentlemen,—The formula of Messrs. Lumiere and Seyewetz for toning bromides with lead ferrieyanide and cobalt chloride, reminds us of some experiments we tried with these salts some ten or twelve years ago.

We obtained very fine green, but a few months exposure to light and air utterly spoilt the prints, so that we considered the formula of no practical use.

After an exhaustive series of experiments spread over some years, we have come to the conclusion that brown, from an orange to warm black, are the only colours which can be called really permanent. Of course we do not mean that the last word has been said on toning of bromides, but in the course of our experiments we tried pretty well all of the methods which have recently been published in various formulae.—Yours faithfully,

WELLS AND CO.

Avenue Road, Southgate, February 13.

THE SEARS HIGH-LIGHT PROCESS.

To the Editors.

Gentlemen,—Re your description of Sears' Process. In 1885 Mr. J. W. Geddes, then of Messrs. Waterlow, Ltd., was making use of this so-called new process, and we have also been doing so, using negative or transparency as required, for twenty years.—Yours faithfully,

A. WOOD AND SON.

10, St. Bernard's Row, Stockbridge, Edinburgh.

THE FIRST AMERICAN SALON AND THE PHOTO-SECESSION.

To the Editors.

Gentlemen,—The attitude of the "Photo-Secession" toward the First American Salon at New York has excited much adverse criticism, and it is to be presumed that the subject is of sufficient interest to warrant setting forth some of the reasons why the "Photo-Secession" took the stand it did, and the ultimate justification of its course.

You will remember that Mr. Alfred Stieglitz, Director of the "Photo-Secession," issued a letter to the Press, appearing in the August number of most of the American magazines, in which he announced that the Salon in New York "will be of such a type or character that neither I nor the 'Photo-Secession' can have any connection with it, or be represented therein." As a result of this announcement there came a storm of denunciation that included everything from the "Photo-Secession" and Mr. Stieglitz to the grammar and diction of the letter and the supposed prophetic inclinations of its writer.

The fact that the management of the First American Salon at New York had, from the first associated itself with influences

opposed to the "Photo-Secession," such opposition being due to circumstances that have no bearing on the point in question—that while every photographic interest but one in this country and Europe was being propitiated by the Committee, every opportunity to sneer at and privately and publicly condemn the "Photo-Secession," was taken advantage of, would surely have justified the "Photo-Secession" in deciding to have nothing to do with the Salon, and in even publicly announcing the decision with considerable more force than was done, yet these were not the reasons why it was decided to hold aloof from the exhibition.

It had come to our knowledge, and in such a decided way that it could not be gainsaid, that the management of the Salon was not pursuing a course calculated to guarantee that fairness and freedom from prejudice necessary to the holding of an exhibition of photographs that would be of any value to the advancement of pictorial photography. We learned that the Europeans had been told their exhibitions would be *hors concours*, in spite of the assurance that all prints must pass the jury, an assurance vaunted with an insistence that was from the very first an insinuation against the "Photo-Secession." It was felt that there was a lack of sincerity, a lack of purpose, and a lack of ability that boded ill for photography and as the "Photo-Secession" stands, not for the "Photo-Secession;" not for Stieglitz; not for its fellows; nor yet for its associates, but for photography, the decision was against the Salon.

When we learned that the letters Mr. Hartmann sent to the Europeans inviting them to send exhibits *hors concours* were written and mailed under the direction of the Metropolitan Camera Club, Mr. Hartmann simply signing the letters at the club in the presence of Mr. Roland Rood; when Mr. Curtis Bell, President of the Salon, told Mr. Rood, who was representing the "American Amateur Photographer," that he and another would select certain prints to be submitted to the jury; when we saw the catalogue and noted the suspicious abundance of names previously known through minor exhibitions and competitions, and when we saw the Salon itself, we felt we were justified in the stand we took.

But not so the photographers at large and the general public. Mr. Bell repudiated Mr. Hartmann and his letters. Mr. Bell wrote to Mr. Rood that the plan he had mentioned had been changed and all prints would go before the jury. The minor photographers were lauded by the critics as the true pictorialists, and the salon was hailed as the exemplification of photographic art; the raising of photography from the Slough of Despond; the dawning of a new era! And the photographers at large and the public believed.

Now, Mr. Frederick W. Kost, A.N.A., a member of the jury, who was of the few that served and who got the jury together for the Salon, says that he informed Mr. Curtis Bell, President of the First American Salon at New York, that it would be impossible for the jury to look over so many pictures, and Mr. Bell selected the number the jury passed upon, which did not exceed 1,800 prints! Think of it! Seven thousand two hundred prints passed upon by Curtis Bell and eighteen hundred by the jury of artists!

Does the "Photo-Secession" need any further justification of its attitude? No! Not even the further statement of Mr. F. W. Kost, member of the jury, that the jury did not consider any of the photographs "works of art," and that they all were surprised to find so much ignorance of all art principles so generally displayed.

I will refrain from comment on the position of the management of the Salon.—Yours truly,
HARRY C. RUBINCAM.
206, 207, 208, Century Buildings, Seventeenth and Stout Streets,
Denver, Col., U.S.A.

[We publish Mr. Rubincam's letter *minus* certain personal allegations against Mr. Bell which appear to us irrelevant. For the rest we confess that certain of his statements seem to us logically, if not grammatically, obscure. Probably the position is capable of a perfectly natural explanation, and we shall be agreeable to hearing Mr. Bell's side of the controversy.—EDS. B.J.P.]

Answers to Correspondents.

- * * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
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- * * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
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PHOTOGRAPHS REGISTERED:—

Isaac Perloff, 188, Commercial Road, London, E. Photograph of Mr. P. Orloff, famous Russian Actor.
E. O. Parkin, 58, Wilkinson Street, Sheffield. Seven Photographs of Bishop Pearson.

- J. W. BARNES.—We believe Raines and Co., Ealing, W.
- A. B. C.—Your queries were answered last week. See p. 139.
- J. W. SMITH (York).—Messrs. Richeford, Snow Hill, London, E.C.
- A. L. (Penarth).—We do not see how we can help you. Surely you know your public better than we do.
- MARK E. MITCHELL AND Co.—Penrose and Co., 109, Farringdon Road, E.C.
- S. W. OWEN.—We believe the address is: A. G. Snow, 84, St. Andrew's Road, Walthamstow.
- C. M.—We cannot see that you have any claim whatever, nor do we see why anybody should feel aggrieved, the team was wanted not ornamental, but with useful appendages.
- P. L. AND Co.—(1 and 2) None that we know of. (3) Not in English. There may be some in French or German, but your question is not very clear. We presume you mean negatives by "photographic plates." If you will explain further we will look the matter up.
- O. E. CHALLIS.—The transparency is very suitable for enlargement up to about 12 x 10; for greater enlargement it should be flatter. Use twice the weight of crystallised sulphite. Crystalline potass. carbonate is very variable in composition. You had better get the "dry" (anhydrous) carbonate.
- THE P.P.A.—Will you kindly give me following information through your correspondents column: How to become a member of the Photographic Professional Association, or could you oblige me with the address of secretary of same and terms of subscription?—T. F. P.
Address the Hon. Sec.: Alfred Ellis, Honorary Secretary 51, Baker Street, London, W.
- BOOK ON STUDIO WORK.—Will you kindly inform me what is the most useful book on "Studio Photography," published at a reasonable price, embracing chiefly the lighting of the studio and the artistic lighting of the sitter?—EDINOL.
"The Lighting in Photographic Studios," by P. O. Duchochois, 1s. "The Pose in Portraiture," No. 1 of "The Photo-Miniature," 6d. We gave a list of other books on page 29 of our issue of January 13 last.
- COPYRIGHT.—(1) Postcard is brought to studio marked "Copyright," from which enlargement is required. Are we infringing if we make it? (2) Does the printing of "copyright" upon photo or print ensure its being copyright.—TALBA.
(1) Certainly, unless your customer is owner of the copyright. (2) A photograph is copyright as soon as it is made.

Official registration of the copyright at Stationers' Hall is necessary to legally sustain it in any action.

BOOK ON COLOURING.—Will you kindly give me the name and publisher of some all-round book on colouring photographs? I have read Johnson's "Art of Retouching and Colouring," but should like something more extensive.—**COLOURING.**

There is a little book, "The Photographic Colourist," by J. W. Neville (6d.), also No. 44 of the "Photo-Miniature," but beyond these we know of no manual except A. H. Wall's "Art of Colouring Photographs." It has been out of print for years, but you might get it by advertising.

FREEZING MIXTURE.—Would you kindly give, at your convenience, in an early issue of the B.J., a reliable formula for making a small quantity of ice? Have tried the sal ammoniac and salt-petre formula mentioned in the "Almanac" of 1904. Temperature of this mixture falls to 15 deg., but will not remain permanently at that temperature, and soon rises again to 36 deg. or 40 deg. I require a mixture that will remain at a low temperature for several hours.—**FREEZE.**

The best freezing mixture is crystallised sulphate of soda and about half its weight of hydrochloric acid, but no mixture remains cold indefinitely. Ice and salt, we should think, is the only mixture of any practical use to you.

BERNARD T. HUGH.—Without seeing the apparatus it is not easy to say, but we consider the time too short for complete washing. We should not place confidence in the test of a single negative. Your best course is to make a series of tests by the nitrate of silver method, which is easily applied as follows: Soak the washed negative for ten minutes in clean water and place a little of the liquid in a glass test tube, pouring a like amount of plain water into a similar tube. Add now a few drops of 10 per cent. solution of silver nitrate to each tube. Warm the water to be tested. It will turn yellowish if hypo is present and a very slight coloration can be observed by comparing it with the second tube.

COMBINED BATH ENLARGEMENT.—Will you please oblige me with answers to the following questions? 1. Formula for combined bath for albumised paper to give purple-brown tones. 2. What will be the distance between centre of lens and screen in photographing an object to exactly $17\frac{1}{2}$ times its diameter, using a 2 inch lens.—**MICRO.**

1. Albumen paper is not well suited to toning in a combined bath, but you can use: Soda phosphate, 15 grs.; ammonium sulphocyanide, 25 grs.; hypo, 240 grs.; water, 2 ozs.; gold chloride (dissolved in a little water and added last) 1 grain. 2. $17\frac{1}{2}$ by $2 + 2 = 37$. The rule is multiply focal length by number of times of enlargement and add one focal length thereto.

DRYING BROMIDE CARDS FLAT.—Can you oblige me with a method of drying bromide postcards flat? I have to turn out quantities of about 100 at a time. I have hardened the cards with formaline and dried with gentle heat, as they are wanted at once. They curl violently while those you see in the shops always seem to remain flat.—**H. HARRISON.**

The best plan to prevent bromide cards from curling is to place them face outwards as soon as they come from the washing water between two thin slats of wood nailed to a board, the distance between the slats being just half an inch less than the cards—that is to say, the slats must be five inches apart. This quite prevents the curling, which is due to the contraction of the gelatine in drying.

APPRENTICESHIP.—Will you be good enough to give me your idea of terms of apprenticeship for a boy and a girl about 16 years old, length of time to be bound for, what progressive wage;

whether any first year without premium, also with small premium, say £10 or £20? To give you an idea of the class of work we do, our cabinets are 25s. and £2 2s. per dozen. The boy to go through it all; the girl spotting, retouching, reception room, etc.—**PREMIUM.**

There are no regular terms, either as regards premium or time of apprenticeship. It is quite a matter of mutual arrangement between the parties concerned. The same remark applies to wages. If you are a member of the Professional Photographers' Association, we should advise you to communicate with the secretary, as he will be better informed in the matter than we must confess we are.

CATTLE.—1. Either the twin lens or a reflector camera is very suitable for animal photography. You will find the leading makes described in the "Almanac." 2. We believe Rouch largely uses a reflector camera, although Gambier Bolton in his extensive photography of animals uses nothing but a stand camera. We should advise you to use a "Unipod," i.e., a single support on which to rest the camera at the moment of exposure. It practically serves the purpose of a tripod so far as permitting short exposures, such as a quarter of a second; it is erected in a moment, and does not startle animals as does a tripod. It is easily made; but there is a commercial variety made by Newman and Guardia. 3. We think you might have a focussing scale and a large finder, fitted to an ordinary focussing half plate stand camera, and do very satisfactory work with this on a unipod, though a twin lens or reflector camera will make your operations much more certain.

HYP0 ELIMINATION.—In the "B. J. Almanac," 1905, p. 1041, I see a formula for Hypo Eliminator, and should be much obliged if you would be so kind as to furnish information on the following points:—1. Am. persulphate $2\frac{1}{2}$ grs.; car. sod. 5 grs.; water 1 oz. Is this the complete eliminator or is it to be added to the barium dioxide, etc., appearing above it? 2. Is the treatment in any way deleterious to prints? 3. Will the solutions keep, and may they be used over again? 4. How many prints will, say, 1 oz. of solution eliminate, and how long washing before and after?—**E. W. APPLETON.**

1. The formula given is the complete eliminator, and is not to be added to the barium peroxide. 2. No. 3. The solutions will keep, but it is not advisable to use over again. 4. It is impossible to answer this question, because it depends entirely upon the amount of hypo in the print; half an hour's washing before and quarter of an hour after should be sufficient.

RESTORING DAGUERREOTYPES.—I should be indebted to you if you would kindly give me the particulars of the method of restoring daguerreotypes. I have seen the formula occasionally in the JOURNAL, but have no trace of it now.—**K.**

The method is this. First remove all dust from the surface by blowing. Then treat the picture with a dilute solution of cyanide of potassium—say ten grains to the ounce of water—until the tarnish is removed. Next well wash under the tap and finish with distilled water. Dry over a spirit lamp so as to avoid drying marks. The Daguerreotype is a very delicate image, and is very easily damaged. We should advise you to experiment on two or three pictures of no value before attempting to deal with one that is prized by its owner. Many Daguerreotypes have been irretrievably ruined at the hands of novices. Your best way, we should think, would be to entrust the work to an expert who is familiar with the working of the Daguerreotype process.

STARTING IN BUSINESS.—I should be very pleased if you would answer

me the following questions:—(1) As an amateur, and being fond of photography as a hobby, do you consider it possible for me to take it up as a business, on my own or in partnership? I am able to give six months or more at an institution where I might thoroughly learn all its branches. (2) How much capital do you consider I should require to make a successful beginning?—X. Y. Z.

(1) Of course it is quite possible for you to do so. But you must bear in mind that photography as a profession requires skill as well as good business tact to work it with success. We should think your best way would be to article yourself to a professional photographer for a term, or to enter partnership in a well-established business. (2) Impossible to say, as all must necessarily depend upon the scale and style upon which you intend to begin. Also whether you have to erect a studio, etc., or take one ready for occupation. It may be anything from £100 or £500, or more.

TONING-BATH PERCENTAGES.—(1) A few weeks back you published a formula for toning C.C. paper red. Could you tell me if it is possible to obtain the pure red chalk tone with this bath? It was as follows:—Prepared chalk, $\frac{1}{2}$ oz.; gold chloride, 1 per cent. sol., 19 minims. (2) Could you tell me also the meaning of percentage as applied to chemicals? I have always understood it to mean grains to the ounce, as example: 10 per cent. sol. of bromide, 10 grains to the ounce. Is this correct, and, if not, will you please explain? (3) Could you let me know of a formula for toning C.C. paper green, like the sea, or olive-green, obtained on carbon?—CHALK.

(1) The best bath for red chalk tones is: Uranium nitrate, 1 gr.; thiosinamin, 5 gr.; water, 1 oz. (2) "Percentage" means one part in a hundred, i.e., 1 oz. in a hundred ounces (by weight) of water. A 10 per cent. solution contains 48 grains in each ounce. (3) We know of no such formula. You can get a kind of green by developing a gelatine P.O.P., but we regard such processes as poor makeshifts. You had far better use carbon than waste time in trying to get out of other papers what they are not intended to give.

BAS RELIEF PHOTOGRAPHS.—I am obliged for the answer to my query re Cameo Photos. You have, however, misunderstood my meaning. I was referring to what used to be known as "Bas Reliefs." But there is, I think, some method of producing these on any style of paper by coating the back of the print with some material, and then pressing it out to the required depth. After which the print is turned over, and the shadows, etc., pressed back again. I understand all these operations can be performed at home with small expense, and save the trouble of having blocks, etc., made.—C. E. C.

There are several methods, and a description of them appeared in the "B. J. Almanac," 1898, pp. 842-850. In Taber's method (patented) the surface of the block to be used for embossing is sensitised, and printed under the negative laid in reverse upon it. The block is then cut out to appropriate depth by hand, and prints, moistened and backed with soft material such as rubber sponge, subjected to pressure on it. Instead of printing on to the block the outlines may be drawn on transparent paper laid on the photograph, and from this transferred with the aid of "carbon" copying paper to the block.

COPYRIGHT.—I should be greatly obliged to you if you would give me your opinion as to whether I have a clear case for prosecution re infringement of copyright. A man asked me to take photographs, so as to supply him with bromide postcards to sell at 2d. each. I went out three miles and took photograph, entirely at my own expense (which I copyrighted), and

supplied him with three dozen postcards, for which he paid me 4s. 6d., clearly understanding that a large number would be wanted later on. Soon after the customer came and found fault with the photograph, said it was not a good one, and that he should not require any more; and a few weeks afterwards I find he had sent it away and had it copied, and selling copies. I have enclosed one of the original ones, on which you will see my name, also one of the copies on which my name is partly erased, and the word copy written on. Will you please give your opinion of the original, and say what your views on the whole matter are?—HE HE.

As you were paid for your work the copyright is not yours, but your customer's, to whom belongs the exclusive right to copy it. You have no case at all. If you thought you were retaining the copyright by charging a reduced price, you should have obtained a written assignment of the copyright and have at once registered it.

PURIFYING OX GALL, ETC.—(1) Can you give me details of any process for preserving and purifying ox gall after it has been extracted from the bladder? The process should not (of course) interfere with or alter any of the properties of the gall. (2) Can you give me a formula for producing a tone on bromide prints the same as that on the print enclosed? The chief characteristics should be quick working and as simple a bath as possible, consistent with getting the desired result. The hypo alum hot bath would do very well, except for certain drawbacks, which prohibit its use for any particular purpose.—ARGENTYPE.

(1) We do not know where our correspondent proposes to carry on his purification, but if he is a married man we should strongly advise him to send his family out for the day, or he may strike trouble, as fresh ox gall does not "reek of Rimmel"; as the purified gall may be obtained from any chemist, we personally should prefer to purchase it. The usual method of purification is as follows:—Take a pint of fresh ox bile and evaporate down to five ounces, mix it with half a pint of spirit, stirring well, allow the mixture to stand twelve hours, and decant the clear solution or filter, wash the filter paper with a little spirit and then evaporate the filtrate down to a suitable consistency, or, of course, it may be kept in the dilute state. (2) The tone can probably be obtained by bleaching the print in

Potassium ferricyanide	280 grains.
Ammonium bromide	360 grains.
Water to	20 ounces.
washing well and then immersing in	
Sodium sulphide, pure	60 grains.
Water	20 ounces.

till the brown colour is obtained. The print should be allowed to remain this solution for some time after the action seems complete, and then well washed.

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EX CATHEDRA.

Photography of the Eye. Dr. Lucien Howe, of Buffalo, in a letter to the "Scientific American," claims priority, in photographing the interior of the eye, over Dr. W. Thorner, whose method was described in our issue of February 3. Dr. Howe's method was communicated to the American Ophthalmological Society in 1887, and since then better results have been obtained by Professor Dummer, of Gratz, by means of a large and complicated apparatus. Two principal difficulties in this problem, says Dr. Howe, are to do away with the reflection from the cornea and to obtain a plate sufficiently sensitive to the red rays reflected from the living retina. He would be glad to co-operate with others who might also be interested in the subject; and if a satisfactory photograph can be obtained by a process so simple as to make it of practical value, it would be creditable to the one who succeeds, and certainly would assist in advancing our knowledge of the interior of the eye and its various diseases.

* * *

Methylated and Pure Alcohol. It has often been said that methylated spirit is frequently drunk by "topers" in the Midlands, and it would seem that it is also consumed largely in the Isle of Man. We read that a Bill has been introduced into the Manx Legislature for regulating the sale of methylated spirit. The measure has been prompted by the necessity of preventing the use of this spirit as a beverage, especially among the lower classes, during Sundays and hours when public-houses are closed. The Bill provides that only licensed persons may sell the spirit, and that publicans are to be prohibited from taking out methylated spirit licences. Also that the

sale of methylated spirit, by anyone, is to be prohibited between Saturday night and Monday morning. Where legislation of this kind becomes necessary, there can be but little doubt that the methylated must be considerably used as a potable spirit, repulsive as it is to most people, particularly with the addition of mineral spirit which is now compulsory. Its intoxicating properties must be great when we consider that the strength of the ordinary methylated spirit of commerce is from sixty to sixty-five over-proof, while the usual spirits as sold at public-houses are from fifteen to thirty per cent. under proof.

* * *

Duty-free Alcohol.

The Commission appointed some time ago with regard to permitting the use of duty free alcohol for manufacturing purposes has not yet issued its report. Up to the present English manufacturers of certain chemical preparations, where methylated spirit will not answer, have been heavily handicapped by the Germans. In Germany pure alcohol, duty free, is allowed to be used for purely manufacturing purposes, and it is to be hoped that a similar state of things will obtain here in the near future. Except for the collodion process, alcohol is not now much used in photography. In the manufacture of the collodion the methylated spirit will not answer, hence duty-paid spirit has to be employed, and this greatly increases its cost. If duty-free alcohol were allowed to be sold it would cost less than methylated spirit, inasmuch as the wood naphtha, of which ten per cent. has to be added, is more costly than the alcohol itself. If refined naphtha could be used for methylating it would probably do no harm in the collodion process, but it is not allowed; only a crude form can be used. All the naphtha used has to be submitted to the Excise authorities, and they will not pass any that is not of a crude kind. The addition of the naphtha to the alcohol has also to be made in the presence of an officer of the Excise. When methylated spirit was first allowed to be sold, they were not so particular, and, at one time, methylated alcohol strengthened up to the commercial absolute—'805—was for a time an article of commerce, but that was altered many years ago. Now it is illegal to redistil the spirit either with the view to strengthen it, or in any way purify it. If the nauseous compound—the present methylated spirit—is so largely used as a potable spirit as it is asserted to be, it is scarcely to be wondered at that the Excise authorities are somewhat chary of allowing any alteration.

* * *

American Copyrights in Britain.

A letter from Mr. John Philip Sousa, the well-known "March King," appeared in the "Times" of Monday last, protesting against the piracies of his musical copyrights in this country. We follow Mr. Sousa in his complaints because the incident raises a point in the law of artistic

copyright, which may frequently be of importance to photographers. The mutual benefits which are extended to British and American citizens are based, not on the Berne Convention—to which the United States is not a subscriber—but on the Chace Act, passed by the United States Government in 1891, whereby the benefits of American copyright are extended to citizens of foreign States who grant to Americans “the benefit of copyright on substantially the same basis as its own citizens.” A number of countries, among which is Great Britain, have been “proclaimed” by the United States Government as sharing in the concession of the Act. Citizens of these countries, on taking out copyright in America, can obtain the protection granted under American law, and, on the other hand, American citizens, as Mr. Sousa points out, are entitled to protection in the proclaimed countries to the extent granted to citizens of those countries. Mr. Sousa complains, in regard to musical copyrights, that the reciprocity is all on one side; but he is probably mistaken, for British composers have suffered worse things at the hands of the music pirates than have foreigners.

* * *

Artistic Copyrights and the Chace Act.

On the passing of the Chace Act in 1891, official assurance was given by the British Government to the United States to the effect that foreigners can obtain British copyright on first publishing the work in any part of the British possessions, and that subsequent publication in a foreign country does not affect their position in this respect. It was further stated that residence in a British possession was not necessary to obtaining British copyright. These conditions may or may not hold good in regard to literary copyright—though it is commonly supposed that they are valid—but as applied to copyright in artistic works, the statements we have just quoted certainly seem incompatible with the Copyright Act of 1862, wherein the benefits of British copyright are extended only to a person who is “a British subject or resident within the dominions of the Crown.” There is thus a doubt as to the validity of the Chace Act in respect to photographs, and even assuming that the discrepancy above cited can be explained, the obtaining of copyright in the States by a non-resident foreigner is hedged about with so many formalities that for practical purposes the game is not worth the candle.

* * *

Alleged Celluloid Dangers.

Reference to this was made in “Ex Cathedra” last week, and if the cases quoted are authentic they would tend to shake confidence in articles made of celluloid generally. As a matter of fact, during the last quarter of a century or so, celluloid or its analogue, “xylonite,” for the two differ only in name, has largely taken the place of ivory. It is used considerably for pianoforte keys, knife-handles, serviette rings, and such-like things in domestic use, but we have never heard of a case of spontaneous combustion in them. Collars and cuffs, combs, brushes, etc., made of celluloid or xylonite have long been in use, but no instance of spontaneous ignition with them has yet been chronicled. Accidents with them have at times happened, but only when they come in contact with a flame or great heat. Celluloid, of course, is highly inflammable when a light is applied to it, or it is subjected to a strong heat, as it sometimes is when incautiously used in the cinematograph, and then accidents may be expected. Xylonite or celluloid dishes are well known in the photographic world, but whoever heard of one of them taking fire spontaneously? As we said in the former note, it is a pity that more details were not supplied by those who wrote

to our German contemporary. It is hoped that these will eventually be forthcoming, but until they are our confidence in celluloid for ordinary purposes will remain as it is. It is noteworthy that the celluloid that is said to have ignited spontaneously was in the form of comb for the hair. But such combs and hair fasteners made of celluloid, in imitation of tortoiseshell, have long been in use in this country by ladies, but we have not heard of a single case of their firing spontaneously.

* * *

Self-ignition of Celluloid.

Meanwhile, the cases of the spontaneous ignition of celluloid are further discussed in our contemporary, the “Chemiker Zeitung,” where Dr. W. Normann takes pains to set at rest any misgivings which may have arisen in the minds of interested parties. The inflammation of the ladies’ hair-combs, he affirms, is capable of explanation in a way which acquits celluloid of dangerous properties except under special circumstances. The hair-comb, it is pointed out, is the invariable culprit when charges of incendiarism are made against celluloid, and Dr. Norman has found that by artificially imitating the conditions under which a comb is exposed to radiant heat, when worn in the ordinary way, the temperature of the enveloped celluloid may be as high as 100 deg. Cent., and this he regards as dangerously near the point at which celluloid commences to decompose. The temperature of the unenclosed thermometer under the same conditions was only 40 deg. Cent., a surprising difference, but the writer obtained identical figures on making a second test. In other words, it is suggested that the enclosure of celluloid in a material such as hair or wool, which is an extremely bad conductor of heat, provides the conditions for combustion of the celluloid on exposure to radiant heat. That certainly seems a legitimate conclusion from the facts, and is satisfactory in so far as it confines the conditions of self-ignition within very narrow limits. At the same time, we cannot conceive that such conditions can obtain except under very exceptional circumstances, nor, in our opinion, would they bring about the combustion of celluloid of proper manufacture.

ANOTHER COPYRIGHT ACTION.

ONCE more the High Courts have been engaged in a suit which is of interest to owners of copyright works, inasmuch as it involves points that we have had at times to express opinions upon through the Answers Column. One of the points in the case was dealt with in an article last week with reference to innocent agents. Another point was one upon which our advice is frequently asked. It is: Certain alterations are made in a copy, or some portions omitted; is it still an infringement of copyright? The action in question was argued in the Chancery Division on the 9th and 10th ult. before Mr. Justice Kekewich, when judgment was reserved. This was delivered at great length on the 21st, the report of it taking up a full column and a half of the “Times.” The action was Hanfstaengl v. W. H. Smith and Sons. Briefly the case was as follows:—In “Munsey’s Magazine,” a work published in America, appeared, in connection with an advertisement competition, a number of small reproductions, amongst which was one of Thumann’s picture, “Nature’s Mirror,” of which the plaintiff holds the copyright. This magazine was imported here, and sold by Messrs. Smith. They were unaware that the magazine contained the copy until their attention was called to the fact by the plaintiffs, and, when it was, this particular print, which was very small—it might be covered by a penny-piece—was taken out. The action was for an injunction and damages, merely

nominal ones being claimed in the first instance. But the parties did not come to terms; hence the action. In the trial it was contended that the reproduction was not an infringement, inasmuch as a portion of the background and the wings of Psyche did not show. Also that the print was so small and crude that it could not interfere with the sale of the plaintiff's reproductions of the original picture. Now the Copyright (Fine Arts) Act makes it illegal to "repeat, copy, colourably imitate, or otherwise multiply for sale, hire, exhibition, or distribution, any such work or the design thereof." "The design thereof" was an important point in the judgment. Mr. Justice Kekewich quoted Lord Justice Davey, in a former case, who said, "But it is said that the Act protects, not only the picture, but the design. These words are probably inserted in order to bring within the protection of the Act a copy in a different medium—for instance, a black and white copy of a painting made by an engraver, photographer, or a draughtsman, but it must still be the design of the picture, and not a mere outline or descriptive sketch of it." Continuing his remarks the Judge said that in dealing with a small surface—as in the case of the print in question—for convenience some portions have been blotted out. The background is gone and the wings, which were a poetical addition to the picture, and are preserved in all the photographs, are missing. Still there is the lady with the same drapery and in the same position, kneeling on the same rock, and intently gazing on what must be water. . . . "By this time I am," he said, "tolerably familiar not with the original picture but with the photogravure which has taken its place for the purpose of this trial, and may be regarded as a fair equivalent. I cannot turn," he added, "from the latter to the magazine

without being reminded of Thumann's picture, and instinctively recognising the work from which the case copy is taken. Coming to the question of damages, the Judge said in effect that this crude reproduction could not in any way injure the artist's reputation, nor could it injure the sale of the larger reproductions of the picture, but with the smallest sizes issued the case might be different by vulgarising the reproduction. He did not think that any serious injury that could be measured by £ s. d. had been done; but he adopted the plaintiff's argument that, if he desired to protect his copyrights, he was bound to take action even in a case which was on the face of it of a trumpety character, or run the risk of encouraging more serious infringements. He added in conclusion: "For the reasons above given I think the plaintiff is entitled to a verdict for nominal damages; and, seeing that he has come here to assert a right, the assertion of which was, as already stated, required for this protection, I see no reason why he should be deprived of his costs, notwithstanding that the defendants acted innocently, and, on having their attention called to the matter, did their best, so far as I know, with complete success, to obviate any further cause of complaint. There will be judgment for the plaintiff with a farthing damages and costs of the action." We have dealt with this case somewhat at length as it fully confirms what we said in an article last week with reference to the liability of innocent agents, and the defendants in this action were quite innocent agents. It also illustrates that if certain portions of a picture are removed, or omitted, it does not evade the Copyright Act. There is still the "design thereof," which is met by the Act. Queries on this point we have frequently had to reply to in the Answers Column.

THE WEEK IN HISTORY.

The Misfortunes of Daguerre.

EXACTLY sixty-six years ago to-day—on March 3, 1839—a fire had broken out in a building near the present Hôtel Samson in Paris. In a couple of hours the whole edifice was practically destroyed. The building was the "Théâtre du Diorama" of Daguerre. For nearly twenty years it had stood on this spot until a careless workman, bringing a lighted taper near a recently varnished painting, set it ablaze and thus ignited the combustible scenery with which the scenerium was stocked. The conflagration brought Daguerre, who was fifty-two at this time, into sore financial straits. Ever since the time when his dioramic effects had startled Paris into a new sensation, the theatre had been one of the show places of the capital. It appears that Daguerre obtained—and spent—a handsome income from his enterprise, and that he spared no pains and money to enhance the realism of the performances. So successful was he that when Charles X. visited the diorama he flung a two-franc piece into the *mise-en-scène* to convince himself that the perspective was actually a painted background.

Apparently Daguerre was the inventor of the system of producing novel effects by means of a canvas painted on both back and front, and illuminated by reflected or transmitted light in varying proportions. The triumphs of this method seem to have been acceptable to the Parisian patron of amusements in the twenties and thirties of the last century, and brought wealth and fame to their originator. These facts excuse, if they do not justify, the mercenary spirit which Daguerre showed when just about this time he completed his invention of photography. His previous source of income had suddenly disappeared; it was not surprising that he should make all he could out of his discovery. Critics of Daguerre have com-

mented severely on his patenting of his process in England immediately after the French Government had granted him an annuity for its publication. But I am not aware that any critic has taken the fact of the dioramic collapse into consideration.

The Diorama as Bonus.

When the settlement with the Government came on, Daguerre appears to have negotiated terms with some adroitness. He was to get so much a year for the rest of his life on account of his photographic process, and he clinched the bargain by throwing in the secret of his diorama. The *projet de loi* in which the Government ratified this agreement dwells on this "graceful concession":—"M. Daguerre has consented to make known the methods by which he produces his diorama, an invention of which he alone knows the secret, and which it would be unfortunate to be allowed to be lost"—reminding one of the cheap-jack who gives away the silver pencil-case with the genuine hall-marked gold albert.

In the textbook which Daguerre published in 1839, he spends a chapter in explaining the principles of his scenerial methods. The very first handbook on photography setting a precedent of "miscellaneity," if I may coin a word! It is a precedent which I fear has been followed more than once in English photographic literature.

Daguerre and Photography in 500 A.D.

There is evidence that in his travels in search of subjects for his diorama Daguerre visited Mount Athos in Turkey, and it has been suggested that he may have obtained a clue to the photographic process which he afterwards published from a manuscript in the Dionysian Convent there. The supposition rests on the rather insecure basis that a manuscript describing a photographic process was stated by Dr. Constantine Simionides, in 1864, to be in the Convent. Mr. Bolas has pointed

out that Simonides did undoubtedly forge certain documents when in straitened circumstances, but that there is not sufficient evidence for doubting his correctness in the case in question. The manuscript which it is suggested Daguerre may have seen was attributed to a monk, Panselennus, living about five hundred years after Christ, and he is said by Simonides to have described a process resembling Daguerreotype.

J. B. Reade and the Invention of Photography.

The inventors of photography trod closely on one another's heels. Talbot, Herschel, Daguerre, and Reade all published their results within the first six months of 1839. The last named was unfortunate in the medium he selected for making known his work, and on that account did not receive a fair share of the credit which was his by right. On the other hand the work of Reade has been distorted, notably by Mr. John Werge, to appear something which Reade himself stated it was not. What Reade actually accomplished—independently of Talbot or Herschel—was the working out of a photographic process in which relatively great sensitiveness was obtained with silver nitrate and tincture of galls, and in which the fixing processes with salt or iodide (as advocated by Talbot) and with hyposulphite (as laid down by Herschel) were employed. March 9, 1839, is the date which can be attached to Reade's process, though he had obtained results at least two years before. But this date appears on a letter written by him to E. W. Brayley, the librarian of the London Institution. This letter was not published until 1847 (the "North British Review," p. 470), and so in the action of Talbot v. Laroche in 1854 it was held that Reade did not make known his process to an extent which could be called publication.

How Reade Overlooked the Latent Image.

Wrote Reade:—"The most important process, and one probably different from any hitherto employed consists in washing

good writing paper with a strong solution of nitrate of silver containing not less than eight grains to every drachm of distilled water. The paper thus prepared is placed in the dark and allowed to dry gradually. When perfectly dry, and just before it is used, I wash it with an infusion of galls prepared according to the Pharmacopœia, and immediately, even while it is wet, throw upon it the image of microscopic objects by means of the solar microscope. It will be unnecessary for me to describe the effect, as I am able to illustrate it by drawings thus produced. I will only add, with respect to the time, that the drawing of the flea was perfected in less than five minutes, and the section of cane and the spiral vessels of the stalk of common rhubarb in about eight or ten minutes. These drawings were fixed by hyposulphite of soda. They may also be fixed by immersing them for a few minutes in salt and water, and then for the same time in a weak solution of hydroiodate of potash (potassium iodide. Eps.). The drawing of the *Trientalis Europea* was fixed by this latter method; it was produced in half a minute, and the difference in the colour of the ground is due to this rapid and more powerful action of the solar rays. This paper may be successfully used in the camera obscura."

From this it will be seen that Reade did not realise the existence of a separate latent image which could be afterwards developed. He was developing his latent image at the time of exposure under the impression that he was in possession of a very rapid print-out process. As he himself admitted in some correspondence published in *THE BRITISH JOURNAL OF PHOTOGRAPHY* for March 1, 1862:—"I was only, as the Judge said, 'very hot.' I did not realise the master fact that the latent image which had been developed was the basis of photographic manipulation. . . . The notion of developing a latent image . . . never crossed my mind."

HISTORICAL.

ORTHOCHROMATIC PHOTOGRAPHY.

I.

[A Paper read before the London and Provincial Photographic Association.]

Where the Ordinary Plate Fails.

In the photographic reproduction of a great number of subjects the ordinary plate produces effects which are accurate and pleasing. Such, for example, are most architectural subjects and black and white drawings. On the other hand, as the only light recorded by the ordinary plate is the blue, violet, and ultra-violet, blue objects usually photograph too light, and green, yellow, and red ones too dark, unless these latter happen to reflect sufficient ultra-violet or violet to be recorded.

I propose this evening to consider the means at our disposal to photograph any subject, whatever its colour, either to give a good rendering of its light and shade, or to accentuate or reduce its contrasts.

Properties of Orthochromatic Plates.

The majority of orthochromatic plates on the market exhibit a type of colour sensitiveness which is conferred by the use of erythrosin in the emulsion. This consists (over and above the normal blue sensitiveness) in a sensitiveness to the yellow-green and green light of the spectrum, and in a somewhat lower sensitiveness to the blue-green. Panchromatic plates are, in general, sensitive to the spectrum yellow and orange-red in addition to the green, but the green sensitiveness remains much greater than the red in nearly all cases.

Great improvements have been made in colour sensitisers during the last year or so; among the most notable introductions being Pinachrome, Pinaverdol, and Homocol. In most cases the sensitiveness is not even, but exhibits more or less well-marked maximum effects to certain wave-lengths.

Some slight indication of the relative sensitiveness of plates to blue, green, and red is afforded by the exposures given in three-colour work, where one finds such ratios as 1:8:12, 1:2:16, 1:6:16, and 1:4:32; and as in most of these cases the action of the blue light is considerably subdued, it will be seen that the added colour sensitiveness is much less than the normal blue sensitiveness.

By introducing into the emulsion certain yellow dyes which act as filters, the blue sensitiveness of some commercial plates is subdued relatively to the green without any loss of speed. In collodion emulsion work the above order of things is to some extent reversed, the green or red sensitiveness being predominant with many sensitisers.

Types of Orthochromatic Light-filters and their Uses.

All the filters detailed here consist of solution of aniline dyes, etc., and they are specified, according to the number of milligrams of dye contained in each cubic centimetre (parts per 1,000) of solution, the solution being held in a glass cell having an internal separation.

1 cm. Filters made from flashed or pot-metal glass are in fairly common use, but they are unreliable in their action. Frequently, although orange in hue and greatly increasing the exposure, they effect but little colour correction, because of the violet and ultra-violet rays which they transmit. Ultra-violet should not be transmitted by an orthochromatic filter if it can be avoided. There is practically only one way of ascertaining exactly how any particular filter and plate are acting, and that is by means of the photo-spectroscope—a test which may sometimes be supplemented by the colour sensitometer.

TYPE I.—Yellow filter subduing the blue and violet.—This is a fairly good class of filter for general work. It reduces the photographic effect of blues and whites and allows the yellows and greens to be recorded on an erythrosin type of plate. Unfortunately a filter of this type depends very largely for the correctness of its effect upon the relative sensitiveness of the plate used to green and blue, and as plates vary very much in this respect it really requires adjusting to almost every plate. A solution of brilliant yellow employed in a strength of 0.04 mgm. per c.c. gives a very good result with many green sensitive plates. The effect of this filter in landscape work is to increase slightly the detail in the greens, and also to bring out the clouds somewhat.

TYPE II.—One of the most useful filters for general work is one absorbing the whole of the ultra-violet, violet, and blue up to about λ 4,800. It might appear at first sight that such a filter would not give any good results since it entirely absorbs certain light visible to the eye, but owing to the fact that these colours rarely occur by themselves in Nature, never in landscape work, bad effects from this cause are not often seen. It will record blue colours quite well because of the blue-green and green that they reflect; yellows and greens are also well rendered. Violet and crimson colours are liable to be too dark, however, while the same remark applies to reds and deep oranges.

Such a filter has two very important advantages. Firstly, it can be made with dyes that are very transparent to the green and blue-green, and, secondly, as nearly the whole of the light to which a plate is normally sensitive is absorbed, and but little, except the sensitiveness conferred by orthochromatising, utilised, it is much less liable than the first type to give variable results with different brands of plates. Suitable compositions for this type are:—(1) Tartrazin 0.2 mgms. per c.c., or (2) Naphthol yellow S, 0.5 mgms. per c.c. The first dye is the more convenient on account of its great solubility.

The action of this filter in landscape work is to enhance relatively the photographic effect of the green foliage, and retard that of the blue sky, so that the clouds can often be well rendered in a negative at the same time as the green trees and fields, while the rendering of detail at a distance appears to be assisted. I do not, therefore, recommend this type of filter to those who desire to obtain the so-called "artistic" and "atmospheric" effects. There is a defect, which I believe might arise if too much blue-green were absorbed by the filter, and that is an apparent over-correction whereby trees are made to appear snow white. I am, however, inclined to think from such negatives of this kind that I have seen, that they were taken in very brilliant sunshine, and that they may be good renderings of the scenes as they appeared.

TYPE III.—True Orthochromatic Filter.—Perhaps the ideal combination of filter and plate is one which renders all objects according to their luminosity, irrespective of their colour. This is the type of filter of which a great deal is talked about in conjunction with the correct rendering of colour values, but they do not seem to be often produced or much used. As a matter of fact, their construction presents some little difficulty, and one does not often find the need of them. The first requirement is a plate sensitive to practically all visible light; the only kind which perhaps may be neg-

lected is the extreme violet. Now as there is no dry plate on the market sensitive to the whole of the red, one must start with the best panchromatic plate available. If the plate is sufficiently sensitive to red, which it rarely is, a filter of type II. might suffice. Generally orange-yellow dyes, such as Brilliant Yellow, which have a gradual absorption, greatest in the violet, and least in the red, are the most useful. A filter containing 0.08 mgms. of Brilliant Yellow per c.c. works well with a Lumière C. plate.

The colour sensitometer test is an excellent one for this type of filter, but the exact spectrum composition of the colours used must be known or no information can be obtained which will be useful in the adjustment of the filter. Reds, and sometimes greens and yellows, are liable to transmit sufficient violet or ultra-violet to produce a considerable effect on a photographic plate, without it being noticed by the eye. Suitable dyes for a colour sensitometer are Fast Red together with a little Tartrazin, strong Tartrazin, Naphthol Green, and Victoria Blue. These have to be adjusted, conveniently by photographic film, to a uniform visual luminosity, and a photograph of them should render all the patches equally bright.

TYPE IV.—Orange Filter.—A filter transmitting the red and part of the green used with a panchromatic plate is often very useful, particularly in photographing oil paintings with reds, oranges, and yellows. An interesting point with this filter is that although it does not transmit any pure blue or blue-green light, yet pigment colours of these hues generally reflect sufficient green and red to give a fairly correct rendering. Brilliant Yellow 1 mgm. per c.c. answers very well for the filter.

TYPE V.—Red Filter.—A filter similar to the red one used for tri-colour work is sometimes useful for lightening the reds of a dark picture.

The following is the composition of such a filter:—

Rose Bengal	...	...	...	...	0.5 mgm. per c.c.
Tartrazin	...	...	...	...	1.5 mgm. per c.c.

Dry and Liquid Filters.

These both have their respective advantages. For the purposes of experimental work, and perhaps also for work in the photographic studio, it is convenient to use liquid filters, the coloured solution being contained in a glass cell having flat sides. Only one cell is really necessary, and the solutions are poured in when required. Care must be exercised that the solutions do not fade or decompose. The yellow and red dyes recommended here are fairly stable.

However, filters in a dry state are more convenient if photographs have to be made away from the studio. In making dry filters corresponding to liquid ones, they should be re-tested, since the dyes do not always absorb in exactly the same manner when dry as they do in solution.

Regarding the glass used for dry filters, it should be homogeneous, and should have flat surfaces, but it does not matter if they are not strictly parallel.

The usual methods of making dry filters are to support the glass on a levelling table and coat with hot gelatine solution (8 to 10 per cent.), and when set to stain to the required depth in a solution of the dye, and then let it dry in a place free from dust; or to coat the glass with collodion, wash the ether and alcohol out, and then dye the film; or if the dye is soluble in alcohol, it can be dissolved in the collodion. In either case a cover glass must be cemented on with Canada balsam. A more exact method is to dissolve a measured quantity of the dye in the gelatine solution before coating.

A. J. BULL.

[The second part of this paper will appear next week. Eds., B.J.P.]

SOME PROBLEMS IN SHUTTER DESIGN.

II.

Control of Time of Exposure.

One of the chief problems in shutter design is the exact measurement of the intervals of the time during which the shutter remains fully open. The escape of air from the chamber, first applied to

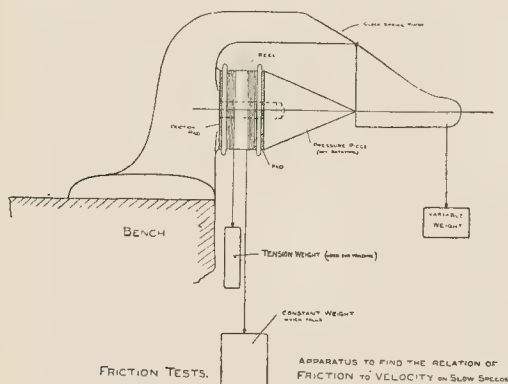


Fig. 4.

shutters by Newman and Adams, is the means most commonly employed for this purpose. But its general failure to control such short intervals as two or four hundredths of a second led me to inquire closely into the value of friction for this purpose.

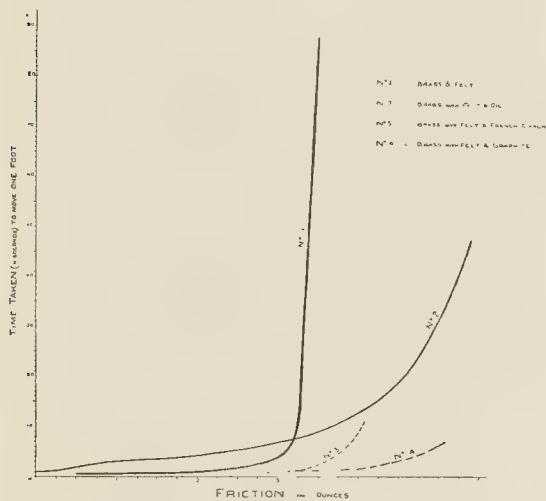


Fig. 5.

The Failure of Control by Friction.

The theory of the engineering schools is that friction is independent of velocity, but if this were true, friction could not be used to control velocity as we know it does in shutters which contain friction brakes. I therefore endeavoured to discover, by means of the apparatus roughly sketched in Fig. 4, to what extent and through what range friction varied with velocity. Fig. 5 shows some of the results. These curves which give the relation of friction in ounces to the corresponding velocity of the falling weight in seconds per foot, show that below a certain critical point velocity does not much

depend upon friction, while above this point the contrary is the case, and a variation of friction of only 8 per cent. makes as much as 80 per cent. change of velocity. It is obvious that for controlling velocity usefully, neither of these extreme conditions would serve and I therefore endeavoured to discover materials and conditions of pressure, etc., which would yield results approximating in graphical expression to a straight inclined line. Fig. 6 is the best effect obtained, and this is not unpromising. But all these experiments showed that friction varied widely at different times, being increased sometimes in the ratio of one to twenty merely by letting the apparatus rest for a day, and reduced correspondingly by active employment. This consideration appeared to wholly discredit friction as a means of accurately controlling shutter motions; the idea was accordingly abandoned, and attention was given to improving the use of pneumatic action.

Pneumatic Control.

The original pneumatic regulator for shutters consisted of a cylinder fitted with a piston, packed to prevent leakage, whose motion was retarded more or less by varying an aperture provided for the escape of the imprisoned air.

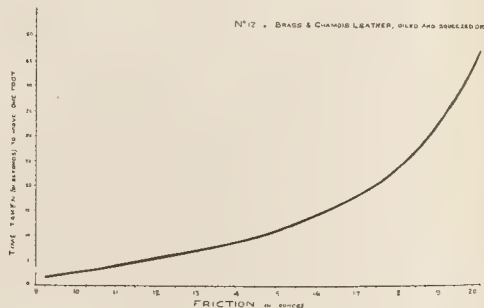


Fig. 6.

In the modern shutter the pneumatic regulator is called upon, not to vary a rate of motion, but to measure intervals of time. Accordingly it has been found that the packing of the piston and the variable air exit may both be dispensed with, the piston is fitted loosely within the cylinder, the air escaping between them acts as a lubricant and intervals of time are varied, not by varying the rate of the piston's motion, but by varying the distance through which it moves.

Now, in the ordinary shutter, which is intended to control times varying between one second and one-hundredth of a second, if the distance through which the piston moves when measuring one second be, say, half-an-inch (and it is limited by the need for compactness) then the distance through which it moves when measuring one-hundredth of an inch is only five-thousandths of an inch and the trouble is this: that with an elastic substance like air, which has to be compressed in volume before leakage will occur, that small interval of one-hundredth of a second, and even longer intervals, are generally occupied in compressing the air and by the effects of impact and inertia, and there is no time for the leakage, upon which we depend for time measurement, to come into play. This is why in the ordinary shutter, as is well-known, the three or four shortest exposures are practically the same, and not as marked on the dial. The remedies for this defect must be sought in increasing the rigidity of the air cushion, and in reducing the inertia, and controlling the impact of the moving parts.

Compression v. Extension in Pneumatic Control.

It does not seem to have been recognised how much more rigid air is in compression than in extension. This is shown in Fig. 7, which

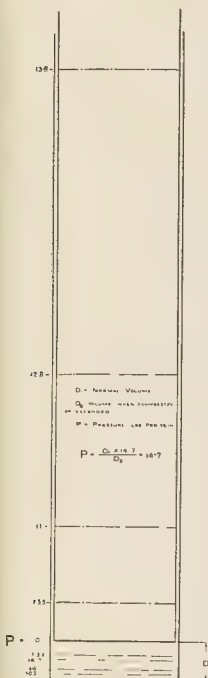


Fig. 7.

represents in outline a cylinder containing a loosely fitting piston at rest, with an air space D, between the piston and cylinder ends. In this position the air within is at the same pressure as that without, and the resistance to motion of the piston is zero. Let us call D $\frac{1}{2}$ in. If now we suddenly move the piston through $\frac{1}{2}$ in. so that the air volume is reduced to half, the difference between the inside and outside air pressures will be about 14.7 lb. to the square inch. This is the resistance now offered to further motion of the piston. If, however, instead of compressing the air we extend it as is frequently done in shutter regulators, we shall have to move the piston, not $\frac{1}{2}$ in. only, but an infinite distance in order to get the same resistance of 14.7 lb. This very striking statement is a caricature only because such high pressures are never reached in shutter regulators. But the principle it displays remains true: we must use the air in compression rather than in extension.

Actuating the Piston.

The next point of importance in securing accurate measures of short

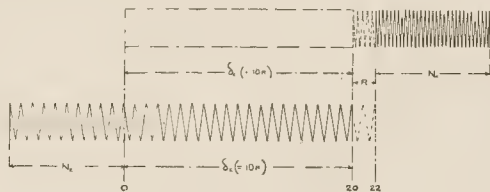
time intervals is to control the effect of impact on, and the inertia of, the moving piston.

In being moved to measure a very short time interval, it is inevitable that the piston be moved quickly. But if it be suddenly struck by the part which actuates it, the energy which the piston thus receives may carry it at once beyond the point required, and the effect of air leakage on the timing of the shutter will be lost.

It is the usual practice in shutters to strike the piston in this way, in order that the pneumatic device shall act also as an air cushion to stop the opening shutter without shock. This use as a buffer is however, quite inconsistent with the true purpose of the pneumatic regulator, and to abandon it leads to very much greater accuracy, in the control of short time intervals.

Springs in Compression.

The energy used to operate shutters is generally stored in springs which are set by hand, and for some obscure reason the springs used



COMPARATIVE DIAGRAMS OF TENSION & COMPRESSION SPRINGS
EQUAL STRENGTH IN WORKING RANGE WITHIN 10%

Fig. 8.

in shutters are generally helical springs used in extension, although compression springs having the same strength and range of action are, as shown in Fig. 8 much more compact.

WILLIAM TAYLOR.

[In consequence of great pressure on our space this week the conclusion of Mr. Taylor's paper is held over until the next issue. —Eds. B.J.P.]

PLATINOTYPE PRINTING.

A PAPER on platinotype printing by an expert such as Mr. W. H. Smith, of the Platinotype Company, is likely to not only draw a record attendance to any photographic society's meeting, but is likely to impart more practical information to those present, regarding this popular process, than any amount of demonstration by the dilettante user of the paper. Such proved to be the case at the meeting of the Croydon Camera Club, on Wednesday last, and Mr. Smith's remarks were further emphasised by the fact that nearly 200 platinotype prints were produced, and later, distributed by lot amongst those present.

Black Image Papers

The lecturer, dealing first with the black image papers, said it was important to allow full development, which with the bath at 60 Fah., would take place within 30 seconds; with correct exposure over-development was impossible. If prints had been accidentally over-exposed, development had to be arrested at an earlier stage by plunging them in the acid bath directly the right depth was attained, but the results obtained were not so good as in the case of normal exposure and development, and there was a tendency to granularity. Harsh negatives might be dealt with by under-printing, and developing at 140 Fah. In this connection old paper gave softer prints than new, a fact which might be taken advantage of. For very flat negatives, or when using stale paper, the addition of one

grain (in no case to exceed two grains) of bichromate of potash to every 20 oz. of developer, gave noticeably increased contrasts. This property gradually wore off in the developer, and might be compensated by the very cautious addition of fresh bichromate. Unless any special object was in view, such as local treatment, or sketchy vignetting, he did not recommend the use of glycerine; it gave a somewhat warmer black, less contrast, and a slight loss of quality.

Intermediate Tints.

Mr. Smith then proceeded to show how intermediate tints, between cold black and warm sepia, might be obtained, which may be tabulated as follows:—

Paper.	Developer.	Temperature.	Colour.
Cold bath	D Salts	60	Cold black
"	"	140	Warm "
"	Old Sepia	170	Brown "
Sepia	Sepia	60	Cold Sepia
"	"	170	Warm "

Sepia Tones.

The "Sepia" process was next considered, and Mr. Smith explained that the paper itself, and not the bath, possessed the "toning" quali-

ties; an old bath, however, gave richer tints than a brand new one, owing to what it had derived from the paper. To obtain the best colour the temperature of the bath should not be allowed to drop below 160, or rise above 180 Fah., which might damage the paper; 170 Fah. might be considered normal. Development was complete within a few seconds. Immersion in the acid baths should not be too prolonged, provided a fair quantity of solution was used. 5 minutes in the first, and 10 minutes each in the second and third was sufficient.

After Treatment.

Platinotype papers did not require a long after washing; three or

four changes for 10 or 15 minutes was ample, after which the prints might be suspended, which was preferable to drying between blotters. Owing to a hot developer being used, the necessary exposure to light was about 25 per cent. less than would be given in the cold bath process, and it followed from this that heating the developer was within limits, a remedy for under-exposure, with the latter.

Printing might be accurately gauged by an actinometer; the lecturer preferred "Johnson's single tint" for this purpose. He did not advocate mercury toning of black papers; in nearly all cases a distinct difference in colour between the high lights and shadows was observable.

TIME DEVELOPMENT.

II.

[The following is the second portion of the paper by R. Child Bayley recently delivered before the Society of Arts. The preceding portion, published last week in the *BRITISH JOURNAL OF PHOTOGRAPHY*, dealt with the principles of the system. The mechanical aids to carrying it out are now considered. We regret that we have not space for the discussion, in which the Chairman (Mr. George Davison), Mr. Chapman Jones, Mr. J. Sterry, Mr. W. Thomas, and others took part.—EDS. B.J.P.]

Modern Mechanical Methods of Time Development.

I now reach the second portion of my paper, which deals with appliances for time development. Before referring to them more specifically, it would be well to point out that there are two distinct systems by which time development can be accomplished. In one, we note the time taken for a certain part of the image to make its appearance, multiply that time by a factor which depends upon the developer used and the development factor at which we aim, and take the result as giving the time of complete development. This is the Watkins system, and as it has already been brought before this society by the gentleman best qualified to deal with it, I need not to-night go over the ground already covered by Mr. Watkins, but will merely refer to the "*Journal of the Society of Arts*" for December 5, 1902 (vol. li., p. 42), in which his paper will be found.

The Case of Over-Exposures.

Before leaving Mr. Watkins's system I would like to make one more reference to it. It has been urged against his method of development that it results in under-development of cases of over-exposure, and if his rules for development are rigidly carried out, without exception, there is no doubt that this is the case.

It has been foreseen by him, however, for in a passage in his book which describes his method, speaking of over-exposure, he says (p. 81): "It is, perhaps, even a better plan to develop half as long again, and afterwards reduce with the ferricyanide reducer, which reduces the lower tones more than the upper." It must never be forgotten in considering the Watkins method that it is one which deals both with exposure and development, and that those who master his system and bring merely an average degree of intelligence to bear upon its application to their own practice, will not know much about over or under exposure except what they read.

In the other system, a definite developer at definite temperature is allowed to act upon the film for a definite time, no inspection of the image being necessary, nor, indeed, with some forms of apparatus, possible. This is the method adopted in the "*Tyma*" and in the "*Kodak*" developing machines, examples of both of which are before you.

Ocular Control of Machine Development.

The "*Tyma*" machine, which is the invention of Mr. Max Reichert, was patented in 1901 (No. 14,079), and was the first time development machine to make its appearance on the British market; having

originated, so its inventor informed me, from an editorial article of my own, written and published in "*Photography*" in the previous year. It is a curious fact that, so far as my examination both of British and American patents has gone, the "*Tyma*" is the one and only mechanical apparatus for time development for which protection has been granted, if we except the various forms of automatic photographic machines in which the principle had necessarily to be employed, but in which the development was only one incident in a series of automatic operations. Even the best known, and certainly the most ingenious of machines, the "*Kodak*," as we shall see later, was protected, not as a machine for time development, but with the necessary window and peep-hole for examining the progress of the operations. For a good many years there have been quite a number of patents granted for enclosed dishes or stands in which development can be carried out, but they all provide for the necessity of watching development. In fact, they are simply little dark rooms, outside of which the user remains and watches through a ruby glass what goes on. Yet the patentee of the "*Tyma*" in his specification talks of "the well-known principle of time development." The "*Tyma*," however, has fallen from grace, and in the latest pattern, which is on exhibition, it will be seen that it is provided with a sliding shutter which covers a ruby window, although this cannot be of much service, as the opening is along the edges of the film.

The "*Tyma*" Apparatus.

The two diagrams now shown (Figs. 2 and 3) are taken from Reichert's specification, and will serve to make the working clear. One or two minor alterations have been made in its general design for manufacturing purposes, but it is still essentially what is now seen in these diagrams. It consists of a metal or other box, with a light-tight lid. In the box and lid are three openings, D and C, circular

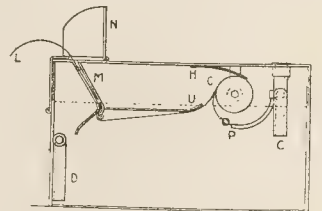


Fig. 2.

tubes for the passage of the solutions, and M a flat tube practically the width of the box. The way in which the film was immersed was a very ingenious one, and in my own practice—and I used the "*Tyma*" for some little while with perfect satisfaction—never failed. The spool of film with its black paper was placed on trunnions provided for the purpose at G. The black paper was unwound as

little, H being a spring to prevent the spool from unwinding too readily, and was led along under the finger or guide U and pushed up through the flat tube M until it came out of the top; N is a little flap which is raised while the black paper is first put through, and is pressed down again so as to serve as a light trap as soon as there is enough at L to catch hold of; P is a little clip, in which the extreme

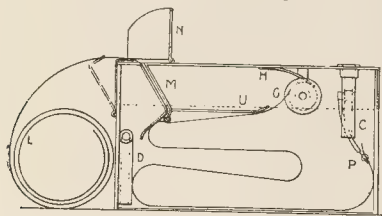


Fig. 3.

end of the sensitive film is gripped. All these operations are performed in daylight, and very easily, as the various parts referred to are all attached to the lid, which can be removed and turned upside down for the purpose. Then as much water as can be poured in without causing the syphon to operate is put into the body of the apparatus, and the lid is put on. We then have the state of things shown in Fig. 1, except that the flap at N is closed. On pulling the end of the black paper L the spool unwinds, the black paper comes out of the box, and the sensitive film, film side uppermost, forms a series of loops below the surface of the water. When the end of the film is reached—being attached to the black paper, it enters the tube M, where, by a contrivance for the purpose, the extra thickness of film and paper jams—the photographer knows that his spool is all unwound, and the film is held for the subsequent operations. These consist of syphoning out the water, pouring in a definite developer for a stated time, gently rocking the tank meanwhile, syphoning off the developer at the end of that time, and washing and fixing the film in a similar manner, when the lid can be taken off and the film removed for the final washing and drying.

The same inventor has made a machine for plates, but this need not concern us, as no mechanical methods yet devised for them enable us to do away with the dark room, or, indeed, present any noteworthy advantages over an ordinary dish provided with a light-tight cover, which is what I use myself for such work.

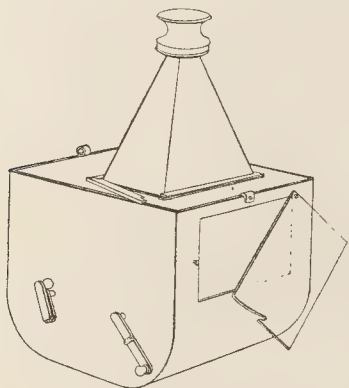


Fig. 4.

We now come to an instrument which is, I expect, well known to every user of films—McCurdy's patent apparatus—which has evolved into its latest form, very different from the original one, the "Kodak" developing machine.

The "Kodak" Machine.

A further diagram (Fig. 4) shows the external appearance of the "Kodak" developing machine in the form in which it was protected by McCurdy (Patent No. 21,243, 1899). You will observe that while it is a very different affair from the machine as it now comes on the market, there is more than a suggestion of it, both in

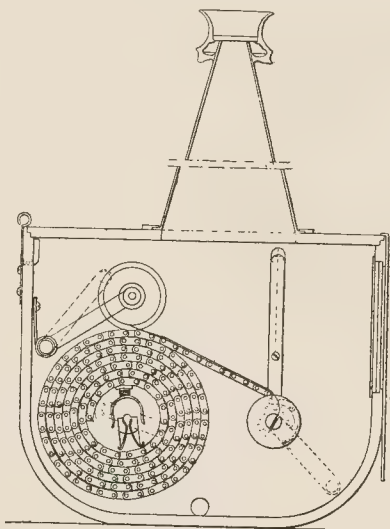


Fig. 5.

general shape, in the two spindles with external handles, and in the chain which subsequently developed into the well-known celluloid apron. The internal structure is shown in the next slide (Fig. 5). The stages in its development which intervened between the granting of McCurdy's patent and the machine as we know it must be imagined. By the courtesy of the Kodak Company I am able to show you one of the earlier experimental forms, in which we see the machine practically ready for that manufacture on a large scale which has since resulted.

The next diagram (Fig. 6) is copied from the book of instructions, and shows the machine as at present made, with part of the front removed to allow the interior to be seen. The apron, F, is made of ruby-tinted celluloid, of the same material, in fact, as the "Kodak" film itself, but with a red colouring matter added. Along each edge of the apron are corrugated rubber bands, which keep each coil of

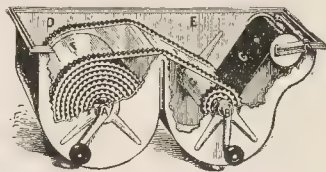


Fig. 6.

the helix distinct and allow the fluid to circulate between them. The apron being rolled on the left-hand spindle, the roll of the film is put into the position shown, the black paper is inserted into the slot on the spindle, G, and is wound round it until just before the film itself begins to come off the reel. The end of the apron is then hooked on to the spindle, G, half a turn is given to the handle to secure it, the developer is poured into the right-hand receptacle, the lid is put on, and the handle slightly turned. It goes stiffer and stiffer, until at last the whole of the apron is on the one spindle.

when turning again becomes easy. Inside the right-hand half of the machine we then have what is to all intents and purposes a very long, shallow dish, the bottom of which is formed by the apron, and the sides by the corrugated rubber strips and the sides of the machine itself. This dish is coiled in a helix. On the bottom of it is the black paper, and on that lies the film, face outwards, of course, which is exposed to the action of the developer.

Circulation of the Developer.

We are told to turn the handle slowly, about fifty turns a minute, until the development is complete. At the first glance we might suppose that by so doing the film is carried through the developer, much in the same way as it might be in the old style of developing long lengths of films by see-sawing it through a small dish; but it is not so. There seems to be no doubt that the developer is carried round with the film except for a slight lag. That this is so is confirmed by an experiment which shows that the development factor for exposures developed close up to the spindle G is not appreciably different from that of exposures developed right at the periphery; although, of course, were the liquid stationary and the film dragged through it, we should expect the latter to be higher, since rapid motion of the developer on the surface of a film or plate, such as can be got by violent rocking, always tends to give a higher development factor.

Of late years my experience has been gained entirely with a machine of this type, known as the pattern E, and taking any width of spool up to five inches. I have never had any failure with it which I could attribute to the machine, and although I have developed some hundreds of exposures in it, it is, so far as my observation goes, as good as when I had it; nor has it required any adjustment.

Trade Development.

The next diagram (Fig. 7) shows a combination of four machines with a water motor, such as is supplied for trade purposes. It is used extensively, both by Kodak Ltd., and others for regular trade development, and is not only found to give as high a percentage of

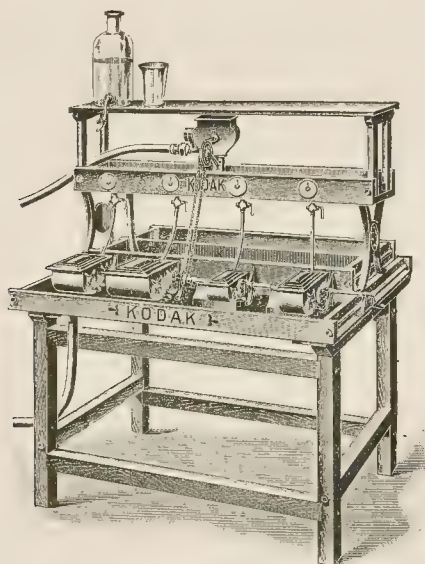


Fig. 7.

good negatives as the old plan did, but gives besides complete immunity from light fog, finger marks, and so on, and a very great economy by the substitution of ordinary for skilled labour. Rumours

of further improvements of the machine are in the air; but nothing definite has yet been announced.

Developers.

The makers of the Tyma and of the Kodak developing machines both supply developers suitable for use with them. Those who use the Kodak packet developers which are pyro soda, have the advantage of knowing definitely the composition of the solution they are using, and of a "time-table" which is given in the instructions, and gets over the temperature difficulty very simply. The developer recommended is made up so that each ounce contains approximately:

Pyro	...	...	...	...	1½ grains.
Anhydrous sodium sulphite	...	...	...	...	10 grains.
Anhydrous sodium carbonate	...	...	...	...	7 grains.

Temperature.

The time-table recommends developing for eight minutes at 45 deg. Fahr., five minutes at 60 deg. to 65 deg. Fahr., four minutes at 70 deg. Fahr., development not being advisable above 70 deg. Fahr. In actual practice I find it simplest to bring the developer to 65 deg. Fahr. by pouring it into a jug that has been warmed with hot water, if need be. It has been urged against this system that the temperature of the developer when development is finished may be very different from that which was ascertained with the thermometer before commencing. It may; but the objection hardly applies to ordinary usage. To get definite figures on the subject I took the temperature of the room and of the developer before and after use during the cold weather recently. The room was 55 deg. The developer was put into the machine at 65 deg., and after development was still between 63 deg. and 64 deg. That was in a cold room. My developing is generally done in a room at 60 deg. to 65 deg., when, of course, the difference would be less or would disappear altogether.

Other Formulae.

There is no need to use the formula given by the makers, of course, provided we find out how long development must be with the selected developer in order to give us the development factor desired. This can be got near enough for most people by developing a few cut films in a dish and noting the time taken for the exposures which seem to be about right to reach correct printing density, noting also the temperature. That temperature and that time will then be approximately what is required. Such a developer is the following, which I have found very suitable for Kodak films. It gives an image that is a little blacker than the pyro-soda formula:—

Pyrocatechin (Katchin)	...	...	...	2 grains.
Crystallised sodium carbonate	...	...	...	24 grains.
Crystallised sodium sulphite	...	...	...	24 grains.

The time of development with this formula, using Kodak film, and a temperature of 65 deg. Fahr., is seven minutes.

When development with this machine is complete, the lid can be slid back, the developer poured off and replaced by water, this replaced by fixing solution, and so on in a way I need not describe. The whole of the operations can be performed in full daylight, without the slightest fear of fogging the film.

I have used some of the other films on the market in the machine, and have found no difficulty in doing so, except that a gummed label or something of the kind must be employed to attach the outer end of the film to its black paper. In the case of the Wellington non-curling film, which in other respects has given me excellent negatives in this way, I have had trouble with the black paper sticking to the gelatine-coated back of the roll film; but I understand from the makers that this is having their attention.

There is one other little piece of apparatus which I have found very serviceable in connection with the developing machine, and that is Stanley's dark room clock.

It is convenient for many other photographic purposes, and is as handy a tool as I have in my dark room.

The Future of Time Development.

There is sound wisdom in the advice "never prophesy unless you know," and I propose to be guided by it now, and I will refrain from asking you to contemplate a vision of photography in twenty years' time, when all developing is done by a mechanical and not by a human "crank." I will ask you to remember, however, how great a change has come over the procedure of the photographer since 1890. It is not a change of apparatus or material so much as a change of method. One by one we are abandoning the old system, according to which we relied upon development to correct errors in exposure, and upon the eye to tell us when development was complete.

The motto for the future seems to be, "Take care of the exposure and development will take care of itself."

Hurter and Driffield, Watkins, Wynne, and others have made the problem of correct exposure far simpler than it used to be; plate and film makers are marking plates with far more definite information than the old "thirty times" or "fifty times"; and the plates themselves, thanks to improved instruments for studying emulsion-making and the changes which take place during the growth of sensitiveness, are far more in accord with practical requirements. The sale of fast plates at a higher price than slow ones, such fast plates being only the slower emulsion unintentionally fogged, is inconceivable now; yet we are assured that not more than fifteen years ago it was the case. There are still some, it would seem, who are inclined to dispute the power of a developing machine to deal with under or over exposure, but, with the advance in means of ascertaining what is the correct exposure, this objection, were it to have a foundation in fact—and I have endeavoured to show that it has not—would have to disappear.

In Three-Colour and Studio Work.

Time development in its broadest sense is unassailable. The moment truth of gradation becomes all-important, time development becomes a necessity; it can only be dispensed with so long as we have no means of testing the results. Skilled three-colour workers tell us that it is impossible to determine the duration of correct development with the eye. They must work by time development, quite apart from the fact that their plates are red sensitive. For studio work, where conditions are fairly uniform, something very much like time development is employed almost unconsciously. The operator who had to treat his negatives with tentative and all the other forms of development which figured so largely in the text-books of twenty years ago might not find his methods traversed, but would certainly hear from his employers on the subject of his output.

For press work, the developing machine has already come extensively into use; it is employed, as the advertisements of its makers remind us, at the seat of war, at the Panama Canal, and elsewhere, under circumstances that would render the old-fashioned style of development impossible.

For pictorial photography its convenience would commend it, if the truth of its results should not. One of the most gifted of photographic picture makers has said that a photographer using his camera as a means of artistic expression should no more have to think of his apparatus than a writer has to think of his pen. That degree of simplicity, I fear, is not attainable; but it can be approached, and a very distinct step is taken when we recognise that, as far as the personal factor is concerned, our negative is completed when the exposure has been made; and it is on the recognition of that fact that time development is based.

THE North Middlesex Photographic Society's annual dinner will be held this year on March 25 in the Caledonian Salon of the Holborn Restaurant.

Photo-Mechanical Notes.

Two Collotype Troubles.

ONE of the most frequent troubles in collotype plate making is the appearance of "wave marks," circular parallel markings generally on the margin of the plate, showing when it is dry. These, unless very large plates are prepared, generally render the plate quite useless. All the most prominent collotype workers, both here and on the Continent, seem entirely agreed, that these markings are due either to vibration or draughts reaching the plate while it is drying, the principal cause being draughts coming through cracks in the drying-box. The drying-box is usually made of wood; but if it is a respectable size it is difficult to get wood of a sufficient depth in one piece. On the other hand, if the sides of the box are made up of more than one piece, then draughts are practically certain to enter. Several remedies have been proposed. One establishment has a double lining, the inner wood sides being separated from the outer by a space of about 3 in., which is lightly packed with peat. This prevents draught, and has the advantage of well retaining the heat. Another good non-conductor and entirely effective draught preventer is plaster of Paris. If the sides of the box are first covered with strained canvas or sacking, then the plaster may be put on to about the depth of $\frac{1}{2}$ in., or some of the fibrous boards which builders now use for ceilings may be cut to size and screwed to the inside of the cupboard, and then plastered over to make smooth and fill up all cracks.

Another trouble that occasionally besets the collotype worker is the tendency of his plate to lift up, or come away from the glass during the printing. If as a rule, the plates work satisfactorily with the same formulæ, then this annoyance can safely be put down to unclean glass. Unless the glass has been thoroughly well cleaned and a good strong acid bath used, lifting is very likely to ensue, the presence of the slightest trace of grease being inimical to success.

Preserving Scum on Half-tone Plates.

Questions and answers on half-tone topics are one commendable feature in "Process Work" (Penrose and Co.), the current issue of which allots two pages to its readers for this purpose. To the querist who states the case of a half-tone which was devoid of colour to start with, and asks for means of preserving the thin and even edge of scum round the work, E. A. Foden writes as follows:—"When getting a half-tone print, clean it thoroughly by letting a little weak chromic acid and water flow over it. Then make up the following solution in a bottle: Nitrate of mercury, 1 oz.; water, 2 to 3 oz.; nitric acid, 1 drop. Give it a good shake and apply with cotton wool to the plate till the exposed upper portions become mercurised. Your print will then look as if printed on silver. Next get the line-etcher's glazed (finishing) roller and put sufficient of best proving ink on as if for pulling a proof; then roll the plate up (dry, of course) from each corner in turn with just a little pressure; this will ink up the enamel and scum together; dust in with bitumen, brush off clean and burn in plate over spirit flame till the mercury deposits disappear and the copper regains its natural colour. The plate is now ready for the first bath, which should be a little less than under normal conditions. Wash off and pull proof, and you will find that you have plenty of body to work upon. If when rolling up plate four ways you find the mercury black up, it is owing to the plate being insufficiently mercurised. Wash the ink off in the usual way and rub on more mercury. The mercury solution given will do for a good number of plates."

Testing Printing Inks.

The usual method of testing inks is merely to expose them to light, but it is equally as important to know whether they will stand the action of acids, alkalies, and sulphurous fumes, and the follow-

ing solutions are suggested in the "Photographische Chronik":—Ten per cent. solutions of hydrochloric and oxalic acids, and a twenty-five per cent. solution of washing soda will enable the ink to be tested for strong mineral acid, weak organic acids, and alkalies and soaps. A mixture of one part of ammonia and two parts of water will show the action of caustic alkalies. Equal quantities of alcohol and water are used for testing the action of spirit; solution of sulphuretted hydrogen and equal quantities of ammonium sulphide solution and water, show the action of sulphurous fumes in the air. The method of testing suggested is to print a flat tint with the ink and cut into eight strips; one being placed in each of the above solutions, the eighth being left for comparison. The strips should be allowed to remain in the solutions for fifteen minutes, then washed in three or four changes of water and dried, and then compared with the control strip. An interesting description is given of the German green postcard stamp, which is a mixture of millori blue and chrome yellow; quite stable to light, but which is turned blue by the action of acids, and yellow by alkalies, and if treated by both it is entirely bleached.

Exhibitions.

BIRMINGHAM PHOTOGRAPHIC SOCIETY'S EXHIBITION.

ON Saturday, February 25, the twentieth annual exhibition of the Birmingham Photographic Society was opened by the Lord Mayor in the rooms of the Royal Society of Artists, who again lent their fine suite of galleries for the purpose.

The hon. secretary, Mr. Lewis Lloyd, must be again congratulated on having got together so much good work. The first impression, perhaps, will be that the exhibition is not so good as we have seen before, but a careful examination soon convinces us that it is of more interest than ever, and although the really fine loan collection which was shown on the first occasion, when these galleries were placed at the disposal of the society, will be missed, yet the general average will be found to be higher than ever. For there is scarcely a single photograph in the whole exhibition that is not good, except several that are wilfully bad, sent in by members who ought to know better.

The judges in the pictorial section, Messrs. F. H. Evans, J. C. S. Mummery, F.R.P.S., and W. J. Wainwright, A.R.W.S., have not awarded so many medals as usual. The lady photographers again show very strong work. Mrs. G. A. Barton has twenty-three frames and receives two silver medals, which entitle her to hold the silver cup of the society for a year. Mrs. Barton's work is very much on the same lines as in former years. Her strongest and best is 104, "A Pair of Spectacles," a vigorous portrait of an old lady, a really fine piece of work, but one feels that the shadows on the face are a trifle too black. This portrait receives one of the silver medals, the second being awarded to 319 C, "Little Round Hat," a portrait in red chalk of the little girl we have seen so often. "Hollyhocks" (319) is not a success; the flowers are too dark, and a smudge in the outline of the lady's nose is unpleasant. "Portrait of Mrs. W. J. Seal" (42), a full-length of a lady in a white dress, against a dark door, is, on the whole, the most satisfactory photograph Mrs. Barton has ever exhibited. Nevertheless one cannot help feeling that this clever lady exhibits too many, and that if, instead of sending twenty-four frames, the same time and care had been expended on six, the results would have repaid the sacrifice, and sacrifice is one of the great guiding rules of Art.

Mrs. G. Arbuthnot has several portraits in a dainty, delicate style which she has made her own. "A Portrait" (82) reminds us

of a delicate sketch in pencil; while the "Bishop of Birmingham" (22) shows that Mrs. Arbuthnot can produce strong, vigorous work. Mrs. Wooton, in addition to "A Bit of Venice" (10), an excellent photograph of a canal in that lovely city, shows some good portraits of children. Mrs. E. D. Girdlestone's work is, on the whole, the best she has yet shown, especially "I'm a-weary, I'm a-weary" (239). Miss M. Silverston's best exhibit is a good portrait of Whitworth Wallis, Esq.; her portraits of ladies not being as good as in former years.

The work of Mr. W. T. Greatbatch is quite up to his standard, but we do not think that it is better than he has shown before. His best is "The Miller," who stands at his desk, against a window, a difficult subject, not quite mastered. Mr. Smedley Aston emphasises the departure he made a few years ago; and since giving up the soft, low-toned landscapes he then produced, has now gone to the opposite extreme, and is apparently influenced by the style of Rossetti and Holman Hunt, and the Pre-Raphaelites, in his portraits by photography, by selection of models and dresses and the use of Morris's wallpapers, small stops, and hard negatives.

Mr. W. A. Clark has many beautiful architectural interiors in which difficult effects of sunshine and shadow are well rendered. Mr. Arthur Marshall's "The Last Rest" (168), is, to our mind, the finest photograph in the whole exhibition. It is another proof, if it were needed, that technical perfection is no bar to pictorial perfection. The subject is not a specially difficult one, an Elizabethan tomb with recumbent figures, a plastered wall, and a stone column, that is all. But the clever massing of light and dark, and the rendering of textures (the alabaster with the polish of centuries, the broken colour of the plaster, and the masonry of the pillar), are masterly.

Mr. Page Croft's work is neither better nor worse than usual. "A Portrait Sketch" (33), is perhaps his best, the ghastly bluish-green colour of some prints seems most inappropriate for portraits. It is pleasant to be able to welcome some names of new comers. Mr. J. C. Batkin has several very beautiful "gum" prints of harbour scenes, with all the delicacy and detail one could desire, showing what an elastic medium "gum" is in the hands of those who know what they want. One wonders why Mr. Batkin's "Dutch Canal" (202) did not receive the medal, which fell to "Tugging Home" (193), by W. Clayden.

Another new comer, Ernest A. W. Moore, has a well nigh perfect picture in "Sad Memories" (18), an old man sitting in a church porch, the soft, grey light, and the little gleams of sunshine on the old man's shoulder are rendered in a tender and delicate manner that is delightful. In "The Gleaner" (58), Mr. Moore has been not quite successful, the pose of the figure and the background are charming, but the whole suffers by being too low in tone. "To the Altar, Wirksworth," by Percival W. Crane, is such a palpable "crib" of Mr. Bland's well-known picture as to be ludicrous, and the composition is very unsatisfactory. Mr. A. G. Peck's "The Snow Path" (243), is a glorious picture of large size, of sunshine and snow. It is most refreshing to see a successful rendering of bright light in these days of murky gloom.

J. Cruwys Richards sends some of his charming portraits, but none better than we always expect from him. In "A Woman of Conhemara" (309), he has been guilty of a piece of wickedness that we did not think he could have perpetrated, and the fact that it is so clever makes his crime the greater. It is a large head of an old woman in coloured gum. The clay-coloured face, the crude red shawl, and the pale blue background make one wonder how Mr. Richards could have done such a thing, and one feels if only the time and patience wasted on this work had been spent in producing monochromes what grand results might have been attained.

The Foreign Section contains some interesting work, and some extremely bad. The judges in this class awarded two certificates only. The Scientific Section is unusually large and good, and demonstrates how valuable photography has become to research workers. The Loan Section is small, but includes a fine series of Mr. F. H. Evans's cathedral photographs, some excellent work by Mr. Mummery, and some of the exhibits of the Salon Club of America. In this section there is a nude study, in which the pose of the figure produces a series of zigzag lines that are extraordinarily ugly. In the entrance room Mr. T. A. Sands's colossal enlargement cannot be missed, but its breadth and artistic effect suffer from being hung so low down.

LIST OF AWARDS.

Members' Section.—Bronze medal, Ernest Moore (18); certificate, E. W. Taylor (25).

Members' Section for those who have never taken an award or exhibited at the R.P.S. or Salon.—Certificate, J. B. Walker (305).

Open Section.—Silver medals, J. M. Whitehead (305); Mrs. Barton (two) (104 and 319c). Bronze medal—Arthur Marshall (168); William Clayden (193); A. G. Peck (243). Certificate—Miss Warburg (140); Arthur Marshall (185); E. Seymour (194); Dudley Hoyt (322); Karl Weiss (two) (365 and 370).

Lantern Slides (Open Section).—Silver medal—Niels Fischer; bronze medal—H. Wild; certificates—Neils Fischer and W. A. I. Hensler.

Lantern Slides (Members).—Bronze medal—W. A. Clark; certificate—W. A. Clark and W. F. Lewis.

Warwickshire Survey.—Silver medal—J. B. Walker (51 to 75); bronze medal—Thomas Clarke (1 to 50).

Scientific Section.—Silver medal—Percy Longmuir ("Photomicrographs"); W. M. Martin ("Embryology of Chickens"); Oliver G. Pike ("Studies of Birds"). Bronze—Dr. Rodman ("Radiographs of Shells"); W. Farren ("Reed Warblers"); W. Farren ("Caterpillar of Hawkmoth"); B. H. Bentley ("Wild Arum"); John Moore ("Studies of Snails"). Certificate—G. A. Booth ("Blue Tits"); B. H. Bentley ("Humble Bee on Sea Holly"); W. Heathcote ("Cole Tit Feeding Young"); Oliver G. Pike ("Garden Warbler"); W. Heathcote ("Young Starling"); J. Stabb ("Lightning Flash"); C. J. Watson ("Series of Oscillating Electric Sparks"); G. H. Booth ("Natural History"); B. H. Bentley ("Queen of the Air"); Dr. Thurston Holland ("Radiographs of Bone Diseases").

GLASGOW SOUTHERN PHOTOGRAPHIC ASSOCIATION.

The fourth annual exhibition of the Glasgow Southern Photographic Association opened on Tuesday last at the rooms, Eglinton Lane. The pictures are on view each evening until Tuesday, March 7, and a varied programme has been arranged for during the exhibition. The entries this year are far in advance of last, the total number of contributions being 408 as against 253 on the previous occasion. The judges were Messrs. A. Cochrane, J. W. Eadie, and Tom McEwan, R.S.W., who have had a task of some magnitude in making the awards. On Class 1 (open to all) there were 115 pictures, so that the judges made awards of three additional medals, making two silver medals—one to Fred Judge for "November" (256), a charming woodland picture, and one to A. C. Milne for "Of Highland Descent" (312). The bronze medals were three in number, and were awarded to Wm. Clayden, "Tugging Home" (237), a picture light in colour, suggestive of heat haze of summer; A. W. Hill, for "Mo Nighean" (242); and E. Seymour, "Flower Study" (274). Class 2—Lantern slides, flowers, etc. (open): Silver medal, E. Seymour; bronze medal, Robert Burnie; and certificate, W. H. Goy. Class 3—Lantern slides, any subject (open): Silver medals, Rev. H. W. Dick and Graystone Bird; bronze medals, Thos. H. Taylor and H. Wormleighton; certificate, Chas. Kirk. Class 4—

Any subject (confined to Federation associates): Silver medal, A. W. Hill; bronze medals, A. C. Milne and J. C. Robertson; certificates, M. Warnock, John Ritchie, D. M. Filshill, and R. Murray. Class 5 (members' work): Silver medal, Wm. A. Frame; bronze medals, J. H. Pollock and J. Waugh; certificate, Robert Ure. Class 6 (members' work): Silver medals, Robert Wallace and D. C. Murdoch; bronze medals, George Warkness and D. Linton; certificate, R. Lindsay. Class 7—Lantern slides (members): Bronze medals, Robert Ure and Robert Wallace; certificate, Wm. A. Frame. The pictures exhibited are above the average, and in the members' classes there are many pictures which the judges must have had some difficulty in passing over.

EDINBURGH PHOTOGRAPHIC SOCIETY.

The annual exhibition of the Edinburgh Photographic Society was opened on Saturday last, and will continue for the next three weeks in the Society's rooms, 38, Castle Street. The exhibition is divided into two classes—an open section, which is considerably the larger of the two, and a section restricted to members who have not previously won a medal at any of the Society's exhibitions.

The most outstanding figure study is one by A. Hamilton Allan, Edinburgh. It is the work of one who undoubtedly has a knowledge of art, and who has evidently studied in a Whistlerian school. A. W. Hill sends two gum-bichromate works, and the better of the two, which has been medalled, a head of a girl, is of remarkably fine quality, showing the value of this process that has not yet been taken advantage of by more than one or two Edinburgh workers. E. Drummond Young exhibits several good figure subjects, and James Burns, who has hitherto confined himself to landscapes, has scored with a portrait, "Marie," that embodies the latest principles of the advanced school of photography. J. C. Robertson, Brechin, exhibits a beautiful print of a little boy sitting beside the wreck of his toy engine. James Patrick has been medalled for a portrait of E. A. Hornell of excellent quality. J. B. Johnston shows an interesting bit of Old Edinburgh, and a street scene with figures that merited an award; and James Ashurst, Musselburgh, a new exhibitor, has won deserved commendation for his picture of "Where Men Toil." Other pictures of merit are shown by John Moffat, R. S. Webster, R. M. Readdie, E. Von Rosenberg-Lipinsky, and Allan Brothers, the latter exhibiting a winter scene that looks more like a chalk drawing than a photograph. In the restricted section mention may be made of two winter scenes by W. Mitchell, a landscape by W. J. Crear, "The Ferry," by J. M. Comrie, which has all the advantages of excellent mounting; and an old doorway by H. S. Harrison that might well have been medalled instead of receiving honourable mention. The following is a list of the awards made by the judges, Messrs. Robert Gibb, R.S.A., Gemmell Hutchinson, A.R.S.A., and Frank Sutcliffe:—

Open Section—Medals: A. W. Hill, Bank House, Shotts; James Patrick, Edinburgh; James Burns, Edinburgh; A. Hamilton Allan, Edinburgh; James Ashurst, Musselburgh; John Spark, Perth; J. C. Robertson, Brechin; and William Clayden, Plymouth.

Members' Section, restricted to those who have not previously gained a medal—Medals: Miss Agnes W. L. Dickie, W. J. Crear, Ewen Kennedy, and J. D. Paterson. Hon. Mention: J. M. Comrie, Charles Kean, G. G. Sutherland (2) Ewen Kennedy, A. E. Robertson, and H. S. Harrison.

BOWES PARK PHOTOGRAPHIC SOCIETY.

A very well arranged and creditable exhibition of members' work was held at the Unity Hall, Wood Green (the meeting place of the society), on February 23rd to 25th. Although the situation of the hall is quite away from the main thoroughfares the attendance each day was very satisfactory, and the financial success of the show, which is the second

arranged by this young and energetic society, seems assured. Mr. R. Child Bayley made the following awards:—

Class A (Landscape).—Bronze medal, A. J. Craston; certificate, H. C. Bird; ditto (extra), H. T. Parker.

Class B (Portraiture).—Bronze medal, W. J. Edmonds; certificate, R. Core Gardner.

Class C (Architecture).—Bronze medal, A. Kernon; certificate, W. J. Edmonds.

Class D (Still Life).—Bronze medal, H. T. Parker; certificate, E. Tappenden.

Class E (Lantern Slides).—Bronze medal, W. J. Edmonds; certificate, F. P. Bayne.

Silver medal for the best picture, H. T. Parker.

[Owing to pressure of space the list of *Forthcoming Exhibitions and Competitions* is unavoidably left over this week.]

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between February 13 and February 18:—

PRINTING POSTCARDS.—No. 2,895. "A picture postcard printing frame." Claude Low, 54, Cockburn Street, Edinburgh.

SHUTTERS.—No. 3,162. "Means for setting roller blind shutters in photographic cameras by the introduction of a dark slide or the like." A. R. Lange, 73, Cheapside, London.

DEVELOPMENT.—No. 3,164. "Improvements relating to the development of photographic plates, films, and the like." W. F. C. Kelby, 7, Southampton Buildings, Chancery Lane; London.

APPARATUS.—No. 3,165. "Improvements relating to photographic apparatus." W. F. C. Kelby, 7, Southampton Buildings, Chancery Lane, London.

PRINTING FRAMES.—No. 3,192. "Improvements in printing frames." Louis Gritte, 4, South Street, Finsbury, London.

PRINTING POSTCARDS.—No. 3,296. "Improved apparatus for printing photographs from negatives, and more particularly for printing photo postcards." F. J. Seaman, Gough Chambers, Savile Street, Hull.

PRINTING FRAMES.—No. 3,375. "Improvements in printing frames." E. R. Petrie, 40, Chancery Lane, London.

LENSES.—No. 3,398. "Improvements in certain photographic and other lenses." H. Dennis Taylor, Buckingham Works, Bishop-hill, Yorks.

The following patents are open to public inspection before acceptance under the Patents Act, 1901:—
Nos. 1,594 and 1,595, 1905.—Lenses. Nehring.

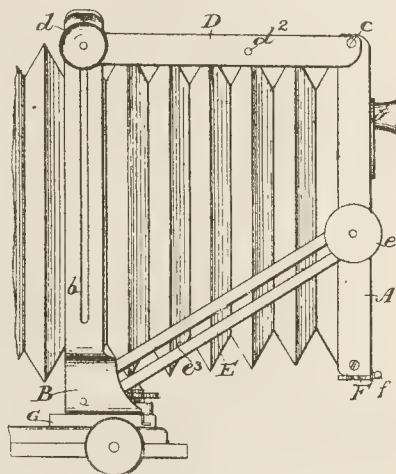
COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W. C.

AUTOMATIC PHOTOGRAPHING TELEGRAPHS.—No. 29,428, 1904. Improvements in such telautographs or automatic photographing telegraphs, whereby the speed of the production of the several photographs at the receiving station can be increased with perfect safety, while it is possible to produce photographs not only from transparent originals, but also from opaque originals. The objects of the improvement are, first, to provide means at the sending station for feeding the several originals in a direction and for holding them one after the other in a stationary position for the exposition; second, to provide similar means at the receiving

station for feeding the several parts of an endless sensitive film or paper or the several sensitive plates, papers, or the like, and holding them one after the other in a stationary position for the exposure; third, to provide, both at the sending station and at the receiving station, either an endless movable band with a series of differently arranged apertures or a turntable disc with a series of apertures disposed in a spiral, these apertures being arranged for disclosing consecutive strips of the original or the sensitive film part, plate, paper, or the like, respectively, one after the other; fourth, to provide means for actuating synchronously the two endless movable bands or the two turntable disks at both stations; fifth, to arrange the rays of light emanating from the opaque original or passing through the transparent original at the sending station to pass through the consecutive apertures of the endless movable band or of the turntable disk for acting upon the radiophone; and, sixth, to arrange the intermitting rays of light at the receiving station to pass through the consecutive apertures of the endless movable band or of the turntable disk for acting upon the sensitive film part, plate, paper, or the like. Paul Ribbe, 140, Kurfürstendamm, Halensee, Berlin.

CAMERAS.—No. 4,831, 1904. The chief claim is for the special form of front shown in the figure. To the slotted standards, B, are attached pairs of arms, D and E, to which the lens board is attached. This combination thus acts as a universal swing-front,



and it also permits of the lens-board being brought close to the plate, the arms being then behind the standards, B. There is a special locking device for the arms and for the standard B to the base-board. R. and M. Ballantine, 101 and 107, Buchanan Street, Glasgow.

FILMS.—No. 24,774, 1904. A self-stripping film, consisting of sensitive emulsion coated on a compound film of gelatine and collodion, which is cemented to a highly glazed paper by means of albumen. During washing the albumen dissolves out, the negative thus detaching itself from the paper support. M. Bry, 32-34, Rue du Chemin du Fer, Courbevoie, France.

MESSRS. MARION AND CO., LTD., of 22 and 23, Soho Square, London, W., inform us that they will be holding their annual clearance sale from March 13th to 18th, both days inclusive, when many bargains in hand, field, and studio cameras, lenses, tripods, etc., etc., will be offered. Full detailed catalogues will be published a few days before the sale and may be had on application.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
3.....	Hull Photographic Society	{ <i>Retouching</i> . Demonstrated. Mr. John Way.
3.....	Watford Photographic Society	{ <i>Photography Prize Slides</i> , 1904.
3.....	Wishaw Photographic Assn.	{ <i>Little Things of Pictorial Photo-</i>
3.....	West London Photo. Society	{ <i>graphy</i> . Mr. W. D. Welford.
3.....	Wakefield Photo. Society	{ <i>Rome Portraiture</i> . Mr. E. T. Holding.
3.....	Boro' Poly. Photo. Society	{ <i>Early Motor Tour in Yorkshire Dales</i> .
4-11 ..	South London Photo. Society....	{ Mr. Geo. Thistlethwaite.
6.....	Southampton Camera Club	{ <i>Platinotype Printing</i> . Mr. F. W. Gregg.
6.....	Bowes Pk. and Dis. Ph. Soc.	{ <i>Sixteenth Annual Exhibition</i> .
7.....	Royal Photographic Society.....	{ <i>Mountainering Life</i> . Illustrated.
7.....	Sheffield Photo. Society.....	{ Mr. F. Orniston Smith.
7.....	Glasgow Southern Ph. Assn.	{ <i>Lenses</i> . Mr. W. T. P. Cunningham.
7.....	Mulr Kirk A.Ph.A.	{ <i>Intensification of the Negative</i> . De-
7.....	Brentford Photo. Society	{ monstrated. Mr. J. McIntosh.
7.....	Thornton Heath Photo. Society ..	{ <i>Orthochromates in Ordinary Work</i> .
7-8 ..	Nelson Photographic Society ...	{ Mr. J. W. Charlesworth.
7-8 ..	G.E.R. Mechanics' Institution ..	{ <i>Close of Exhibition</i> .
8.....	Boro' Poly. Photo. Society	{ <i>Beck's Cameras and Lenses</i> . Mr.
8.....	Everton Camera Club	{ W. F. Slater.
8.....	Windsor Camera Club	{ <i>Photography 1904 Prize Slides</i> .
8.....	Cricklewood Photo. Society	{ <i>Notes and Notices by the North Sea</i> .
8.....	Rotherham Photo. Society	{ Mrs. A. L. Sandford.
8.....	North Middlesex Photo. Soc.	{ Y.P.U. Invitation Folio.
8.....	Paisley Phil. Institute.	{ <i>Annual Exhibition</i> .
8.....	Glasgow Co-Op. C.C.	{ <i>Flashlight Photography</i> . Mr. Ernest
8.....	Leigh Photographic Society	{ J. Sulist.
9.....	Rugby Photographic Society ...	{ <i>The Beginning of Photography</i> .
9.....	Rodley and District Ph. Soc.	{ <i>Bromides, Toning, &c.</i> Mr. J. H.
9.....	Watford Camera Club	{ Avery.
9.....	Batley and Dis. Photo. Soc.	{ <i>Beginners' Night</i> .
9.....	Liverpool Amateur Ph. Assn.	{ <i>Orthochromates in Ordinary Work</i> .
9.....	L.C.C. Sch. of Ph.-Engraving ...	{ Mr. J. W. Charlesworth.
9.....	London and Prov. Photo. Assn.	{ <i>Ten-Minute Papers by Members</i> .
9.....	Richmond Camera Club	{ <i>Rising to the Occasion</i> . Mr. W. D.
9.....	Greenock Camera Club	{ Welford.
9.....	Glasgow Eastern A. Ph.A.	{ <i>Annual Business Meeting</i> .
9.....	Hull Photographic Society	{ <i>Gum-Bichromate Printing</i> . Mr. J.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held February 28, Major-General Waterhouse in the chair. —A paper on "Control of the Development Factor at Various Temperatures," by Mr. W. B. Ferguson, K.C., M.A., F.R.P.S., and Mr. B. F. Howard, A.M.I.E.E., F.R.P.S., was read by the latter gentleman. The authors detailed the experiments made to determine the extent to which the development constants of a plate varied with the temperature, and explained the methods of plotting the results so that differences in temperature could be allowed for in practical work. Their work was done with a pyrogallol developer of strength 2 grains per ounce, and containing 1 grain of bromide per ounce. The tables obtained for each particular emulsion were found to hold good for a given batch for a considerable time, and one instance was cited in which no change was observed in a batch of plates in six months, during which time they were subjected to a double passage of the Channel. The authors suggested that makers should mark plates for time development, and in the after discussion Mr. J. Sterry exhibited a label from an Autotype plate-box, which bore indications of this kind, and was issued about ten years ago. The authors mentioned that they soaked both plates and films in water for one minute before commencing development. In some cases they found that this led to pinholes unless a stream of water was dashed vigorously over the surface. Some landscape lantern-slides

from negatives developed by calculated time were projected, and were received as the strongest demonstration of the soundness of the authors' methods.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

MEETING held February 23, Mr. R. P. Drage in the chair.—A Paper on "Orthochromatic Photography" was read by Mr. A. J. Bull, and is reprinted on another page. Mr. Bull illustrated his many practical points with projection experiments, and showed the actual effect of filters, etc., for which formulæ are given in the paper. A brief discussion followed, in which Mr. W. Thomas, Mr. S. J. Beckett, the Chairman, and others took part.

GLASGOW AND WEST OF SCOTLAND P.A.

A PAPER on "The Capacity of the Different Printing Processes to Render Gradation" was read by Mr. Wm. Goodwin before the members of this Association on Monday last. Mr. Goodwin stated that his investigations were made to enable a comparison to be made of the different printing processes in daily use, and the character and extent of the gradations of the papers used. Some difficulty was found in getting a sensitometer or scale to measure the gradations, and he found one made of tracing paper from one sheet upwards to opacity proved most satisfactory. The range of gradation in plates and printing-out papers was shown to vary to a considerable extent with the different makes. There is little need, Mr. Goodwin stated, for using a variety of plates, as rapid plates may be used for all purposes. The dark-room lamp should be regular, so that density may not be faulty. Pyro stain deposited with the developer has a great influence on the result in printing from the negative, so that a freshly-prepared developer, and one that is non-staining in its character, should be used, and the worker should depend upon silver alone for the image.

SOUTHAMPTON CAMERA CLUB.

THE members of this club met on Monday evening last for the purpose of a lecturette competition. The winner was A. E. Henley, with an account of a trip "From Harlech to the Roman Steps," and G. T. Vivian was second with a tour round the recent exhibition representing "Old Southampton." The Club Committee have recently recommended to the members a scheme for a photographic record and survey of Southampton. For the present the old town is only to be treated, and it is expected that within the next few months much will be accomplished. It is intended that the collection of prints shall later on be handed over to the town authorities upon suitable conditions.

DEVONPORT CAMERA CLUB.

A DEMONSTRATION of "Tabloid Photographic Chemicals" was given, before the members of this club, by Mr. W. D. Watmough, of Burroughs, Wellcome and Co., on Tuesday last. He toned several lantern slides by the Ferguson copper toning method, and produced results from a cold brown to a bright red. He also toned several bromide prints by the same process. The chemicals used were ten per cent. solutions of potassium ferricyanide, copper sulphate, and potassium citrate, compressed into one tabloid. The lecturer then intensified half a negative, using tabloid mercuric iodide and sodium sulphite, and a metol-quinol developer, and a fine result was produced. He then demonstrated the reduction of the negative, first by ammonium persulphate tabloids, and then by potassium ferricyanide and "hypo," pointing out that in the use of the latter the shadows of the negative were reduced in a greater proportion than the highlights, whilst with the former the reverse was the case. By an intelligent selection of these processes, the effect could be regulated according to the class of negative required.

HULL PHOTOGRAPHIC SOCIETY.

"GUM-BICHROMATE PRINTING" was the subject of a successful demonstration, by T. Heaps, before the members of this society, on Thursday last. After explaining several leading workers' methods, the lecturer described his own system. He first of all soaked in bichromate of potass. solution (1 oz. to 10 oz. water) a sheet of cartridge paper (a penny a sheet), and said this was good enough to commence with, but Hollingsworth's non-absorbent paper was strongly recommended, and any others may be used which float. After it is thoroughly soaked, dry in a warm room away from daylight. Then take sufficient of a gum solution, made up of 1 oz. clean gum-arabic to 3 oz. water, strained until perfectly clean and clear, and mix with dry powder-colour to make a thin paste—vegetable black, venetian red, etc., or a judicious mixture of both was recommended. The colour must be ground very fine first. Coat the sensitised paper quickly with the mixture by the aid of a hog's hair varnish brush, and be sure to rub well into the paper. When thoroughly dry, it is ready for printing. A negative inclined to be thin is most suitable; and the exposure is about the same as that for fully-printed P.O.P., under a negative of similar density. If carried a little further, however, there would be no harm done. The gum paper must be dry; yet, if a veiling of the whites is required, i.e., no clear white paper in the highlights, much in this direction is possible by a slight dampness of the paper. The paper develops without attention in cold water, but it should be turned over at intervals, and can be hastened where necessary, or locally, by gently dropping or flowing a smooth, fine stream, or even a fine spray, of cold water on the surface. If much over printed, warm water can be requisitioned. Not more than one print at a time should be developed until a little skill is gained; and, on no account, must one print catch another during its very tender stage of development. When nearly dry much local work can be done with a fine camel's-hair brush. If it is thought fit to introduce figures, etc., or even clouds, from other negatives all that is necessary is to remove that portion where the addition is to come with the brush referred to, and, when dry, re-sensitise the paper; coat the parts for duplicate printing with the same gum and colour mixture, and print in figures or clouds, and develop again. Once the print is dry, nothing will remove that which has gone right through the process successfully; hence the necessity to brush away just where the additions are to come in its first semi dry state.

ACCRINGTON CAMERA CLUB.

An instructive lecture was delivered by Mr. A. W. Cooper, of Preston, to the members of this society, on Wednesday evening last. Mr. Cooper dwelt on the practical part of photography rather than the technical. He asked his audience to aim at impressing their own individuality upon the picture, as an artist would in his paintings, giving due attention to the composition of the subject, the matter of light and shade, correct exposure, the tonality of the prints, and the trimming of the same, all of which were necessary to distinguish a "picture" from a mere topographical record. He advocated as being nearly always essential the taking of the sky on a separate plate, it being very rarely possible to get both sky and landscape correct on the one negative.

CONSETT AND DISTRICT CAMERA CLUB.

The second annual exhibition of this society was opened last Monday, in the club rooms at Luton House, Consett. The exhibition embraced 35 entries from Federation members, 381 entries from the local members, and 75 exhibits not for competition. The awards were:—Class A.: Federation exhibits—Walter S. Corder, 1 and 2 (Federation plaque and certificate); A. S. Grettes, 2 (certificate). Class B.: Landscape and seascape—J. H. Courtney, 1 (silver plaque); E. Urwin, 2 (silver pendant); J. H. Courtney, 3 (silver pendant). Class C.:

Portraiture—Jesse Hall, 1 (certificate); J. H. Courtney, 2 (certificate). Class D.: Architecture—Jesse Hall, 1 (bronze medal); John Miller, 2 (certificate); W. E. Massey, 3 (certificate). Class G.: Genre—Jesse Hall, 1 (silver pendant); Thos. Duckworth, 2 (silver pendant). Class F.: Lantern slides (set of three)—R. Gardner, 1 (bronze medal); Jesse Hall, 2 (certificate); R. Gardner, 3 (certificate). Class G.: Postcards (set of four)—W. E. Massey, 1 (silver pendant); F. Summers, 2 (certificate); J. Miller, 3 (certificate). Class H.: Best picture in exhibition—E. Urwin, "An Old Shoemaker." Class I.: Best print taken on summer tours—E. Urwin, 1 (bronze medal); Jesse Hall, 2 and 3 (certificates).

LEEDS PHOTOGRAPHIC SOCIETY.

Mr. GODFREY BINGLEY, president of the Yorkshire Photographic Union, gave a lecture before the above society, on Tuesday evening last, entitled "Oxford and Cambridge." Mr. Bingley showed a large number of slides of the various collegiate buildings of the two University cities. Mr. Bingley, as a slide-maker, is well known; and a very noticeable feature was the presence of suitable clouds in all his landscape work. His method is to make half-plate negatives of clouds, and, by selection of the most suitable parts, print a number of cloud transparencies, masking the lower part of the plate. The landscape or foreground is next printed on another plate, and the most suitable cloud transparency selected. By means of Howard Farmer's reducer, and a camel-hair brush, the cloud portions overlapping the landscape are reduced away. The two transparencies are then bound together.

Commercial & Legal Intelligence

SCULPTOTYPE Company, Ltd.—Registered February 17. Capital £1,000, in £1 shares. Objects: To adopt an agreement with W. B. Kraft and F. Gartner for the acquisition of their rights in an invention for an improved process of producing relief photographs or the like; to acquire the interest of the said W. B. Kraft in an agreement, dated October 25, 1904, between the said F. Gartner and W. B. Kraft, whereby F. Gartner granted to W. B. Kraft the exclusive rights respecting the said patents for the United Kingdom, the U.S.A., and Canada, and to develop and turn to account the said invention. No initial public issue. Registered office, 31, Edgware Road, W.

DISSOLUTIONS OF Partnership.—Helion Co., manufacturers of photographic art papers. The partnership between Otto Hehner and P. Leuthardt-Thornton, under which the business under the style of "Helion Co." has hitherto been carried on at 11, Billiter Square, London, E.C., has been dissolved, and such business is now discontinued.—E. C. Scholl, jun., and Co.—Notice is given in the "London Gazette" that the partnership formerly subsisting between Emile Charles Scholl and William Tristram Auchinleck, carrying on business as photographic trade enlargers, etc., at White Cross Chambers, South Castle Street, in the City of Liverpool, under the style of E. C. Scholl, jun., and Co., has been dissolved by mutual consent. All debts due to and owing by the late firm will be received and paid by Emil Charles Scholl, who will continue to carry on the business on his own account under the same name.

COPYRIGHT of a Picture.—Franz Hanfstaengl v. W. H. Smith and Sons.—Judgment was delivered in this action, in which the plaintiff, an art publisher, asked for an injunction to restrain the defendants from printing, selling, or publishing any copies or colourable imitations of the plaintiff's copyright works, particularly "Nature's Mirror," by Paul Thurnman. The plaintiff alleged that the defendants had published in "Munsey's Magazine," in connection with a prize for advertisement-identifying, a picture of a young lady gazing into a pool of water, and this he contended was a copy

of "Psyche" as she appeared in his photogravures of "Nature's Mirror." He pleaded that the use of "Psyche" in such a connection was derogatory to the picture as a work of art. The defendants denied that the "Psyche" produced in "Munsey's" was the plaintiff's picture, or that they had infringed, or intended to infringe, his copyright, and pleaded that he had not suffered any damage. His lordship held that the plaintiff was entitled to a verdict with nominal damages. If plaintiff desired to protect his copyright he was bound to take action even in a trumpery case. There would be judgment for the plaintiff for one farthing damages, with costs.

THE first meeting of the creditors concerned under the failure re Charles Joseph Jones, photographer, carrying on business at 176, Upper Street, Islington, lately residing and carrying on business at 9, Rosebery Gardens, Rosebery Road, Wood Green, under the style of Jones and Co., was held at the London Bankruptcy Court on Monday last, before Mr. G. W. Chapman, Official Receiver. The Official Receiver, after dealing with the proofs of debt lodged, stated that the debtor commenced business in February, 1904, when he took the studio and business of a photographer at 176, Upper Street, Islington. Since December last he had been pressed by several of his creditors. He had been in the bankruptcy court on a previous occasion, as he was adjudicated bankrupt in the High Court on December 17, 1903, on the petition of a creditor. He was then carrying on business at 75, Essex Road, Islington. His liabilities under that failure amounted to £913, and his assets to £23, but they subsequently realised £58. No dividend had been paid to the creditors under that failure, and he had not applied for his discharge. All the fixtures and fittings on the premises were the property of his wife. The business was purchased in his wife's name, but he had conducted it, and she had allowed him to use the plant, etc., but she had never assigned it to him. He had not yet filed a statement of his affairs, but he hoped to do so in the course of a few days. He estimated his liabilities at about £130 or £140, and his assets nil. He alleged his failure to have been caused through bad trade entirely, and heavy expenses incurred in working up a business, there being very little goodwill attached to it when his wife purchased it. Eventually the estate was left in the hands of the Official Receiver for summary administration in the usual manner.

KREBS v. Fuerst.—In the Chancery Division, on Thursday, February 23, Mr. Justice Buckley heard the application by defendants in the case of Krebs v. Fuerst Bros. for further directions on a procedure summons. The action was brought by Dr. Krebs, who traded under the style of Photochemische Fabrik Helios, Offenbach, against the defendants, Messrs. Fuerst Bros., Philpot Lane, London, upon an agency contract by which Helios transferred to Fuerst Bros. the sole right in the whole of their products except patented developers for Great Britain, Ireland, and the Colonies for a period of five years from September 1, 1901, to August 31, 1906. Fuerst Bros., on their part, covenanted to represent the interests of Helios to the best of their ability, and undertook that they would not, during the continuance of their contract, represent any competing factory with the exception of J. Hauff and Co. (a German limited company). The plaintiff determined the contract, owing to alleged breaches by the defendants, by a letter dated December 31, 1903. There were certain articles manufactured—sensitisers, developers, intensifiers, and reducers—as to which he alleged the defendants had broken their contract, alleging that they had deliberately and systematically pushed the sale of such goods produced by competing manufacturers to the exclusion of the goods of the plaintiff, and that they had also advertised and pushed the sale of, and had kept a wholesale depot for, photographic chemicals of the firm of Burroughs Wellcome and Co., besides breaking their covenant in three ways. Consequently they

had in their action claimed a declaration that the contract had been duly determined, and that plaintiff was no longer bound to employ defendants as his agents. He asked also for an injunction restraining defendants, for an account of profits, and for damages for breach of duty. The defendants, by the defence put in, denied the breaches, and contended that plaintiff had no right to determine the contract. The defence was also accompanied by a counterclaim against the plaintiffs. His lordship said the summons would be dismissed, the costs to be the plaintiffs' costs in any event.

News and Notes.

EDINBURGH Society's Dinner.—On Thursday last the annual dinner of the Edinburgh Photographic Society was held in the Carlton Hotel, Edinburgh. About fifty members and friends attended. The president, Mr. J. Tudor Cundall, B.Sc., presided.

THE sixteenth annual exhibition of the South London Photographic Society will be opened by the Mayor of Camberwell to-morrow (Saturday, March 4), at the Camberwell Baths, Camberwell Green. Doors open at 4 o'clock, ceremony at 8.

THE Cripplegate Photographic Society is arranging an historical exhibition of old photographic apparatus, prints, etc., and the secretary asks any one who is willing to lend such things for exhibition from March 20 to 23 to communicate with him. The society will pay insurance and carriage both ways. The secretary is J. B. Parnham, 5, Reighton Road, Upper Clapton, N.E.

THAT photography is steadily gaining ground as a means of education to the masses is evidenced by the fact that seven stereoscopes have been placed in Mile End and Limehouse public libraries, and a large number of views on educational subjects provided. These will be issued to the public in the same way as books. The idea is to stimulate local knowledge.

THE Watford Photographic Society's second annual exhibition will be held at the Watford Public Library, on Friday and Saturday, April 28 and 29, 1905. The judges will be the Rev. F. C. Lambert and T. Percivale Padwick. In addition to the members' classes, there will be a local class open to any amateur residing within ten miles of Watford. Entry forms can be obtained of the hon. secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

EASTMAN KODAK COMPANY OF NEW JERSEY.—The Kodak Co. write: "We beg to inform you that the usual quarterly dividends of 1½ per cent. (being at the rate of 6 per cent. per annum) upon the outstanding Preferred Stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the outstanding Common Stock, have been declared by the Eastman Kodak Company of New Jersey, payable on April 1, 1905, to stockholders of record at the close of business on February 28, 1905.

THE Queen of Italy has honoured Messrs. Speaight, of 157, New Bond Street, W., with a commission for a "Baby's Album" for the little Italian heir. The book, which has just been sent to Rome, is beautifully bound in blue art linen and vellum, and its title page has spaces reserved for the names of King Edward, the Prince of Montenegro, Queen Margherita, and the Emperor William, who were the chief sponsors at the recent christening. Four pages in the book are reserved for interesting events in the Prince's life, and there are twenty-one blank pages left in order that the child's portrait, together with an autograph, may each year, until he comes of age, be kept on record.

PHOTOGRAPHIC Survey of North Middlesex.—The Record Committee of the North Middlesex Photographic Society are seeking co-operation in undertaking the photographic survey of North Middlesex. Among the objects most desirable to record are old buildings, lands, roads, streams, bridges, etc., having any particular local interest, or likely

to be removed or interfered with, especially the old rural architecture of the county, together with old furniture, fittings, implements, etc. Particulars of the record work are exhibited in the club meeting room, and any further information will be given by Mr. J. C. S. Mummery, F.R.P.S., hon. secretary to the committee. His address is 81, Pellatt Grove, Wood Green, N.

BLAIRGOWRIE and District Photographic Association.—The annual general meeting of this association was held in the club rooms on Tuesday evening last. The hon. sec. (Mr. L. Falconer, jun.) reported a successful year, and the treasurer's report showed a satisfactory balance in hand. Office-bearers were elected as under:—President, Mr. Geekie; vice-presidents, Messrs. J. Deuchars and H. D. Ross; secretary, Mr. L. Falconer, jun.; treasurer, Mr. John Cameron; auditors, Messrs. J. M. Donaldson and D. S. MacLennan; hon. lanternist, Mr. H. S. Pyffe; executive, Messrs. MacLennan, J. Richardson, J. D. Petrie, W. D. M. Falconer, and J. B. MacLachlan. It was agreed to continue affiliation with the Scottish Photographic Federation.

PARCEL Post with the United States.—The agreement for an official parcel post between this country and the United States of America, which has been signed by Lord Stanley and the Postmaster-General of the United States, will be of special interest to many photographers and dealers in both countries. The following is the text of the official intimation:—"The new service will be established on April 1 next. The limit of weight for parcels from the United Kingdom will be 4 lb. 6 oz., and the postage will be 2s. for each parcel. There will be no non-postal charges apart from Customs duty. The insurance system will not apply to parcels sent by the new service. This official service will, however, be carried on concurrently with the semi-official service at present maintained through the agency of the American Express Company, by which parcels can be sent up to 11 lb. in weight, and can be insured for any value up to £120.

THE King under Fire.—The Press photographers at Portsmouth, during the visit of His Majesty on Tuesday, had a unique opportunity of showing their mettle, and doubtless there was subsequently much competition in getting prints off to town in time for this week's illustrated papers. After completing the inspection of H.M.S. Drake, and successfully dodging the photographers who were tracking him all the morning, His Majesty gave his tormentors their opportunity. Officers of all grades, from flag-captain to cadet, took up positions. In front stood the King, with Prince Louis on his right and Admiral Fisher on his left. When half a dozen civilian and naval photographers had placed their cameras in position, His Majesty, first inquiring: "Are you ready?" gave the command "Fire!" The photographers "fired," and notable pictures should be the result.

A New Copying Accessory. Made by the Tress Co., 23, Oxford Street, London, W.

An attachment which serves the useful purpose of moving a print to and from the lens exactly at right angles to the axis of the lens is sure of a welcome at the hands of both amateur and professional workers. In the form in which it is made by the Tress Company, it consists of a stout mahogany bar, which is screwed to a table or studio tripod with an ordinary sewing-machine clamp. Within the bar slides a second one, on which the print, be it carte-de-visite or 12 by 10, is mounted in such a way that it can be brought opposite the lens of a large or small camera, and can be moved steadily to and fro as the operator watches the focussing screen. The attachment thus renders easy and rapid the task of copying or enlarging a print without special apparatus, and it might be used also in making lantern-slides by reduction. Its price is 10s. 6d.

Correspondence.

- * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

COPYRIGHT IN THE TRANSVAAL.

To the Editors.

Gentlemen,—Can you inform me whether a photograph copyrighted in the Transvaal is protected in England? There seems to be some doubt on the matter, and to be certain I am sending you some photos for registration in London which I have already registered here.

The copyright law here is most unwieldy and expensive, and as far as I can gather does not include Cape Colony, Rhodesia, or Natal. In the Transvaal you have to make a sworn declaration before a J.P., and affix a 2s. 6d. revenue stamp. Then you interview the Registrar of Deeds and affix a further 10s. revenue stamp, and attach three copies of the photograph with your name, address, and date written across the front. When this has to be repeated in three other colonies in order to have a South African protection, it is no wonder that photographers prefer chancing piracy. Can nothing be done towards simplifying matters by arranging an Imperial Copyright Union between British Colonies and England, so that by registering a photo in the Transvaal, Australia, Canada, or any other British Colony, protection would be extended to the whole of the British Empire. I should think that the subject should be taken up by the Photographic Copyright Union, for it is of considerable importance to all professional photographers.—I am, yours faithfully,

R. C. E. NISSEY.

P.O., Box 453, Pretoria,

February 6, 1905.

[The Transvaal and the Orange River Colony having become part of the British Empire the terms of the Berne Convention, under which Great Britain and Ireland, "and all the colonies and foreign possessions of Her Britannic Majesty," are made members of the International Copyright Union, apply to these countries.

Under the Convention registration of copyright in any one subscribing country or colony, makes the work legally copyright in all the other subscribing colonies. But the formalities of the country of origin must be observed, and our correspondent's very legitimate grievance had therefore best be addressed to the authorities at Pretoria or Cape Town. We believe the state of the copyright laws in South Africa was the subject of organised protest some time ago from the Cape Town Photographic Society, and possibly the officials thereof can say what was done in the matter.—EDS. B. J. P.]

THE SLACK SEASON.

To the Editors.

Gentlemen,—In many small towns the slack time extends over a period considerably greater than the one generally assigned to it, and it must be a difficult matter for many photographers to tide things over. We hear about benevolent associations, but there is a good (or bad) old maxim: "Every man for himself and . . . I will leave it to your readers to fill in the blanks. But it is a fact that when things are bad some of us need not shrink from making the proverbial honest penny in other ways. Many do so, I believe. I know I can vouch for the following cases that have come before my notice: One photographer, now in business in my locality, has held the place of verger in a parish church for some years past; another has found his musical ability stand him in good stead; when his business declined he obtained a permanent engagement in a theatre orchestra, that fully made up for his loss in trade. Two others, not so fortunate,

have taken on waiting at table in gentlemen's establishments to augment their incomes, and thus make up for the depression in their businesses.

This sad state of things should prove a lesson to our coming assistants, and induce them to take advantage of their spare hours in acquiring a knowledge of some other work, they can fall back upon in the event of photography failing to bring them in a living.

The benefits to be derived from a course of instruction in drawing, shading in chalk, and monochrome have been pointed out in the B.J., and I hope you won't think me an egotist, but I can speak from experience on this matter, and can truthfully say, the knowledge I acquired in these subjects has been the means of adding to my income apart from my business in photography; and it has been a pleasure too. For instance, I took on illuminating and writing mounts—such as are done in university towns—writing and embellishing fly leaves of scrap books, etc., with painted crests and coats-of-arms; now and again a presentation address fell to my lot, and occasionally I have turned my hand to illustrating verse, with fair success. But in this latter branch photography comes in useful; to give a simple proof, matt-surface paper prints are traced over with specially prepared Indian ink, so that it withstands the action of water; the photograph after this operation is dissolved away, leaving a rough outline sketch, that often does for the purposes of reproduction.—

UNIFOD.

A FORTY-PAGE list from Mr. Jonathan Fallowfield is the outward and visible sign of a bargain sale which he is holding at 146, Charing Cross Road, London, W. The sale lasts until March 20. An immense variety of apparatus and materials is offered at greatly reduced prices, and the occasion is one which many will probably embrace, as it is not every day that one can pick up useful accessories at the prices which we see in the list. To select only one or two items:—A stamp camera for twenty-five pictures on the 7 by 5 plate is priced at £6 6s. A "Nydia" hand-camera for £6, and a bewildering variety of mounts in 100 and 1,000-lots at low prices. The firm guarantees the first-class working condition of the goods, and the list distinguishes between the slightly-soiled or out-of-date articles, which chiefly make up its contents, and actually damaged goods.

LIVERPOOL Photographic Trade Association.—At the first annual dinner of the Liverpool Photographic Trade Association, Mr. F. V. A. Lloyd, who presided, referred to the depression of trade from which he said all of them must have suffered to some extent; he was, however, optimistic enough to believe that they were on the eve of improvement, and he predicted an exceptionally good business year. The speaker briefly referred to "the concentration of forces, which is daily taking place in the photographic trade," and it was for them to consider whether the developments resultant therefrom were for the benefit of the retail dealer. There were two questions to consider. (1) Do the general public want such value as the manufacturers are now placing on the market? and (2) are the present cutting of prices and showy improvements of apparatus a gain to the trade? To both of these queries a negative answer could, in his opinion, assuredly be given. They all desired to have strong wholesale houses full of energy, inventiveness, and progress, but there was no reason why competition should allow the wholesaler to overstep the limit. Much depends on the retail dealer, and he must not forget the important part he plays in the business world. Their unity of purpose combined with good feeling was of so much value that no power, however strong, would deem it wise to pay anything but deference to the Association or its members. It was for these reasons that he should like to see other large centres following their example, and so greatly benefiting themselves and strengthening the retail photographic dealer throughout the country.

Answers to Correspondents.

- * * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- * * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.
- * * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- J. J. Wright, 125, London Road, King's Lynn. Photograph of Proclaiming Kings' Lynn Mart.
- Morrison & Ednie, 28, North Bridge Street, Edinburgh. Photograph of J. Lindon, Esq., M.D.
- S. G. Beach, Fir Glen, Dartnell Park, West Byfleet. Photograph of the Rev. W. F. T. Hamilton.
- A. C. Alexander, 45, Bank Street, Galashiels. Photograph of the Galashiels Opera Company.
- T. B. Lachmore, 11, Brand Street, Hitchin, Herts. Photograph of the "Old Trooper" Public-House at Hitchin.
- F. Weisner, 59, London Road, Liverpool. Two Photographs of "La Marguerite."
- D. Ross, Norman Place, Leslie, Fife. Photograph showing Kinnesswood, Lockleven and Benarty Hill. Photograph showing Loch Lomond and Bishop Hill.
- J. Allan, 208, Firthill Road, Glasgow. Photograph of H. A. Long Lecturing at Glasgow Green twelve years ago.

H. G. CONYBEARE.—See reply to "W. R."

W. F. B.—Not by you. You have our congratulations in one respect.

PLATINUM.—Probably sensitising salts, ferric oxalate, or double oxalate of iron, sodium or ammonium.

A. F. VILLIERS, Bristol.—Jonathan Fallowfield, 146, Charing Cross Road, London, W.C.

J. W. E. (Caerlinion).—The Pocket Photography Company, 56, Gracechurch Street, E.C.; and The Quincey P.D. Company, 136 and 138, Kentish Town Road, N.W.

FERROTYPED PLATES.—Should be obliged if you could give us the name of any good maker of ferrotype plates.

Try James Moore, 258, Heneage Street, Birmingham.

W. ANDERSON.—We certainly cannot publish the copy of your letter, particularly as you do not send the reply you received to it. We do not see that you have very much to feel aggrieved at after all. We should advise you to take a broader and more liberal view of things generally.

ADDRESSES.—Will you kindly answer the following questions in the B.J.P.?—(1) The address of the makers of the Bastian light.

(2) The address of the Luxia Company.—W. R.

(1) Rumney and Rumney, 39, Victoria Street, London, S.W.

(2) South Hill Works, Hampstead, N.W.

H. E. M.—We cannot accede to your request, although we sympathise with you in your misfortune. But in dealing with strangers you should obtain satisfactory references, or avail yourself of the deposit scheme which our publishers maintain for the protection of advertisers. Conditions of deposit will be found on page 2 of each week's issue.

S. E.—A suitable toning formula for bromides, which will give very much the same tone as that of your sample is: Bleach the prints in a solution of potassium ferricyanide (half an ounce), ammonium bromide (300 grains), in water (20 ounces), and after well washing darken in a solution of pure sodium sulphide (30 grains in 10 ounces), and again wash thoroughly.

WANTED. A RAPID PROCESS.—May I beg you to advise me on a process whose characteristic should be simplicity and quickness? I want to start taking photographs of people on postcards (can

such a thing be done direct, without making a negative first?), to be delivered within a few minutes.—J. GANDE.

Direct positive work, on paper, is not a practicable process. We think your requirements will be met by the ferrotype form of photography. Write for price lists and particulars to Jonathan Fallowfield, 146, Charing Cross Road, London, W.; and to the Quta Machine Company, 34, Norfolk Street, London, W.C.

COPYRIGHT.—I have taken a photograph of a professional music-hall artist free of all charge to same. The photograph has been given away at two halls as souvenirs. Will you kindly tell me if I am entitled to a reproduction fee from the printers', if so how much?—A. S.

You are entitled to a fee. If you have not done so you should register the copyright, and then demand the withdrawal of the souvenirs from circulation, at the same time asking for settlement as regards the copies already issued. You may claim from the printers or from the agent of the artist, for whom, probably, the printer has executed the souvenirs.

LENSES.—(1) Recently I sent a R.R. lens to a gentleman on approval. He returned it, with the complaint that "it was insufficiently corrected for landscape work." Now, as I know the lens works true to focus on printed matter please explain what he means, and kindly give me a test that I may verify whether it is so or not for myself.—OTHELLO.

(1) Your correspondent's objection is probably disingenuous. If the lens will photograph printed matter sharply that is a good enough test, if it is for landscape. About the best way to make the test is to focus newspaper printing, pasting several columns together so that when the width of the column is about half an inch on the focussing screen the length extends from end to end of the plate. Focus in the centre and then compare the definition at the edges. If the screen has to be moved nearer the lens to get the margins sharp, make a note of the distance. It should never be more than three-quarters of an inch for an 11-inch good R.R., and in this proportion for smaller or larger focal lengths. (2) 13, Old Grange Road, Sparkhill, Birmingham.

COPYRIGHT INFRINGEMENT.—I photographed an old gentleman two years ago, for which no money whatever has been paid. He came to be seriously ill about two months ago, and seeing this I copyrighted the negative. In about three weeks after I saw my copyright infringed in a local paper as an advertisement for a firm of pills. They have reproduced without my permission. Can I claim compensation, and if so, what amount? I may say the old gentleman had several pictures off the negative, but I am almost certain it is from a print I gave him after I copyrighted the negative that the reproduction was made. Is it necessary to have the word "Copyright" on a print to protect it, as I did not mark the mount? What do you advise in the matter? Please give address of the Copyright Union.—PROFESSIONAL.

You have a clear case for action, it seems to us, as presumably no payments have been made to you by the sitter. Your best course is to write to the firm of advertisers, asking what compensation they suggest. In the meantime, the Copyright Union, 23, Soho Square, London, W.C., or the Professional Photographers' Association, 51, Baker Street, London, W., would advise you on your becoming a member. There is no necessity to have the word "Copyright" marked on the print or mounting.

SHUTTER, BROMIDES, WATER-COLOURS.—(1) Does not a Thornton Pickard 3-inch roller blind shutter work with a greater speed than indicated, if I place a smaller lens, say of a 1-inch diameter in front? The shutter is behind-lens pattern. As far as I can judge the shutter's speed is nearly double if used with

half plate lens instead of 9 by 7 lens. (2) If I remove or bleach out anything on bromide print with pot. ferricyanide, will it appear again, or will the bleaching be permanent? I only use pot. ferricyanide to bleach out small portions of print and get entirely rid of yellow stain with a weak solution of soda sulphite. (3) Does gum impair the stability of water-colour if mixed with them for colouring purposes? I mean ordinary office gum.—VELOCITY.

(1) The time during which the lens remains fully open will be a little less in the case of the half-plate, but the difference cannot be as great as you name. (2) The image will probably reappear on exposure to light, as the ferricyanide which is formed is slightly sensitive. Better use the iodine-cyanide reducer made by adding a few drops of 10 per cent. solutions of potass cyanide and iodine (the latter in spirit) to an ounce of water. (3) Ordinary office gum very probably would act prejudicially, but a solution of pure gum arabic can be used with safety.

COPYRIGHT.—Will you kindly inform me what you think of the following treatment, and if I have any redress re same. The summer before last I had an order to take a 12 by 10 group, 42 sitters in group. The photo was simply taken by appointment. I was not paid for taking same, simply sold the prints as ordered (and I sold a good many), and am sorry now I did not make it copyright at the time. My grievance is this, and I shall be glad of your advice re same. A tradesman here, that dabbles in photography, etc., sent his son for an unmounted print of said group. Never said anything about reproducing it, etc. The next thing I see is that same group reproduced, as post cards, and the man has been selling them since last summer. He has not even had the courtesy to ask my permission, or put my name on the post cards as the author of the photograph. If the man had had the decency to ask me my permission I would not have minded so much, but to be ignored in such a manner is not English. Your opinion re such treatment will greatly oblige. Also if I have any power to prevent his selling any more.—NEMO ME IMPUNE LACESSIT.

The treatment is certainly unneighbourly. You now find yourself in the same position that many others have done who have neglected to register the copyright in their photographs. Had you done that in the first instance you could have stopped the sale of the copies and obtained penalties for every copy sold, as well as damages, etc. If you register the copyright now you can prevent further sale, and recover damages for anything done after registration, if you can prove any, but not for anything done before.

NOTICE.

Several replies are held over for insertion next week.

NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

Process at South Kensington. An official announcement has at last been made as to the opening of the long-expected Exhibition of Process-engraving at South Kensington. Even now the information reaches us, not from the authorities, but from a private person in the country, to whom the exhibition will be indebted for the loan of certain historical examples. In cherishing their bright designs remote from the public eye, the board of management may have some motive, but we should have thought that there was good reason for making the exhibition known through the technical Press. However, we can say that a private view will be held on March 14 from 10 to 10 in the galleries of the Indian Section (Imperial Institute Road) of the Victoria and Albert Museum, and presumably the Exhibition will be opened to the public a day or two later.

The Advent of Spring Light. Photographers, in and outdoor, do not need reminding of the greatly improved actinic quality of the light of the last two or three weeks. The improvement has not been great, it is true, but still it is an improvement. There are many photographers whose dark-rooms are illuminated by natural light, filtered through different-coloured media. Many, indeed most, of these are not stable so far as the colour is concerned; it fades with continued exposure to strong light. The fading is, however, so gradual that it often is not recognised or even suspected until actual trouble arises. Last summer was an unusually brilliant one, and produced fading in many of the fabrics on darkroom windows, but this did not matter much during the winter months when the light was feeble in actinism. But the case will be different when the light still further improves, as it will do during the next month or so.

The Dark-room Light. Therefore photographers who employ natural light in their dark-rooms will do well to look to the window without delay. It has just been said that the change in the fabric is so gradual that it is not realised until trouble arises—say, in foggy plates. But it may be manifest before that in the form of negatives with impaired brilliancy, and for this the plates may be blamed, though they are quite innocent in the matter. One of the most pleasant lights to work in is that filtered through the thick paper known as canary medium. Two thicknesses of that, on the pane of a window facing north, is perfectly safe, even with rapid plates, if they are not exposed close to it. Of course it will not answer with orthochromatic plates, and, unfortunately, the colour is not permanent. The same may be said of most coloured fabrics; therefore all of them should be looked to on the advent of spring, so as to avoid trouble in one form or other.

Trick Cinematograph Films.

Straightforward cinematograph pictures—unless they record some event which is the topic of the moment, bid fair to be driven from the field by the trick film, on which all the art and paraphernalia of a stage manager are now expended. The French cinematographists appear to take the lead in producing pictures of this description, and the effects which they obtain by interrupting the exposure of the film or by joining several bands of films, are a kind which evidently exactly suits the taste of the patrons of the "variety" order of entertainment. At London's greatest palace of amusement, the Coliseum, a trick film, obtained by one or the other of these simple methods, is an evident source of delight and astonishment to the audience seeking entertainment undiluted with instruction, and we must confess our admiration of the cleverness with which a whole series of incidents are pictured so as to appeal to one's senses of the sensational and the ludicrous, without a single word being spoken.

History, Second-hand.

As a specimen of such triumphs, a recent film may be instanced, in which are depicted the escapades of the reader of a thrilling narrative, concluding in the passage over him of a steam-roller, and the subsequent inflation of his flattened body by some passing cyclists! But the artist behind the cinematograph is not content with such achievements as this. His motto is "history repeats itself," or, rather, elaborate steps are taken to repeat it. A correspondent sends us a graphic account of his visit to a cinematographic studio last week during the production of a film showing the assassination of the Grand Duke Sergius. The arts of the costumer and the scene-painter

were applied to the reproduction of a realistic "mise-en-scene." The equipage of the Grand Duke drives up before the camera, the assassin throws his bomb, a bottleful of nails, and a fuse is fired, enveloping the group in smoke. The camera is arrested whilst broken wheels, shattered woodwork, and other debris are placed in position, and then the remaining scene in the drama is enacted. One cannot call such pictures frauds, for surely the most ignorant do not believe them to be actual photographs of the incident.

* * *

The Radio-activity of Mercury Compounds.

That the distribution of radio-activity is much more general than was at first supposed has been conclusively proved by the ever-increasing number of substances that have of late been proved to possess this property, and at a recent meeting of the Chemical Society, Messrs. Fleming-Struthers and Marsh reported that a compound of mercuric cyanide and phenylhydrazine was particularly active, giving, even in a few hours, a deep black patch, on development, through an interposed perforated zinc screen, wrapped in paper, and also at some distance from the plate through aluminium foil, though quartz completely stopped the radiation. Phenylhydrazine itself was sluggish in action, and only some samples of mercuric cyanide showed radio-activity. The mercuric chloride and bromide were active, as well as the mercurious and mercuric nitrates: the iodide, sulphate, acetate, sulphide, oxide, and mercuric ammonium chloride showed no action, or only a slight one. Re-distilled mercury showed no action.

* * *

Illegal Use of the Word "Royal."

We have more than once called attention to the fact that some photographers use the Royal arms and style themselves photographers to the King or members of the Royal family, while it is illegal for them to do so. The mere fact that they may have supplied photographs to the Royal family, or even if they have photographed the King himself, does not entitle them to use the Royal arms; they must first obtain the Royal Warrant to do so. It may not be generally known that it is illegal to use the word "Royal," as applied to anything, without a licence from the Secretary of State. In a case, tried one day last week in the Clerkenwell County Court, the Judge was evidently unaware of this fact, for he said: "There is no right to use the Royal arms without authority, but I do not think that applies to the word 'Royal.'" He was, however, corrected by the solicitors present. One said that from inquiries made at the Home Office he found that no person was entitled to use the word "Royal" without licence from the Secretary of State. We know that the word is freely used by some photographers, for example, "Photographer Royal," "Royal Studio," "Royal Portraits," etc., and they may not be aware that they are acting illegally.

* * *

Depression in Illustrated Journalism.

Sir William Ingram, in his speech to the shareholders in the "Illustrated London News" Company, dwelt at some length upon the recent falling off in the profits earned by periodicals of this class. He ascribed this falling off to the general depression which has for some while past hampered all sorts of artistic activity and to the unfavourable conditions under which art publishing is now being carried on. Our contemporary the "Globe" pertinently inquires "whether the management of certain of these papers is not quite as much the cause of their want of success, and whether the growing

tendency to substitute in them reproductions of commonplace photographs for the work of competent illustrators has not disgusted a large section of the people who used to support artistic publications." We do not think this is altogether the case. What the proprietors and editors of illustrated journals seem to forget is that there has been recently an enormous increase in the number of cheap publications which issue good reproductions of what may reasonably be called works of art, while their anxiety to be the first in the field with photographic representations of current events often leads to results that compare very unfavourably with the more artistic productions of the black-and-white artist.

* * *

The Bolt Court School of Photo-Engraving.

The narrow courts and alleys which make Fleet Street the delight of the American visitor contain much active industry compressed in the minimum of working space, but few establishments can show a better record of opportunities utilised than the London County Council School of Photo-Engraving, which pursues its useful work in its old-fashioned premises in Bolt Court. The annual report, just issued, states that the number of students in the art and photo-mechanical classes during the last session was only two short of 400, as compared with 245 in the year 1902. Four medals have been awarded to the work of the students in international exhibitions, and a considerable volume of experimental work of direct educational value has been published by the staff, aided by the senior students. The report itself—a handsome book of reproductions in the various descriptions of "process"—is about the best testimonial which the teaching staff can obtain, and it would seem that before many more are issued No. 6, Bolt Court will be quite unequal to providing accommodation for its students. It is to be hoped that the London County Council, in the midst of its large schemes for the government of London, will not disregard the needs of an institution which, in the eyes of the illustrating craft, has the most pressing claims upon its consideration and exchequer.

* * *

Colour Photography on Paper.

Dr. König describes in the current number of the "Photographische Mittheilungen" a process for obtaining prints in natural colours, which is the exact antithesis of the process of Lumière, Sells, and Sanger Shepherd, in which a bichromated gelatine film is exposed under a negative, and then the soluble portions washed away, leaving an image in hardened gelatine film that is subsequently stained and used to transfer the colour to paper. In "Pinatype," by which name Dr. König calls his process, a bichromated film is used, and after exposure under a transparency is soaked in special solutions of dyes, so that the soluble gelatine, or that unaffected by light, absorbs the dyes and again gives them up to paper. This is practically, then, an application of the well-known hectograph principle. The original plates can be repeatedly used, and it is obvious that it would be possible to obtain large prints by making enlarged positives and using these for printing. The details as to the making of the original negatives and printing in the complementary colours are the same as in the other processes. It is stated that the results are extremely sharp and clear, and that some of the results have been exposed to day and sun light for three months without showing any change of colours, therefore there is reasonable hope of their being permanent even in the more brilliant light of summer.

The Metric System.

It was but cold comfort that the advocates of the universal adoption of the metric system received from an answer to a question given by Mr. Balfour in the House of Commons one day last week. He said he did not see his way at present to propose a measure for the compulsory adoption of the metric system in this country. The use of that system, he added, was legalised for all purposes some years ago, and it was therefore open to any person trading with foreign countries to make use of it. If the metric system were universal among photographers, it would prove a great convenience, seeing that we get so many formulæ from the Continent, and they are all given under that system, also that they frequently suffer in the translation into English weights and measures, particularly when small quantities are concerned. One of the reasons why the system is not more generally used by those who practise photography is, no doubt, as we have said on former occasions, the difficulty in obtaining the weights and measures at a moderate price. Few dealers stock them, and if they are ordered specially, fancy prices are charged for them. There is no reason why either the weights or the measures should cost more than those under the English system. Indeed, on the Continent they cost, if anything, less. Until metric weights and measures are put upon the market by photographic dealers at a moderate price, we fear there is but little prospect of the metric system becoming generally adopted in the near future, desirable though it be.

THE COLLODIO-CHLORIDE PROCESS.

On another page our contributor "Historicus" deals with the first introduction, now forty years ago, of the collodio-chloride process by the late Mr. G. Wharton Simpson. Our friend would rather have us infer that the process as first introduced by its inventor was somewhat different from the collodio-chloride process of the present day. It is, however, practically the same. It is true that in Simpson's first formula there was no citric acid, though at the meeting at which the process was described the use of a citrate in the emulsion was suggested by one of the members present. A few weeks later, May 3, Mr. Simpson read a paper before the North London Photographic Association on his process for producing pictures on opal glass, and gave a formula for it. The formula stands thus: "To each ounce of collodion are added nitrate of silver ($7\frac{1}{2}$ grains), chloride of strontium (2 grains), citric acid (1 grain)." This formula, it will be seen, is just about the same as that given in all modern text-books for a collodio-chloride emulsion. "Historicus" refers to the greater permanency claimed for the process, which may be said to hold good. "There is no insoluble silver compound formed like that formed with albumen." We remember seeing in the photographic section of the Victorian Exhibition at the Crystal Palace, in 1897, some collodio-chloride prints by Mr. Bruce, who used the process exclusively in his business, which had been made for something like thirty years, and they were certainly as good as they could have been when first produced. Within the last few years, since the process has come into more general use, we have heard complaints of lack of stability in the prints, and the question is this: Is this due to the process itself, or the modern methods of preparing the paper or of using it? In the early days of the process the raw paper employed was the same paper as was employed for albuminising, and it received a coating of arrow-root, and on this the emulsion was applied. In modern practice raw papers of a cheaper kind are used, and they are surfaced—i.e., "baryta" coated. But it must be kept

in mind that a cement of some sort is necessary to secure the pigment to the paper. As the emulsion contains a certain amount of free nitrate of silver, some of this may, and does, combine with this organic matter, as may be seen if the collodion film be stripped off, when an image, faint, it is true, will be found beneath. This organic compound of silver is little affected by the short fixing that collodio-chloride prints now usually get. In the earlier days of the process the sulphocyanide-gold toning bath was exclusively employed. Now the prints are very frequently partially toned in a gold bath, and then finished in a platinum one. We have frequently been asked by correspondents the reason why prints so toned break out in spots a few weeks, even days, after they are finished. Now the platinum bath is used in an acid condition, and it stands to reason that if the prints are transferred to the fixing bath, without the whole of the acid being washed out, the hypo in the print will be decomposed, and sulphur compounds formed. With these facts before us, it is not surprising that some collodio-chloride prints do show signs of deterioration in the course of time. That, however, is not due to the process itself, but must be charged to the perfunctory way in which it is sometimes worked.

AN error occurred last week in the address of the Tress Co., when mentioning this firm's copying accessory. The correct address is 33, not 23, Oxford Street, W.

MOUNTING Large Bromides.—A suggestion is made in the "Bro-mide Monthly" for those who enlarge considerably, that it will be found to be an advantage to mount the picture on a stretcher, instead of on a board of the weight which the large size demands. The lightness thus obtained is equally a boon in hanging the picture or sending it on its travels round the exhibitions. The print is thoroughly damped at the back, pasted firmly to the frame, and allowed to dry slowly, when it will be found stretched as tight and even as the proverbial drum.

THE pronouncements of M. Auguste Rodin, the famous sculptor, in a recent communication to the "Express," should be taken to heart by all pictorial photographers who are apt to decry the beauties of their own country. Mr. Rodin says:—Here in England you have a land made for painters. Your atmospheric effects—in some ways akin to those of Holland—are infinitely finer and more varied than those you can find in the drier climes of Italy or France. In Italy and Southern France you may always count on your blue sky—gloriously beautiful and blue, it is true, but none the less hard and changeless; but here in England, especially in London, you have every day a sky as changeable and as beautifully coloured as one could desire. If, for example, you choose to spend the day on the Embankment by Chelsea, a locality greatly loved by Whistler, you can discern in the course of the day a change of sky and atmosphere and effect that is in itself a perfect drama. You begin with the red dawn, and before the morning hours are advanced there is a sky as black as night, and the rain descends in silver sheets. This may be followed by a serene and cloudless noontide that reminds one of the south. The afternoon draws on, and there follows a rich and mysterious sunset that precedes a blue-black, star-hung night. Then there are your fogs—fogs that Londoners rail at—yet if they be light they are a harvest of impressions to the artist. The Englishman has a habit of denouncing his old monuments and the statues in the streets of his city. They may not be very good, but, believe me, they are quite on a par with those of France and Germany. For some reason impossible to explain, sculpture has been in a state of decadence for the last hundred years, but this state of affairs should mend itself some day.

COLOURING LANTERN SLIDES WITH ANILINE DYES.

UNTIL recently, coloured lantern slides were invariably painted with oil or water-colour pigments, but the success of the three-colour process with stained films has again drawn attention to the use of aniline dyes as suitable materials for tinting transparencies. Hitherto the chief objection to anilines has been their fugitiveness, and this instability would undoubtedly be a serious drawback if it could not be prevented; but with improved chemical preparations such as are obtainable to-day, it is impossible to get a variety of colours that will stand the test of many years' use in a lantern without fading. I remember one particular scarlet which gave me trouble through its habit of changing to yellow. Thus, if I painted a lady's dress purple (red and blue) it would, after a few days, show up in bright green, or the same as if originally painted yellow and blue.

Another disadvantage, sometimes not noticeable until after the slide has been covered and bound, was fogging of the picture by crystallisation on the face of the film. Probably this might arise from the adulteration of the dye, though it might possibly be from a wash of too great strength. For a very small sum, however—about a shilling or one-and-sixpence—one may purchase a box of selected aniline colours free from the defects just pointed out, and these will yield soft and rich effects.

A Relief from Monotony.

The saying that "a lantern slide coloured is a lantern slide spoiled" is simply not true, for some of the most beautiful slides ever shown were painted by a Japanese artist. Moreover, colour gives more information than can be got from a plain slide, and also colour aids the perspective. What is more tiresome than a succession of slides with bare skies, and what more troublesome than printing clouds in from a separate negative to overcome the monotony? Yet with aniline dyes it is quite easy to put in either a simple graded sky or one with clouds in a few minutes. With oil or water-colours, on the contrary, the sky is the most difficult portion of the picture to obtain satisfactorily, at least by non-professionals, for most amateurs get it streaky or stippled.

Practical Maxims.

After trying both mediums I have some confidence in advising amateurs to try aniline colours, for the use of which the following few and simple directions may be of service:—

1. The slide to be coloured should be placed on a sheet of ground glass held in the opening of an ordinary retouching desk.
2. With a large brush charged with water and a drop of ox-gall, wash the film over the whole surface. This will remove any greasiness and prevent blisters which would otherwise occur if only a portion of the film be worked upon without previous wetting.

The film should now present a dull, moist surface without actual wet, and be capable of absorbing colour without any tendency to overrun the boundaries. See that no loose hairs from the brush are deposited.

3. Dilute the colour, if too strong, and get depth by repeated washes, except for small patches, which may be put on full strength, but no wash should be so dense as to clog details.

4. As a rule the density of the slide itself will yield the blacks, but occasionally; these may have to be assisted by colour. There is no satisfactory black amongst the aniline dyes, therefore, for branches of trees, black boots on figure studies, and similar small items, gum-water colour may be used with advantage.

5. If the slide be too pronounced in colour, soaking in water will remove the excess, though this should not be necessary with ordinary care.

6. Dissolve the powder colours in boiling water, not in cold water, and keep them in small bottles. About six or seven colours will be ample.

7. For fine details use a magnifying glass.

8. Test every slide in a lantern before showing it in public.

9. Work with two brushes, one charged with colour and the other moistened with water for softening the colour, or for absorbing and removing any colour that has been accidentally put in the wrong place.

10. Work quickly, and do not let drops of colour remain on the film before spreading where wanted.

WALTER BAGSHAW.

THE WEEK IN HISTORY.

The First Photo-Engraving.

IN point of obtaining finished though crude results, photo-engraving ante-dates photography proper by some ten years. Nicéphore Niépce, despairing of obtaining a proper representation by photography pure and simple, set himself the task of etching a metal plate on which he had deposited a "resist" by photographic means. And he succeeded to a passable degree in feebly etching metal plates by a primitive bitumen process, to which he gave the name of "héliographie." At what date he first obtained success cannot be definitely stated, but at any rate in the year 1826 he had copied by contact an engraving of the Cardinal d'Amboise. The engraving, still oiled as Niépce prepared it, to render it translucent, is now in the little museum at Châlon-sur-Saône, where is preserved a number of other Niépce relics. The process by which he made it is thus described in a letter from his son Isidore, written on March 10, 1867:—"I was a witness to the making of the portrait of the Cardinal d'Amboise. My father coated a tin plate with bitumen dissolved in Dippel's animal oil. He exposed this

to daylight behind the engraving, which he had rendered translucent. After a time he immersed the plate in a solvent in which the image gradually became visible. He then washed the plate, put it to dry, and afterwards etched it in acidulated water. The plate was afterwards sent by my father to M. Lemaitre, with the request that he would etch it more deeply. This was done, and Lemaitre took off a number of proofs, one of which he kept, sending the others, with the plate, to my father. I have given the last proof in my possession to my eldest son, and have sent to the museum at Châlon the plate itself, and other heliographic apparatus employed by my father."

The Coming of the Dry Plate.

JUST about three decades have passed since the great transition of photography from the wet plate to the gelatine emulsion was brought about. It is instructive to recall how the very rapidity of the gelatine dry plate fought against its general adoption. The worker who was wedded to collodion could not conceive of anything so sensitive even as the first dry plates,

and they, be it remembered, were little more rapid than a present-day lantern plate. So it came about that photographers would over-expose, and then complain of the thinness and flatness of the dry negatives. The difficulty was to get the wet-collodion worker to appreciate the altered conditions. Thus twenty-nine years ago to-day—in THE BRITISH JOURNAL OF PHOTOGRAPHY for March 10, 1876—we find the Rev. H. G. Palmer taking pains to point out the properties of the Kennett pellicle, the dried emulsion which was supplied at that time for the home preparation of plates. "As regards exposure," he writes, "it should be borne in mind that Kennett's rapid pellicle and plates are, with good light, really instantaneous. Nothing can surpass the cloud, wave, and street views taken with this preparation; and for babies' portraits it is simply perfection itself."

Sir John Herschel's Discovery of Photography.

In "The Week in History" for February 17 the paper of Talbot before the Royal Society in 1839 fell in its allotted place. He read it on February 21. On March 14 Sir John Herschel, knowing nothing of what Talbot had done, contributed a paper to the Royal Society. He also had heard of the discoveries of Daguerre, and, like the good chemist that he was, he promptly set to work and produced one or two photographic processes within the space of a month or so. In reading his "Note on the Art of Photography, or the Application of the Chemical Rays of Light to the Purposes of Pictorial Representation," Herschel exhibited twenty-three copies made from engravings, etc., by contact, and one taken through a lens.

Processes to Order.

"As an enigma to be solved," wrote Herschel, "a variety of processes at once presented themselves, of which the most promising are the following:—First, the so-called deoxydising power of the chemical rays in their action on recently precipitated chloride of silver; secondly, the instant and copious precipitation of a mixture of a solution of muriate of platina and lime-water by solar light, forming an insoluble compound, which might afterwards be blackened by a variety of agents; thirdly, the reduction of gold in contact with deoxydising agents; and fourthly, the decomposition of an argentine compound soluble in water, exposed to light in an atmosphere of peroxide of chlorine, either pure or diluted."

A Complete Process with Silver.

As reported in the "Abstracts," Herschel proceeded to develop only one of these methods. He "inquires into the methods by which the blackened traces (of silver chloride) can be preserved, which may be effected, he observes, by the application of any liquid capable of dissolving and washing off the unchanged chloride, but of leaving the reduced, or oxide of silver untouched. These conditions are best fulfilled by the liquid hyposulphites." In thus originating a practical photographic process, Sir John Herschel was returning to his first scientific love, viz., chemistry. Twenty years before, when he was a young man of twenty-two, he had a narrow escape from choosing chemistry as the sphere for his versatile genius. But he was led to astronomy and physics, and completed the gigantic labours of his father in sidereal astronomy. Almost the only chemical investigation which he prosecuted in those early days recurred to the advantage of his photographic researches.

Fixing with Hypo—Herschel's Work in 1819.

In the "Edinburgh Philosophical Journal" for 1819 appears a paper by Herschel, "On the Hyposulphurous Acid and its Compounds." In it is described the solvent action of hyposulphites on silver chloride, bromide, and iodide. Herschel was the first to observe this fact, and he examined the properties of the solutions very thoroughly, for he specifies the various hyposulphites of silver, and points out the unstable character of those which are formed in presence of an excess of silver salt. The proper chemical conditions for perfect fixation were thus recognised twenty years before photography came into existence, and Herschel likewise devised the delicate silver nitrate test for hyposulphite which is still the most reliable method of detecting traces of the fixing salt in the wash water. The method, according to Herschel, is sensitive enough to detect one part of hyposulphite in 97,800 parts of water. Herschel even does not omit a mention of the curious sweetness of a solution of silver chloride in hypo; the intensely metallic taste of the fixing bath disappears as it accumulates silver, and many of us in the old days were accustomed to make that a rough-and-ready test for the exhaustion of a fixing bath.

Collodio-Chloride Paper.

March 16 is the fortieth birthday of the printing process which of late years has firmly established itself in the affections of the British photographer. Not that it is now offered him in the same shape as that in which it was demonstrated to the Royal Photographic Society by G. Wharton Simpson in 1865. Far from it; but on this occasion the employment of collodion as the vehicle for silver chloride in positive printing was first advocated and shown to be a practicable method. Simpson's emulsion was made from about one and a half grains of chloride of calcium and seven and a half grains of silver nitrate per ounce of collodion, and he showed that toning in one or other of the gold baths gave him every shade of tone from sepia to black. And he advanced certain reasons for the greater permanency of the process, which may still be said to hold good. "There is no insoluble silver compound formed like that formed with albumen. A properly fixed and washed print by this process, when tested with hydrosulphuret of ammonia, gives no indication of the presence of silver in the whites as an albuminised print does."

Twenty-five Years of Platinotype.

On Wednesday next, March 15, precisely twenty-five years will have elapsed since Mr. Willis applied for the third patent in "photo-chemical printing." The progress of platinotype from the time of its first patenting in 1873 has been towards simplicity. The first formulæ and directions would repel the go-as-you-please worker who has found, to his astonishment usually, that platinum is the simplest of all processes. The sensitising solutions and the after manipulations which they involved were not free from the reproach of hypo and other debatable substances, but in the patent of 1880 the process was raised to a height of chemical purity by the claim of only two salts in the sensitiser—the sensitive iron compound, usually ferric-oxalate, and platinum in the form of potassium chloroplatinate.

The same patent claims the use of various salts, citrates, phosphates, and others as developers, and prescribes the employment of the developer, hot, warm, or cold.

HISTORICUS.

FAMOUS RESIDENCES IN ST. PANCRAS.—At the forthcoming meeting of the St. Pancras Borough Council, a proposal will be made to photograph the former residences within the area governed by that authority of the following celebrated inhabitants:—John Leech, 32, Brunswick Square; Charles Dickens, 48, Doughty Street; George

Cruikshank, 263, Hampstead Road; John Ruskin, 54, Hunter Street; Thomas Carlyle, Ampton Street, Gray's Inn Road; John Constable, 76, Charlotte Street, Fitzroy Square; Sydney Smith, 14, Doughty Street; and the Marquess of Salisbury, Fitzroy Square, W.

ORTHOCHROMATIC PHOTOGRAPHY.

II.

The Position of the Filter.

THERE are three practical positions in which the filter may be placed: either immediately in front of, or behind the lens, or in front of the plate. And in regard to these positions we have to consider the speed of the filter (or efficiency of light transmission), the effects of want of homogeneity or flatness, and the effects of aberrations naturally introduced by the filter, considered as a plate of refracting material. I have seen various opinions upon the first point, but it appears to me that if the geometrical law of absorption holds good with moderate variation of light intensity, then the filter will transmit a definite proportion of each wave length of the incident light, the consequence being that the speed efficiency of a filter is independent of its position. I have found that this is confirmed by experiment. The effect of any non-homogeneity in the filter, or any want of flatness, is to alter slightly the direction of the light passing that part, and the effects will therefore be the more marked the further the light has to travel to the plate after passing the filter. So that inferior glass may be used if the filter is placed close to the plate, but it must then be free from air-bubbles and other visible flaws.

The Filter and Focussing.

When a filter is introduced anywhere between the lens and the image it throws the image back by a distance equal to $t\left(\frac{\mu-1}{\mu}\right)$ where t and μ are the thickness and refractive index respectively. For this reason when the filter is used behind the lens the focussing must always be done through it.

If it is placed in front of the lens, then it is as if the object were moved away by the amount indicated above, so that for all ordinary work where the object being photographed is some distance away, it does not affect the focus. In this case the light enters the filter parallel and emerges in the same condition, so that the camera can be focussed and the filter placed on the lens afterwards, which is a great convenience. Moreover, this position of the filter is one which requires the least alteration in adapting a camera to work with filters, and is perhaps the best for small cameras. When the object is near the camera, as in copying, then again it is necessary to focus through the filter.

Aberrations Caused by the Filter.

There is in addition to this change in position of the image or apparent position of the object, a distinct introduction of aberration. Light proceeding from a point in any refracting medium does not, on emergence into the air, appear to proceed from one point only. You know that if you look vertically down through water to the bottom, the bottom appears to be raised somewhat. If, however, still looking at the same point, you walk away the bottom appears to rise until it looks to be only just below the surface. This follows directly from the *sine* law of refraction.

It is the converse case which is of importance in filter work, viz., that in which a set of rays (normals to a wave surface) start to converge to a point in the image plane, and then owing to the refraction through the filter, fail to do so when the angle included by the extreme rays is great.

The light on the margin of the cone would reach its focus a little in front of the axial light, but as the angle of the cone of light used in photographic work is almost always small, any direct effects of this are rarely seen in practice. But there is a secondary effect which might show itself in wide angle work, that is that the light proceeding to the edge of the plate, would, owing to its obliquity, be caused to come to a focus in front of the image plane of the central light, thus causing a curvature of field concave to the lens. As the refraction index varies with the wave length, each colour would form a separate saucer-shaped image surface of a different size from the

others, but all nearly touching at the axis. Trouble due to these effects may be avoided by not having the filters too thick.

Holding the Filter.

Of devices for holding the filter in front of the lens, there are two which I have found useful. One was described in a photographic journal some little time ago, and consists of a rubber band stretched double along one face and looped over the opposite corners. The parallel pieces may be stretched over the hood of the lens. The other has, I believe, been described by Mr. Anthony. It consists of a square piece of flat metal, with a circular hole and flange to fit on the lens hood. Two edges of the square are folded over to just grip the filter. This holder is placed on the lens hood with a diagonal vertical, and the turned up edges below. Any square filter of almost any size can readily be slipped into it.

A Few Illustrative Cases.

Clouds.—For clouds, especially if they are thin ones, it is generally desirable to obtain a fair contrast between the white cloud and the blue sky. Now while a white cloud reflects light of all colours equally, the upper regions of the air reflect the shorter wave lengths in greater quantity than the long ones, so that the light from the sky is deficient in green, and still more deficient in red. As noted above, a filter of the second type cutting out the ultra-violet, violet, and blue, brings out the clouds more prominently than the ordinary plate, and if the greatest contrast were required it would be obtained by the use of a red screen and panchromatic plate.

Portraiture.—The defects of the ordinary plate in portrait work consist chiefly of a darkening of any freckles, which are generally yellow or orange in hue, and therefore do not reflect as much blue as the rest of the skin. A yellow filter of the tartrazine type will reduce this contrast, and an orange or red filter with a suitable plate will give a still more pleasing result, though this may entail too long an exposure.

Yellow Stains.—The case of copying a picture with yellow stains is similar to the last. The effect of the stain can be partially, or sometimes totally, removed in the new negative by the use of a red filter.

Photographing Copying Ink.—In order to get sufficient contrast in photographing a violet copying ink, which reflects violet, blue, and red light, a combination of filter and plate recording the green only should be employed. A green sensitive plate in combination with a strong tartrazine filter will do this.

The light blue ink sometimes seen on circulars is best rendered by a red filter and red sensitive plate.

Dark Red Woods.—Sections of dark red woods such as cocobolo and snakewood require a red filter and red sensitive plate to give the best record of the detail of the markings.

Interference Fringes.—For photographing the various interference fringes, such as Newton's rings, which occur in optical work, it is best to use a monochromatic light, especially if measurements have to be made from the negative. Monochromatic light of various wave lengths may be obtained by the use of selective filters in conjunction with a luminant giving a line spectrum such as a mercury lamp. Certain somewhat deep filters may be constructed which transmit only narrow regions of light. Where they can be used they are more convenient than the above. For instance, Mr. W. Bennett in his work on skew refraction through lenses has used a filter containing acid green, 2.5 mgs., and tartrazine 0.05 mgs. per c.c., in conjunction with an erythrosin plate. The light here recorded extends from λ 4,900 to λ 5,100.

Absorption and Line Spectra.—To photograph spectra one requires a plate recording the most extended range of wave-lengths and a filter to render the record as even as possible with the particular spectrum being used.

A. J. BULL.

THE CAPACITY OF DIFFERENT PRINTING PROCESSES FOR RENDERING GRADATION.

I.

[A Paper read before the Glasgow and West of Scotland Amateur Photographic Association.]

WHEN one considers the enormous amount of literature bearing upon photographic subjects which has been poured forth in ever-increasing volume for so many years, it seems almost hopeless to find anything that has not already been fully dealt with and discussed. Nevertheless I cannot recall any systematic attempt to compare the characteristics of the different printing processes in general use, and I am about to show you the results of a number of experiments which may bring the matter before you in a new way, though the subject may not be new. It is, of course, common knowledge that different printing processes give different results from a given negative, but the object of my paper is to show the character and extent of the difference, and, if possible, to indicate what kind of negative is best suited to each process.

The Relationship of Gradations.

At the outset the investigation seemed a comparatively simple matter. It was only necessary to prepare a negative having a series of gradations bearing a known relation to each other, and from that to make prints, carrying the exposure to such a point that the deepest shadow gradations merged into a uniform depth, showing that the limit of the process had been reached. The relationship of the gradations, however, presented unexpected difficulties. The most obvious plan was to adopt the Hurter and Driffield method of exposing a plate in strips for periods in geometrical progression, thus on development securing gradations in corresponding ratio.

Experiment proved, however, that in a sufficiently long scale for my purpose there would probably be portions of under-exposure and over-exposure at the respective ends of the scale, and it did not seem to me possible that anyone inexperienced in photometrical work could measure these opacities with any degree of accuracy. The next idea that presented itself was to superpose strips of uniformly fogged film, but celluloid film was obviously out of the question, as the colour and opacity of the celluloid would certainly falsify the resulting scale. Gelatine film alone seemed more hopeful, and after several failures to develop a large area of that very "wobbly" material to uniform opacity, a successful batch was obtained, only to find that the resulting graduated screen was useless, as a very few thicknesses of the apparently colourless gelatine had sufficient opacity to vitiate the results.

Making a Graduated Screen.

Although this screen proved useless for my purpose, it furnishes a most instructive lesson on the importance of stopping development at the right moment. You will notice that, although the film is so lightly fogged, successive thicknesses of it quickly build up a great degree of opacity, and, by adding or subtracting the single thickness which you will find loose, you can see the great effect the addition of even such a slight amount of silver has in increasing the opacities of the different steps of gradation; in other words, its effect on what we are accustomed to call the "density" of the negative.

Having failed to get what I wanted by purely photographic methods, I tried numerous experiments with other materials, and finally found a pure white tracing paper which gave a long and useful scale of gradations when superposed in successive thicknesses. The gradations are so proportioned that the opacity is about doubled at every second step, but unfortunately there is a very slight departure from that simple rule which would cause the higher opacities to be overestimated. It was necessary, therefore, after finding the range of opacities which would actually come into use in my experiments, to measure their value by actual tests for each one. The method was simple but somewhat tedious.

Use of the Graduated Screen.

Using a certain make of bromide paper, a two-grain amidol developer, and a distance from a gas flame (full on) which would give a decided tint to the smallest opacity after five seconds' exposure, such an exposure was given to a small piece cut from a sheet of the paper. That was removed, and the rest of the sheet exposed behind the screen for a time estimated to be correct for some other opacity. The whole being developed together, if gradation No. 1 which had received five seconds' exposure appeared together with gradation No. So-and-so which had received the longer exposure, and if both ultimately reached the same tint when development ceased, it was reasonable to conclude that they had received the same amount of light. Thus gradation No. 1 with five seconds gave the same tint as gradation No. 15 with 320 seconds, therefore their relative opacities are as 1 to 64.

Having tabulated these opacities, it only remained to print as many different kinds of papers behind the screen as I could obtain, and to compare the results both as to the number of gradations rendered by each and as to the character of the gradations.

For testing printing-out papers several screens were required, and having made a number, four were selected for use which proved to be exactly similar in time of printing. For development papers one screen only was used throughout, and whenever comparative tests were made screens cut from the same sheet of paper were used.

I have dealt at some length with these screens because the whole value of my experiments turns on the correctness or otherwise of the means of investigation; also because it seems to me that similar screens should be of frequent use to photographers, not only for testing papers, but for making comparative speed tests of plates, testing plates for halation, latitude of exposure, etc., also for use as actinometers in printing.

Testing Plates.

Having secured the means of testing the papers, I turned my attention to plates, as it seemed desirable to find what gradation a plate is capable of giving. Several popular brands were chosen and exposed behind one of the graduated screens. A four-grain amidol developer was used, and development was prolonged till the denser parts were completely through to the back and all developing action seemed to have ceased.

Very striking differences were found between different makes of plates. In some, quite a number of the most exposed divisions of the scale had run up against the glass, so to speak, and were equal in opacity, while in some cases signs of reversal could be seen when the exposure was sufficient to bring out nearly the highest opacities of the scale. In other cases nearly the whole scale was clearly rendered, one plate in particular giving the entire scale clearly, without halation. Of course, all the plates were backed.

As the opacity of the gradations on these plates could only be ascertained by direct experiment, tests were made on the same principle as the tests of the screens, and the range of opacities was found to range from 1 to about 700 in average plates, and 1 to over 1,000 in the best, and these opacities are due to silver alone, no developer stain being present. In these figures I take as 1 the faintest deposit that has any printing value. Clear glass may be disregarded, as I do not think any really good negative has any quite clear glass.

WILLIAM GOODWIN!

[The remaining portion of this paper will appear next week.—Eds., B.J.P.]

SOME PROBLEMS IN SHUTTER DESIGN.

III.

COMPACTNESS is one of the essentials of the modern shutter, and when extension springs are used it becomes necessary to arrange them alongside one another, or in any available spaces, using the number of cranks and levers and other members familiar in the ordinary shutter. But compression springs make possible the simple arrangement of parts for actuating the shutter, shown in Fig. 9. The tube *a* having a slot *b* along it contains the push button *c* whose wing *d* projects through the slot in the tube. A spring *e* thrusting against the fixed stop *f* serves to return the push button after it has been pressed.

The Control of Automatic Exposures.

The pieces *g* and *h*, which slide freely within the tube, have pins projecting through the slot *b* and engaging with the piece *i*, which is called a gate, because its business is to permit or prevent, as required, the passage of the pins and their sliders, *h* and *g*. The gate is pivoted on the axis *xy*. Between the sliders *g* and *h* is the mainspring *j*, which is compressed through the medium of the pin of *g* and the wing *d* when the button *c* is pressed. As this is being done, the slider *h* tries to go forward, but is obstructed by the stop on the gate. The face of this stop is sloped so that the tendency is to depress the gate, but this is prevented because the pin of *g* is yet beneath the part *k* of the gate. When, however, the pin of *g* has been pushed just beyond the part *k*—that is, when the mainspring is fully set—the gate falls, the part *k* obstructs the return of the slider *g*, the slider *h* shoots forward and opens the shutter to which it is connected, and at the same time compresses the spring *m*, whose duty it is presently to close the shutter by returning the sliders to their normal position.

This occurs when the gate is moved so that the part *k* no longer obstructs the return of the slider *g*.

Hand Exposures.

In the case of exposures whose duration is determined by hand, the gate is moved for this purpose by a second motion of the push button *c*, and to terminate exposures automatically the gate is moved

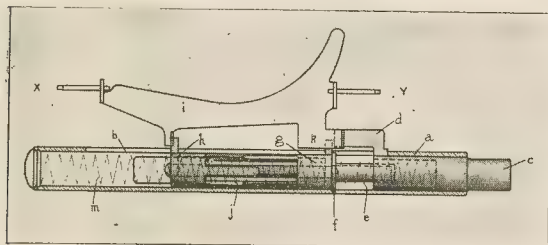


Fig. 9.

by the operation of a spring, set in action by the opening of the shutter delayed in its action by the variable obstruction of the pneumatic piston, and which finally moves the gate and permits the shutter to close. By this arrangement, among other things, the important principle already laid down has been observed, and the impact of the moving part has been taken away from the pneumatic piston. Moreover, the spring which operates the piston, having no other function, can be made adjustable as to strength, so that the longest time to be controlled—the second—can be accurately adjusted, and the very shortest time to be controlled may be

adjusted by means of a screw whose point at the required time actuates the gate. With the extreme time intervals thus adjustable

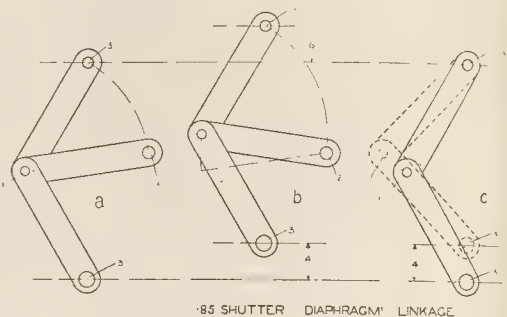
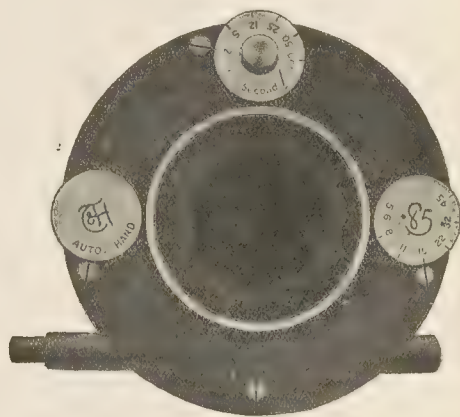


Fig. 10.

the intermediate times, which depend upon the shape of a fixed cam, are included in the adjustment and made correct.

Variable Motion of Mechanism from Fixed Diaphragm

In every diaphragmatic shutter, that is, one of which the full aperture may be varied at will, the problem has to be met of getting from the motor mechanism, whose motion is constant in amount, a variable motion of the diaphragm. Fig. 10 shows a simple solution of this problem. At *a*, three links are shown pivoted together at 1. The end 2 of the middle link is pivoted to some fixed part of the instrument. Now if motion be imparted to link end 3, so as to move it up to the position shown at *b*, through the distance 4 the other



FOREIGN NOTES AND NEWS.

The Instability of Uranium-Toned Prints.

M. LEMAIRE read a paper before the Société Française de Photographie at the commencement of this year on the cause of the instability of uranium-toned prints, and pointed out that the image was composed of a mixture of the ferro-cyanides of uranium and silver, and that if the toned print was immersed for five minutes in a 0.2 per cent. solution of carbonate of soda, it showed no trace of the characteristic iridescence after six months' exposure to the air, and only faint traces after ten months. Comparative tests were made, and the author comes to the conclusion that the alteration of the prints is entirely due to the silver ferrocyanide, and that the treatment with sodium carbonate converts this into the more stable carbonate of silver, and that this may be eliminated by subsequent treatment with a 5 per cent. solution of nitric acid, and the prints are then stable.

Printing without Light.

Niewenglowski has found that it is possible to reproduce a negative or positive without the action of light, if the image is deeply toned with uranium. He suggests that the image should be first bleached with a 2 per cent. solution of potassium ferricyanide, then washed for about one and a half hours, and then deeply toned in—

Water	30 ccs.
Uranium nitrate	2.5 g.
Hydrochloric acid	5 drops.

The image must now be washed in acidulated water, rinsed in pure water, and then immersed in a bath of—

Water	30 ccs.
Hypo	1.5 g.
Sodium bisulphite	0.7

and then washed and dried. It is necessary that the whites should be pure. This toned image placed in contact with an unexposed plate gives, in two days or longer, a perfect reproduction. Whilst of little practical value, the process is probably another interesting application of the radio-activity of uranium.

Some New Sensitisers.

In the current number of the "Zeitschrift für Wissenschaftliche Photographie," Herr Kieser gives the results of some experiments with some new dyes, which were made by Dr. König in a similar manner to the now well-known isocyanines. Various strengths of dye solutions were used, with and without ammonia, and the plates were tested in a diffraction-grating camera and exposures of 5, 10, 15, 30, 60, and 120 seconds given. The mother-plate showed, with an exposure of 30 seconds, a density of 2.5, and this was measured with a polarisation photometer for every 100 Angström units in the spectrogram, and then the curve plotted out. The bathed plates were also measured for the 30 seconds' exposure, and all developed with an edinol developer. The results prove whether the dyes are practical sensitisers, and does not show when they are very faint sensitisers.

1. Dye from Bromocyanpyridine and Aniline.—Readily soluble in alcohol giving brown solution; soluble with difficulty in water with brownish-yellow colour. Concentration of bath, 1:25,000. Blue sensitiveness lowered. Maximum sensitiveness at λ 530, extends to λ 592. Slight minimum at λ 500; increase of dye fills up this minimum, but general sensitiveness considerably depressed; weaker solutions give weaker sensitising, but a distinct narrow band at λ 680. Slight fog caused. Ammonia entirely destroys sensitising action.

2. Dye from Bromocyanpyridine and Monomethyl-aniline.—Readily soluble in water, citron-yellow solution. Blue sensitiveness slightly depressed. Dye strength, 1:25,000. Sensitises to λ 560, slight maximum at λ 525; briefer exposures showed slight minimum about λ 500. No fog. Stronger solutions strongly depress general sensitiveness; minimum strongly marked, due obviously to screening action of the stained gelatine. Ammonia nullifies sensitising property. This dye is a good blue-green and green sensitiser; similar, but inferior, to acridine orange.

3. Dye from Bromocyanpyridine and p-Amidophenol.—Aqueous solution reddish brown. Dye strength, 1:25,000. Maximum sensitiveness to λ 570; minimum, λ 490- λ 550. Blue sensitiveness strongly depressed. Slight fog. Ammonia destroys sensitising property.

4. Dye from Bromocyanpyridine and Sulphanilic Acid.—The sodium salt is readily soluble in water, almost insoluble in alcohol; the reddish-yellow solution shows yellow fluorescence, but no sensitising action with or without ammonia.

5. Dye from Chlorocyanpyridine and o-Toluidine.—Readily soluble in water, giving brownish-yellow solution, with yellow fluorescence. Dye strength, 1:25,000. Blue sensitiveness lowered, distinct fog. Sensitiveness equal up to λ 560; indistinct maximum, λ 540. Ammonia destroys sensitiveness.

6. Dye from Bromocyanpyridine and β -Naphthylamine.—Easily soluble in alcohol, with difficulty in water, giving brownish-yellow solution. Blue sensitiveness considerably depressed. Sensitises like No. 5, but rather stronger, and reaches λ 600. The density in the maximum is, as compared to the blue, as 0.2:1. Ammonia destroys sensitising action.

7. Dye from Bromocyanpyridine and α -Naphthylamine.

8. Dye from Bromocyanpyridine and Amido-azobenzol.—These have no sensitising action.

9. Dye from Bromocyanpyridine and Benzidine.—Easily soluble in water. Blue sensitiveness only slightly depressed; very slight fog. Sensitises continuously to λ 620, but less strongly than No. 6. Stronger baths than 1:25,000 produce screening action. Ammonia acts unfavourably.

10. Dye from Bromocyanpyridine and p-Phenetidine.—Slightly soluble in water. Strength, 1:25,000. Sensitises continuously from blue to λ 630, with good intensity, with exposure of 120 seconds; extends to λ 700, faint, scarcely noticeable. Minimum, λ 510; greatest density, λ 560- λ 580. Blue sensitiveness strongly depressed. Ammonia useless. The action corresponds to that of the isocyanines, but the latter do not lower the general sensitiveness so much.

11. Dye from Bromocyanpyridine and o-Anisidine.—Somewhat similar to No. 6, but weaker; no fog. Ammonia useless.

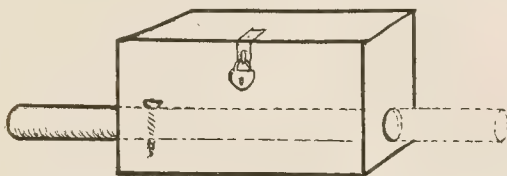
12. Dye from Bromocyanpyridine and p-Amidodimethyl Aniline.—Easily soluble in water. Destroys sensitiveness and produces fog; no sensitising action.

With all these dyes it is interesting to note that the maximum of sensitiveness is shifted from the place of maximum of absorption by no less than 1,000 Angström's units, whilst with the cyanines it is only 300, and with the eosines 400 units. All the dyes are light sensitive, and although no connection could be traced between the light sensitiveness and sensitising power, it is interesting to note that three out of the four dyes which do not sensitise are the least sensitive to light. So far plates bathed with the dyes have kept as well as eosine bathed plates.

Photo-Mechanical Notes.

A Soap Economiser.

In the etching room, and indeed many departments of the process-house, there is a great need for soap, and this is in consequence often wasted. One of the most ingenious means of economising in this respect consist of the provision of a box about 9 by 6 in. and 6 in. deep, pierced at either end with a hole about an inch from the bottom, this hole being circular and a little larger than a piece of broom-handle, 16 in. long,



which is passed through the box, and has a screen put in it in the middle to prevent it being pulled right out of the box.

The box is now filled with soft soap, and closed and locked. In order now to get the soap, the broom-handle is pushed, and the half that was in the box comes out on the other side covered with soap, which the man washing puts on his hands. If more is required, the handle is pushed in again, and the other end comes out covered with soap.

Colour-printing from Aluminium.

The following process is intended for the production of sets of aluminium plates from which to print a coloured version of a photographic original. It is patented by Charles Harrap Shirley, Canonbie Road, Forest Hill, London, and J. Crawford, 43, Carden Road, Peckham Rye, London, who in specification No. 4,345, 1904, explain their *modus operandi*. From a negative of the object to be reproduced in colours, a positive is made on flexible or light rigid film, and from this transfers are made with greasy ink direct upon aluminium by contact and under pressure in any lithographic or typographic press. Such transfers are then selected for the various colours of the picture, and those portions which are required for printing purposes may be covered by a nitric acid resist as employed in the well-known methods of lithography, as dusts or in solutions, of the nature of silica, sulphur, talc, other non-metallic resists, used in dust form or semi-liquid aqueous mixture, as well as organic resists: for example lacs, used as spirit varnishes, and metal mixtures such as aluminium bronze dust, used as, a dust or semi-liquid aqueous mixture, with such non-metallic and organic resists. When so covered, that portion of the work not required as a printing surface may be removed by such corrosive bodies as sulphuric acid, caustic soda, caustic potash, creasote and its derivatives, oxalic acid and its acid compounds, or other suitable solvent, used in weak solutions of no fixed proportions, or by a special pencil composed by mixing any of these bodies as dry powders or solutions with a suitable chalk, clay, or plaster and water in no fixed proportions.

Klimsch's Jahrbuch.

Messrs. Klimsch and Co., of Frankfort-on-Main, have themselves established such a high standard in the technical production of their yearly review of printing and "process" matters that the task of equalling their previous records is no slight one. We expect to find them not only inculcating methods in the literary pages, but demonstrating, in their own work, the arts of the engraver, printer, and binder. The present "Jahrbuch" is bound between covers made

to imitate a metal plaque, mounted on marble, and cleverly though the work is done the result is disappointing. The publishers may well find fault with their art advisers in permitting them to simulate materials which seem to us quite out of place as book covers. We cannot extend our strictures to the contents, which is a model of beautiful printing, and includes a number of supplements illustrating current reproduction processes. Among these a specimen of half-tone with the Klimsch grain screen is notable as a piece of work in which the "wooliness" of much grain work is largely avoided. Some striking work is shown in illustration of photo-mechanical methods in the printing of wall papers and the like, but perhaps the most important plate, in the eyes of the photo-engraver, is that made with the Schumacher vignette stop and etched in forty seconds with the new Holmström machine, to which two novelties we refer further in the next paragraphs. The text pages include articles by leading German authorities on half-tone, colotype, photogravure, and three-colour matters. The "Jahrbuch," which ranks with "Penrose's Annual" as an ocular demonstration of present day reproduction practice, is obtainable from Messrs. Hunter's, Ltd., Poppin's Court, Fleet Street, London, E.C., price 6s.

Etching by Machine—The Holmstrom Method.

Although the "acid-blast" etching of Levy has been talked about now and then since it was first demonstrated in the Paris Exposition of 1900 nothing has been seen of the installation on the market. A Swedish inventor has now perfected a machine whereby extremely rapid etching with a comparatively weak acid is obtained in a different way. Levy sprayed the acid at high pressure over the plate. By the new method the acid is hurled against the plate by two discs, rapidly rotating in opposite directions. Messrs. Klimsch and Co., who are placing the apparatus on the market, claim for it that zinc half-tones are completely etched in 40 seconds with a 6 per cent. acid. It is found that a kind of automatic fine etching takes place, in consequence of the more rapid etching of the lights in comparison with the closed shadows. In this way good printing depth and brilliant lights are obtained without local varnishing of the plate and without fear of "greying" the shadows; under-cut was conspicuously absent.

In etching line work on zinc, a short etch in a dish is given after the plate has been etched in the first place and inked up wet. It is then again inked up and dusted, and transferred to the machine, in which the etching liquid is 25 per cent. nitric acid. According to the proportion of white ground in the drawing, etching is done for from eight to fifteen minutes. Dragon's blood is then dusted over and melted—this occupies only a minute or two—and a short final etch completes the process. The time occupied from first to last is not more than 1½ to 1½ hours.

The Schumacher Vignette Stop.

A new form of stop for half-tone work has been designed in the Klimsch laboratories by Herr Otto Mente and Dr. P. Schumacher, with the object of obtaining a design of aperture which would permit of the same stop being employed for different degrees of reduction. The form of the new aperture is circular, with radial slits projecting from it. The diameter of the open central circle is considerably smaller than that of a stop as usually employed, and the slits, which provide a certain vignetting action, extend within a circle corresponding in diameter with that of the customary stop. A set of three stops of this form is stated to be equal to all the ordinary requirements of half-tone reproduction. The dot formation is found to be equal to that by the usual methods, but the exposure can be cut down to half or three-quarters the usual time.

As mentioned in "Ex Cathedra," the exhibition of process engraving at South Kensington will at last open, about the middle of the present month.

Exhibitions.

NORTHAMPTON.

THE exhibition of photographs promoted by the Northampton Museum Committee and the Photographic Section of the Northamptonshire Natural History Society was opened on Friday last by the Mayor of Northampton (Councillor A. E. Marlow), at Upper Assembly Room, Town Hall, Northampton. The great feature of the exhibition is the really fine loan collection by some of the leading British and French exponents of camera craft. Among the British work on view are representative pictures by Alexander Keighley, A. Horsley Hinton, Charles Moss, W. Thomas, F. J. Mortimer, Charles Job, David Blount, Fred Hollyer, Reginald Craigie, J. Craig Annan, Harold Baker, Viscount Maitland, Mrs. G. A. Barton, Mrs. A. O. Jennings, J. C. Warburg, Charles F. Grindrod, F. H. Evans, F. Sutcliffe, S. M. Whitehead, Walter Bennington, and S. Page Croft. The French School is well represented by M. Demachy, Major Puyo, G. Grimpel, M. Bucquet, A. Hachette, M. G. Ecalle, and Leline Laguarde.

The Royal Photographic Society lend a collection of a dozen or more of Rejlander's photographs.

Though the competitive exhibits are hardly of the high standing of the loan collection, they make a fine display. The local classes met with extremely encouraging entries, and though in the landscape class the prizes go to Wellingborough and Kettering, Northampton is well represented. The judges were Mr. A. Horsley Hinton, Mr. Alexander Keighley, and Mr. Andrew Pringle. Their awards were:—

OPEN CLASSES.

Landscape.—Silver medal, J. E. Latham, South Manchester ("Eventide"); bronze medals, G. Renwick, Burton-on-Trent ("The Imprisoned River Grows Below"); W. Clayden, Plymouth ("A Gleam of Light"); and Arthur Marshall, Nottingham ("Shadows").

Portrait and Figure Studies.—Silver medal, A. E. Coleman, Stonehouse, Devon ("The Dinner Hour—A Quiet Game of Nap"); bronze medal, C. L. Brailard, Redlands, Cliftonville, Northampton ("A Study").

Architecture.—Silver medal, W. A. Clarke, Moseley "South Choir Aisle, Ely"). Mr. Clarke's carbon architectural studies are quite the feature of the class. The judges, in fact, considered that the other work in the class was hardly good enough by comparison to receive the bronze medal.

Lantern Slides.—Silver medals, W. Farren, Cambridge ("A Reed Warbler"), and Rev. H. W. Dick, Miles Platting ("The Town Cobbler"); bronze medal, H. Wormleighton, Leicester.

LOCAL CLASSES.

Landscape, Seascape, etc.—Silver medal, Miss J. F. Dulley, The Lindens, Wellingborough ("Wave Study"); bronze medal, H. Evans, Market Place, Kettering ("Thorpe Malsor Lane").

Portrait and Figure Studies.—Silver medal, Dr. W. Ross, 87, St. Giles' Street, Northampton ("A Study"); bronze medal, C. L. Brailard, Northampton.

Architecture.—Silver medal, E. J. H. Felce, Adams Avenue, Northampton ("Light and Shade—A Crypt Study"); bronze medal, E. G. Holt, Ivy Road, Northampton ("The Triforium, Gloucester"). Both these exhibits are highly creditable to the competitors. Mr. Felce, who is a specialist in architectural work, well deserved the silver medal. Mr. Holt's work, too, is excellent, and there are others in the class whose work is not very far behind either.

Hand Camera Work.—Silver medal, T. W. Milner, Canal House, Blisworth ("Breaking the Ice"); bronze medal, W. J. Bassett Lowke, Kingswell Street, Northampton ("The Morning Plunge").

Lantern Slides.—Silver medal, E. J. H. Felce, Northampton ("Hoar Frost"); bronze medal, H. Manfield, Moulton Grange, Northampton ("Winter Scene").

CHAMPIONSHIP CLASS.

Medal presented by the "Amateur Photographer" for the best picture in the competitive classes, to A. E. Coleman ("The Dinner Hour—A Quiet Game of Nap").

BRECHIN EXHIBITION.

LAST week the Brechin Society showed evidence of its continued vitality in an exhibition of members' work in the Corona Hall, Brechin. The committee had the valued assistance of Mr. David Waterson, A.R.E., in the decoration of the hall. Twenty-five members contributed 177 prints. Members who had gained medals in other fields did not show their pictures for competition, but for exhibition only; but new work showed that the ability of the members was by no means exhausted. Mr. John B. MacLachan, Secretary of the Scottish Photographic Federation, officiated as judge. J. C. Robertson gained two medals with "The Pine Tree," a tall gnarled pine on a hilltop with a glimpse of the country beyond, and "A Study in Architecture," a panel picture showing a little girl seated on the floor with building bricks, the background being a lace-curtained window—an effective and striking arrangement. D. M. Watt is medalled with "A Riverside Path" (21), a convincing woodland study, showing good perspective. W. Lamont is another double-barrelled medallist with "The Flauchter Spade," a convincing character study; and "In Winter's Shroud" (73), a realistic rendering of winter, beautifully simple. John Kirk, who had so much to do with Brechin's last exhibition, is medalled for a delicately limned picture, "A Pastoral" (41). In this class "honourable mention" is awarded to J. D. Ross (2), Arthur Boulton, John M. Dunn, R. C. Dalgity. Class II.—Miss L. S. Duke gains the medal here with a delightfully soft copy of a painting (157). Class III (professional).—The medal in this class is awarded to "Meditation" (175), a figure study, by James Silver.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.

THE sixteen annual exhibition of this society was opened on Saturday last at the Camberwell Baths by the Mayor of Camberwell. The exhibition is again up to the high standard usually associated with the name of this society, and the number of entries show a slight increase on last year's exhibits. The large bath, suitably floored over, makes an admirable room for an exhibition of this kind, and the pictures, tastefully hung in panels on draped screens extending right round the building, are shown to the best advantage. The trade stalls, which occupy the centre of the floor space, are not quite so numerous as in previous years, owing doubtless to the recent depression in trade, but the attendance has proved well up to the average.

The judges, Messrs. J. T. Ashby and H. W. Bennett, made nine awards in the open classes and nine in the members' classes—the latter containing no less than 230 entries, and all remarkably good work. The remaining 292 exhibits are in the open classes. In Class H (open), Portraiture, the first award (silver plaque) goes to Miss M. Y. Prentice for "Study of a Head" (293), a technically good portrait of an old man, but very harshly lit. The bronze plaque is awarded to J. Hepburn for an excellent little cottage interior entitled "Cantie wi' Little" (231). The surroundings in this picture are well subordinated and made subsidiary to the figure of an old woman sitting by the fireside. "Study of an Old Head" (285), by J. Terras, is commended, but, although showing good work, has little artistic quality. "Peonies" (288), by D. W. Kyle, is also commended. This is a very fine flower study indeed of good colour and sympathetically mounted. This class is probably the

best in the show, and contains much excellent work. Among the pictures that call for attention are "Head of a Monk," a well-posed and lit study by Scott Galloway; two head studies by W. Illingworth, treated in a large, open manner; "A Hand at Cards," a capital flashlight interior, showing a group of countrymen interested in a game of nap; "Devotion," that curious but unassailable figure study by Arthur Marshall; "Grannie's Tired Bairn," and "The Village Doctor," two admirable specimens of J. Hepburn's genre work; "Portrait of an American Lady," an unconventionally striking group of a lady and two children; "A Child Study," by Kate Smith, a beautiful little nude; and three fine male nude studies by F. H. Crossley.

Class J, Architecture, is not a strong class numerically, but contains some sound work. The silver plaque is awarded to Arthur Marshall for "The Last Sleep." This splendid piece of work has been already favourably noticed more than once in these columns, and calls for no further comment than that it is probably the best thing of its kind ever produced by photography. W. H. Mayne secures the bronze plaque with "The Belfry, St. Germans," which is not an altogether satisfactory piece of work. The quality of the print is rather poor, and it is not a very interesting subject. It is saved only by a somewhat dramatic shaft of light crossing the picture. A somewhat similar subject, but one that appears to us to be infinitely better in every respect, is "An Abode of Peace," by W. A. Clark. This is commended only. Other prints worthy of note in this class are: "An Old-time Street," by A. W. Walburn; "The Crypt," by T. Wright, has beautiful quality and softness, but is utterly marred by the too aggressive hand work, which is a failing in many of this worker's exhibits. S. G. Kimber's picture, "The Close Gateway, Winchester," although taken from an excellent and novel point of view, is much too hard. "In Gloucestershire," by P. Bale Rider, an old-world courtyard and houses, is a perfect little specimen of good technique.

Class K, Landscapes, is the largest class in the Exhibition, but cannot be said to be the strongest in quality. It contains much indifferent work. The silver plaque is awarded to A. F. Scott for "The Shore, Llwynrwl," a very pleasing arrangement of hilly shore and rippling waves. The distant hills are admirably rendered and the tones of the whole picture are good. We can hardly understand why the bronze plaque was awarded to No. 387, "When the Leaves have Fallen," by G. H. Capper. This is a very ordinary woodland scene of bare tree-trunks, the composition of which leaves much to be desired, although a nice atmospheric effect is suggested in the distance. There are many much better things in the class. "The Bastioned Crags of Sark," by Bruce Crawford, is commended, but has no great pictorial quality or motive. Bertram C. Wickison's "Vesper Hour" calls for attention in this class, and is a fine piece of work, good alike in composition and execution. Graystone Bird's work, too, is outstanding, but is getting rather hackneyed. It is a pity that this capable worker does not attempt a new style of picture-making for exhibition purposes. His best, because most unconventional, print in this class is "Childhood's Joys," a charming little group of children playing on the sands. The reflections are quite remarkable, and the whole is full of action. C. D. Baxandall has a good thing in "Reflections," but the colour is too hot. C. H. Capper, too, has an excellent composition in "A Summer Flood," but here the extreme fuzziness is a distinct fault in so small a picture. H. C. Leat's "Tower Bridge" shows that structure taken from a novel point of view, and is quite successful. C. E. Walmsley's work is always sincere, and his "Charcoal Burners" is an admirable little picture of men and smoke. Aubrey Harris's "The Prime of Summer Time" is a gem in its way—a glorious little landscape teeming with sunlight and warmth, but rather too much sky is included. H. H.

Luther's "Where Men Toil" gives a vivid rendering of belching chimneys that, although uninteresting in themselves, form a fine, vigorous composition of masses of light and shade. "Shadows," by Arthur Marshall, is an object-lesson in the art of seizing opportunities and making the most of very little material.

In the members' classes, Class A, Portraiture, etc., is not of a very high average. The first bronze plaque is awarded to E. W. Taylor for "Preparing Dinner," a kitchen interior with a very curious and rather unconvincing effect of lighting. The second bronze plaque goes to F. W. Gregg for "The Smith," another interior, in which the lighting is somewhat better managed, but the figure is a little stiff. "The Skipper's Yarn," by C. R. Nicholls, is commended, but does not rise much beyond being a snapshot of a quayside group, and is rather hard.

Class B, Architecture, shows better work, but contains many versions of similar subjects, possibly due to members working in groups at excursions. This is rather to be deplored, as it somewhat discounts individuality. The first bronze plaque goes to "A Norman Crypt," a well-rendered subject by E. R. Bull; the second plaque is awarded to "The Triforium, Gloucester," by F. W. Jeffery, an admirable little print, presumably platinotype of good quality. This subject in particular is duplicated many times and in many degrees of excellence, sizes, and colours in this class, and one of them, by G. J. T. Walford, is commended.

Class C, Landscapes, etc., is a big class, but very unequal in quality. E. Pady takes the first award with "Evening on the Teign," the principal claim to attention being its cloud effect, which is repeated in the water. Gideon Clark and G. Brown are bracketed equal for second place. The former's "Eventide" shows a fine misty effect, which appears to be Westminster taken during the recent fogs. The latter's "Mill on the Common" is a pleasing composition, the rolling clouds being perhaps a trifle too theatrical. J. K. Ayling's silver birch study is commended, and is a pleasing little print of excellent quality.

Class D is devoted to pictures taken during the Society's excursions. This is a good idea, and is apparently quite successful. E. W. Taylor takes the plaque for "At Eventide," and C. H. Pitman is commended for "On St. Paul's Cray Common."

In the lantern slide classes, both open and for members, some good work is shown, some indifferent, and much that is downright bad. The Rev. H. W. Dick takes the silver plaque in the open classes with a set of genre studies, and W. H. Goy is second with a somewhat mixed set. In the members' class E. R. Bull is awarded the plaque for a set of portraiture, and F. W. Jeffery is commended for a set of architecture. In the members' class F. W. Gregg is awarded the gold medal in Class F for pictures medalled between February 1904, and February, 1905, and T. Wright takes the gold medal for the best picture in the exhibition with "Winter." This is a very old stager, and has appeared at many exhibitions during the past three years. It is time Mr. Wright produced another picture to take its place.

In the Novelties Class a bronze plaque is awarded to J. Tufnell Page, of 30, Ash Street, Walworth, S.E., for "The Peckham Universal Enlarging Easel," and a silver plaque is awarded Messrs. Prosser Roberts and Co. for the best trade stall.

In the Edwards Memorial Competition the award (bronze medal) goes to Victor Emmett. A collection of pictures by Dr. C. Grindrod is hung on a separate screen, and pictures by The Autotype Company, C. P. Goerz, and Albert Flint, are shown in the Professional Section.

The trade stalls include some excellent displays of apparatus and materials by Kodak, Ltd.; The Adhesive Dry Mounting Co.; Messrs. Ashford, of tripod fame; J. Barnard and Son, with the velvet method of tinting photographs; A. Alston, with every appliance for

crystoleum painting; Messrs. Bayer; The Wizard Camera Co.; Mann's Drug Stores; and Messrs. Prosser Roberts and Co. The evening displays of lantern slides and lectures are a feature of the exhibition, and every praise is due to the hon. sec., H. Creighton Beckett, and his assistants for the success of the show.

FORTHCOMING EXHIBITIONS.

February 15-March 15.—International Exhibition Artistic Photographs, Vienna. Hon. Secretary, Dr. Reiniger, Camera Club, Largerplatz No. 3, Vienna III., 3.

February 25-March 11.—Edinburgh Photographic Society. Entries close February 11; for pictures, February 15. Hon. Secretary, J. S. McCulloch, 5A, North Saint David Street, Edinburgh.

March 4-11.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 13-17.—Chemists Exhibition, Covent Garden Opera House. Manager, Chemist's Exhibition, 44-47, Bishopsgate Without, London, E.C.

March 14-17.—Brentford Photographic Society. Hon. Secretary, F. H. Read, Ferndale, Clifden Road, Brentford.

March 16-30.—International Photographic Exhibition, Earl's Court. The Organising Managers, 119-125, Finsbury Pavement, London, E.C.

March 20-25.—The Cripplegate Photographic Society. Hon. Secretary, John B. Parnham.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

March 30-April 3.—Chiswick Camera Club. H. Gentry, 39, Fairfax Road, Chiswick.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 10, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 4-6.—Wallington Camera Club. Hon. Secretary, J. W. Corbett, Nithsdale, Onslow Gardens, Wallington.

April 5-8.—Nottingham Camera Club. Hon. Secretary, S. W. B. Vines, 102, Woodborough Road, Nottingham.

April 7-15.—Photographic Trade Exhibition, Portman Rooms. Baker Street, London, W. Manager Pictorial Section, W. Selfe, 70, Paragon Road, Hackney, London, N.E.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

April 28-29.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen Ashcroft, Bushey Hall Road, Watford.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

May 9-10.—Ballarat Camera Club. Hon. Secretary, G. Montgomery, 201, Sturt Street, Ballarat.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between February 20 and 25:—

PRINTING.—No. 3,473. "Improvements in apparatus for printing photographs and the like." Kodak, Ltd., 111, Hatton Garden, London. (W. J. Maddox, United States.)

FILM CARTRIDGES.—No. 3,474. "Improvements in photographic film cartridges." Kodak, Ltd., 111, Hatton Garden, London. (Harry Le B. Gray, United States.)

CUTTING PAPER.—No. 3,489. "An improved appliance for cutting photographic paper or other substances." J. Davenport, 15, Limes Grove, Lewisham, London.

MAGAZINE CAMERAS.—No. 3,583. "Improvements in magazine photographic cameras." George Wilkes and A. J. Leeson, 24, Temple Row, Birmingham.

PRINTING.—No. 3,675. "Improvements in apparatus for printing photographs." Howard Elliott, 111, Hatton Garden, London.

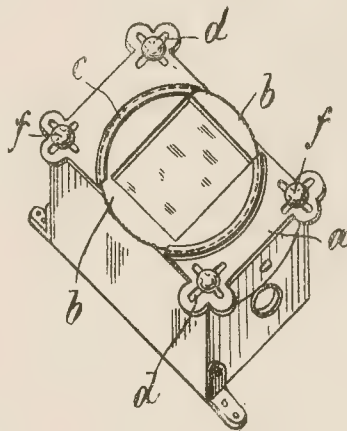
DAYLIGHT LOADING.—No. 3,758. "Apparatus for loading photographic cameras with dry plates in daylight." A. H. Clark, Fercliff, Goodwick, Pembrokeshire.

STEREOSCOPIC PROJECTION.—No. 3,998. "A new attachment or apparatus applicable to optical lanterns or like instruments for producing stereoscopic effects in processed pictures." W. H. Everson, 114A, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

VIEW FINDERS.—No. 28,237, 1904. A finder of the reflector camera-obscura type, in which the ground glass is movable parallel to the lens' axis, so that the amount of view included at any dis-



placement can be registered with any given rise of front. The adjustment of the glass of the finder is made by cruciform slots in the cover and guide pins working in the latter." W. Trappill, 24, Mittelstrasse, Aachen, Germany.

French Patent.

NEW PRINTING PAPER.—No. 345,205. July 25, 1904. G. Hauser. Paper or other surface is coated with gelatine containing oxide

of zinc, and is then dipped into a solution of silver nitrate or citrate. Fine black tones are obtained by direct printing, and without toning, and hypo does not alter the colour. Under exposed prints can be developed in the usual way, and the paper can be worked by artificial light.

New Materials.

Multiple Plates for Three-Colour and Two-Colour Work. Made by Dr. J. H. Smith and Co., Zürich-Wollishofen, Switzerland.

As announced elsewhere in this issue, new materials for photography in colours are just coming upon the market, in the shape of plates coated with two or three films of different colour-sensitiveness. We write without having handled samples, but we take it that the new Smith colour plate is made according to Dr. Smith's recent patent, No. 19,940, 1904. According to the specification, the plate consists of two or more sensitive emulsions, which are coated each upon a single transparent support. Between each two adjacent layers a thin neutral transparent stratum of collodion or celluloid is interposed, in order to provide for the separation of the sensitive films. Such a compound plate is exposed at one single operation, and the three negatives are then obtained by dissecting the films and developing. It is claimed for the Smith multiple plate that the orthochromatic and other properties of the emulsions are so adjusted that screens are dispensed with, and instantaneous exposures may be given. Such a process opens up new possibilities in colour photography for the million, inasmuch as the whole of the operations subsequent to the actual exposure can be delegated to experts. We hope to report further on the new plates when we have had them through our hands.

The Connoisseur Album. Made by Chas. Tyler and England Brothers, Limited, 79, Copenhagen Street, Caledonian Road, London, N.

Last year this firm brought out a series of mounts which proved very successful. They were called the Connoisseur mounts, and took the form of sheets of thick, rough paper, with deckled edges, and made in various agreeable tints. The novelty about them was the inclusion with each packet of mounts, smaller pieces of thin, smooth paper of the same series of colours as the larger mount, on which the photograph could be mounted in such style as the photographer desired, and then affixed to the large and rough sheet; or more than one of these smaller pieces could be used, so as to form a series of tints surrounding the print.

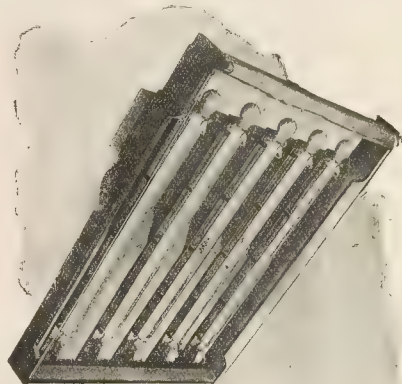
This excellent method of enhancing the value of a photograph by means of suitable tinted borders now forms the basis of the Connoisseur Album, which is nothing more or less than a collection of Connoisseur mounts bound together in a neat cover, and as a means of tastefully bringing together a series of prints, is all that can be desired.

We have received from Messrs. Edwin Osborne and Co., manufacturers of photographic mounts, 26, Red Lion Square, London, W.C., a sample of their new plated rule mounts. These mounts are intended to take the place of the old-fashioned plate-sunk mounts, and are exceedingly neat and attractive. The space on which the print is to be mounted is surrounded by an impressed rule or die, and the effect gained is very high class. These mounts are made in cream, grey, or white, also for circular photographs. The prices for the mounts are very reasonable, as will be seen from a reference to Messrs. Osborne's advertisement on another page.

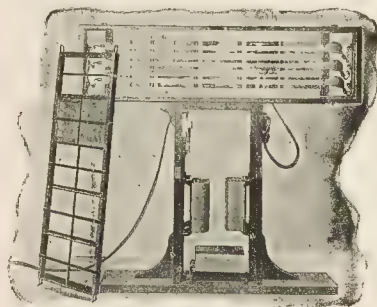
New Apparatus, &c.

The Cooper Hewitt Mercury Vapour Lamp. Made by the Cooper Hewitt Electric Co., New York, and sold by Penrose and Co., 109, Farringdon Road, London, E.C.

The tendency to rely wholly or partially on artificial light, instead of upon the fickle British daylight, is one which steadily becomes more marked in the practice of photographers. Other circumstances permitting, there is always the tremendous incentive to adopt artificial light *in toto*, that the studio can be brought down to the street level, and the series of carefully-disguised truths which a fourth-floor photographer must perpetrate in cold print in order to raise his patron floor by floor to his studio, need be seen no more. The certainty which artificial light confers upon the lighting of the sitter is scarcely of greater importance than this literal lowering of the status of the studio. For these reasons, every substitute for daylight offered to photographers deserves at the least a fair investigation, and such should certainly be accorded to the latest claimant for notice—the mercury-vapour lamp. Recent articles in this journal will have made our readers conversant with its chief properties, among which we emphasise the considerable



Studio Light of Mercury-Vapour Lamps.



Installation of Mercury-Vapour Lamps for Printing.

illuminating area and the manner in which that area can be lessened or increased by taking from, or adding to, the number of lamps. Many varieties of lamp are made by the Cooper Hewitt Electric Co., and two of them are here illustrated by permission

of Messrs. Penrose and Co., who are making themselves responsible for the supply of installations in Great Britain and elsewhere. The lamps, it will be seen, can be put up to replace any given area of studio light, but possess the advantage of mobility and controllability in power. In photographic printing, enlarging, etc., there is undoubtedly a field for the new lamps, and a description of the various types with other technical particulars are contained in booklets which we presume Messrs. Penrose will send upon application. The prices of the outfit (lamps, resistances, etc.), as supplied by Messrs. Penrose, range from £7 10s. to £50.

Messrs. Elliott and Sons, Ltd., Barnet, Herts, have sent us samples of their "Owl" toner for Bromide prints. A report on this preparation will appear in our next issue.

The Altrincham Rubber Co., Altrincham, remind us of their useful specialities by sending us their latest catalogue, a copy of which they will post on application.

RECEIVED.—Roto P.O.P. (The Rotary Photographic Co., Ltd.). A printing-out paper of hard emulsion, for which immunity to warm solutions is claimed. We shall report upon it in due course.

PORTRAITURE of the feet is reported as the fashion in American photography. Ladies are taken in the smartest stockings and shoes, with just a few ruffles of the petticoat showing, or as nature made them, without any covering, resting on a velvet cushion, with a hint of lingerie above. We should imagine that the ladies must come to an "understanding" with the photographer before the delicate operation is performed.

THE Southampton Camera Club's scheme for a photographic record and survey of Southampton has assumed a definite shape, and circulars have now been issued to all members seeking their co-operation in obtaining a representative collection of photographs, executed in a permanent process, of all objects of local, historic, or antiquarian interest connected with Southampton, with a view to asking the town's acceptance of them, to be permanently exhibited in a public building. For the present it is not proposed to extend the area of the survey beyond the ancient walled town and its immediate surroundings, and to this end a sketch plan of the district is included in the circular. This is an admirable idea, as it enables the members to ascertain at once the places of interest of which photographs are required for the collection.

At the Croydon Camera Club recently Mr. Hugh Allen showed a capital method of mounting large prints without cooking. No claim to originality was made, and, as a matter of fact, the main idea is by no means new. The print to be operated upon is first placed on a board, and the back coated with adhesive, the particular one suggested—and to which, by the way, exception might be taken—being three parts of strong gum solution to one part of fish glue. When dry the print is trimmed, and will remain flat. Its position can then be marked on the mount. A sponge moistened with water is next passed rapidly over the mount, so as to slightly damp the surface; the print is quickly adjusted to the marks and pressed into contact between two glass plates, the same size as, or larger than, the mount, and a weight applied. The last factor was supplied by Mr. Allen placing a chair on the top glass and reposing therein for five minutes. He claimed for the method: Cleanliness, there being naturally no tendency for the gum to spread; accuracy, for the print, being dry, of a necessity registered with the marks on the mount; and, lastly, an entire freedom from curl, all of which claims were substantiated in the mounted print Mr. Allen produced.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
10.....	Watford Camera Club	Competition—"Winter," and Members' Lantern Slides.
10.....	Aberdeen Photographic Assn....	Carbon Demonstration. Mr. W. T. Borthwick.
10.....	Wishaw Ph. A.	Annual General Meeting.
10.....	Paisley Philo. Institute	Handing-in day for Ninetieth Exhibition. Entries close for Exhibition.
11.....	Shotts Camera Club	Holiday Pictures in Switzerland; &c.
13.....	Derby Photographic Society ...	Mr. E. Collier Green.
13.....	Motherwell Y.M.I. Cam. Club...	R. & J. Beck's Novelties in Cameras and Lenses. Mr. W. F. Slater.
14.....	Royal Photographic Society ...	Some Results of Lens Testing. Mr. S. D. Chalmers.
14.....	Perthshire Soc. of Nat. Science ..	Sketches on West Highland Railway.
14.....	Monklands Photo. Society	Mr. H. Coates.
14.....	Mulrirk A.P.H.A.	Photo-Micrography. Mr. Wm. Lewis.
14.....	Sheffield Photo. Society	Beck's Cameras and Lenses. Mr. W. F. Slater.
14.....	Nelson Photographic Society	Lantern Lecture, by the President.
14.....	Glasgow Southern Photo. Assn.	Annual Meeting.
14.....	Bristol Photographic Club	Federation Portfolio.
14.....	Architectural Assn. Cam. Club ..	Pictorial Photography—(a) Aims and Subjects. Mr. M. B. Fowler. (b) Composition and Skies. Mr. T. W. Brown. (c) Tons Values. Mr. F. H. Stevens.
14-17	Brentford Photo. Society	Fifteenth Century Houses in Somerset. Mr. F. C. Mears, A.R.I.B.A.
15.....	Bonnybridge A.P.H.A.	Exhibition.
15.....	G.E.R. Mechanics' Institution ..	Lenses and Hand Cameras. Mr. W. F. Slater.
15.....	Boro' Poly. Photo. Society	Visit from the Walthamstow Photographic Society, with Lantern Slides.
15.....	Photographic Club.....	Lantern Night.
15.....	Windsor Camera Club	Plates for Three-Colour and Orthochromatic Work. Mr. A. J. Bull.
15.....	Cricklewood Photo. Society	Bromide Enlarging. Mr. W. H. Chaplin.
15.....	North Middlesex Photo. Society ..	Bromide Printing and Rotograph Specialities. Demonstrated. Mr. W. A. Sims.
15.....	Greenock Camera Club	The Use of the Camera in the Field. Mr. A. F. Crane.
16.....	Glasgow Eastern A.P.A.	By Tweed and Yarrow with Cycle and Camera. Mr. W. D. Boyd.
16.....	Hull Photographic Society	Flower Photography. Mr. Robert Burnie.
16.....	Optical Society.....	Glimpses of Life and Scenery in Switzerland. Mr. Percy Lund.
16.....	Southport Photo. Society.....	Presidential Address.
16.....	London and Prov. Photo. Assn.	Ivanhoe Land. Mr. Willis Brunt.
16.....	L.C.C. Sch. of Pho.-Engraving.	Novelties for the Year.
16.....	Richmond Camera Club	Historic Study in Relation to Modern Illustration. Mr. W. B. Dalton.
16.....	Batley and District Photo. Soc.	Paper by Mr. E. Getzmann.
		Mounts and Mounting. Mr. L. Dickinson.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held March 8, Mr. Leslie Clift in the chair. The Secretary (Mr. J. McIntosh) gave a demonstration-lecture on "Intensification and Reduction," in which he described the after-treatment advisable to make the best of errors in exposure and development. The operations and formulæ were as follows:—

Correctly Exposed: Under-developed.—Bleach in a saturated solution of mercuric chloride containing $\frac{1}{2}$ per cent. of hydrochloric acid. Wash well in a $\frac{1}{2}$ per cent. solution of hydrochloric acid, wash in plain water, and blacken in formaline, 34 minims; sodium hydate, 10 grains; water, 4 ounces.

Correctly Exposed: Over-developed.—Reduce in a 2 per cent. solution of ammonium persulphate containing $\frac{1}{2}$ per cent. of sulphuric acid, rinse in 5 per cent. solution of sodium sulphite, fix in hypo, and wash well.

Under-exposed: Under-developed.—Intensify with Lumière's Intensifier as follows:—Mercuric chloride, 1 grain; potassium iodide, 3 grains; sodium sulphite, 40 grains; water, 1 ounce. Develop with any clean-working developer and wash.

Under-exposed: Over-developed.—Reduce in a 2 per cent. solution of ammonium persulphate as above, and intensify with Lumière's Intensifier as above.

Over-exposed: Under-developed.—Intensify with Monckhoven's

Intensifier as follows:—(A) Mercuric chloride, 100 grains; potassium bromide, 100 grains; water, 10 ounces. Bleach in this and wash well. Then blacken in the following, mixed together: (B) Silver nitrate, 100 grains; water, 10 ounces; (C) potassium cyanide, 100 grains; water, 1 ounce. As soon as the blackening is complete wash at once, and thoroughly.

Over-exposed: Over-developed.—Reduce in the following solution: Sulphuric acid, 8 minims; potassium permanganate, 16 grains; water, 10 ounces, and wash thoroughly. Brown stains may be removed in a dilute solution of oxalic acid.

Halated Negatives.—Bleach in the following:—Chromic acid, 30 grains; potassium bromide, 60 grains; water, 10 ounces. Wash thoroughly in several changes of a 5 per cent. solution of potassium meta-bisulphite, and then in plain water. Partially re-develop in any clean-working developer, fix at once, and wash thoroughly.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

ON March 2 Mr. Page Croft demonstrated the gum process to the members of this society. He began by saying that the photographers of Liverpool were falling behind, and were not supporting "pictorial photography" in the way they ought to do, and suggested that it was the innate conservatism of Liverpool which prevented even advance in this direction.

Mr. Croft then asserted that "gum" was not only the best, but the "only" photographic process; that it had all the advantages and none of the disadvantages of carbon. He could do with it everything that any other process could do, and then he could go further and do more. He intended to "have" Liverpool in the cause of gum, and he wished to start in it a "photographic revival" worthy of the great city.

Mr. Croft then gave a most interesting demonstration, describing the process fully and developing many prints. At the close Mr. Croft offered to give an award at the next annual competition to the best work in gum.

SOUTHAMPTON CAMERA CLUB.

MR. ORMISTON SMITH lectured before the members of this club on Monday last, his subject, "Mountaineering Life," attracting considerable attention, inasmuch as it was illustrated throughout with some unique bioscope pictures. The lecture dealt in realistic fashion with various perilous climbs undertaken by Mr. Smith and his party, the dangers of which must have been considerably augmented by the carriage of the camera for securing the animated pictures. The ascent of Mont Blanc, the Jungfrau, and the Matterhorn, were all treated by this method of portrayal, and proved of more than ordinary interest.

A run over the entire length of the Gormer Grate Railway, and a moving picture showing the rush of an avalanche were among the novelties, while films fully illustrating the dangers of mountain climbing were also shown. Ordinary slides of great merit were interpolated between the display of animated pictures, and Mr. Smith concluded his lecture with pictures of the Swiss sports, skating, tobogganing, etc., the humour of which afforded an excellent foil to the tension brought about by some of the preceding representations.

DERBY PHOTOGRAPHIC SOCIETY.

THE seventh meeting of the winter session was held on Monday evening last, in Messrs. Cumberlands' room, the Wardwick, when Mr. W. R. Bland, F.R.P.S., delivered an interesting and practical lecture on "The Production of the Exhibition Print." Mr. Bland showed at the outset that the possession of valuable apparatus had less to do with the production of pictorial photographs than skill

and taste in the choice of subject and in the manipulation of the enlarged negative and print. Any lens would yield good results if the man behind the camera understood it. In the making of the print, what was needed was a synthesis and not an analysis of the scene photographed. The lecturer demonstrated the advantages of obtaining the enlarged negative, by contact from an enlarged positive, and showed how by the use during printing of masks cut from unsatisfactory prints he had succeeded in producing many of his own successful pictures.

LONGTON PHOTOGRAPHIC SOCIETY.

THE annual meeting of the Longton and District Photographic Society was held at the Sutherland Institute on Thursday last. Dr. A. Parkes, J.P., presided. The Secretary (Mr. T. Mottershead) presented a satisfactory report. A statement of accounts, which was accepted as also very satisfactory, showed the society had a credit balance of £32 3s. 3d. The exhibition realised a profit of £1 19s. 4d. The Secretary said the financial position of the society was eminently gratifying, and it was pleasing to recall that during the society's existence nearly £50 has been raised for public institutions.

The following officers were re-elected:—Dr. A. Parkes, president; Rev. C. F. L. Barnwell and Mr. A. W. Allin, vice-presidents; Mr. S. Ashcroft, treasurer; Mr. T. Mottershead, secretary; and Mr. A. Shenton, auditor. The following were chosen as the committee:—Messrs. T. Lawrence, B. J. Allen, J. Toft, W. H. Foxall, W. Bates, E. Carratt, and G. V. Myatt.

WINDSOR CAMERA CLUB.

THE annual meeting of this club was held at the Royal Albert Institute, Windsor, on Tuesday evening last.

The report for the last twelve months was read, and proved satisfactory, and the balance-sheet showed a small balance on the right side.

Mr. Southcombe May sent in his resignation of hon. secretary and treasurer, owing to his leaving Windsor. Thanks are due to him for having taken the first steps towards the foundation of the club.

Mr. Harrison, together with Mr. Oetzmann, was re-elected delegate to the Royal Photographic Society, and Mr. T. J. Cartland was elected hon. secretary.

Last year's committee, Messrs. J. W. Cooch, G. P. Cartland, C. C. Harrison, and S. Holderness, Mrs. Hartley, and Mrs. Buckley, were re-elected, with the addition of Mr. Trotter. It was also resolved to invite Lord Edward Spencer-Churchill to become a vice-president.

DUNDEE PHOTOGRAPHIC ASSOCIATION.—At the last meeting a lecture was delivered by Mr. John MacLachlan, entitled "Photography with a Purpose." The lecturer laid stress on the fact that in photography, as in all other pursuits, the man at the top is always a specialist. The photographer should decide before setting out what his subject is to be, and not allow himself to be tempted from it.

SLOUGH PHOTOGRAPHIC SOCIETY.—Mr. M. Rouse demonstrated Auto-Pastel before this society last week. From his experience he found that the exposure should be about 25 per cent. less than for carbon tissue, this being due to the thinness of the pigment and small proportion of colloid. Great care should be taken to avoid over-exposure. Mr. Rouse developed a number of prints, many of them local views taken in Burnham Beeches, and which fully justified the artistic claims of the paper. A sensitising bath of $2\frac{1}{2}$ per cent. bichromate of potash was recommended.

Commercial & Legal Intelligence

S. POPERT AND COMPANY, LIMITED.—Capital £1,000 in £1 shares. To carry on the business of manufacturers of and dealers in phonographs, gramophones, records, phonograms, cinematographs and films therefore, and similar instruments, etc. No initial public issue. S. Popert is the first director. Qualification, 500 shares. Remuneration as fixed by agreement. Remuneration of other directors as fixed by the company. Registered office:—24, High Street, Manchester.

HARRY H. HAMILTON, LIMITED.—Capital, £2,000 in £1 shares. To acquire the business known as "Hamilton's Original Excursions and Panstereorama of Passing Events," carried on at Manchester, Birmingham, and elsewhere, and to carry on the business of diorama and panorama proprietors, music hall and theatre proprietors, cinematograph and mutoscope proprietors, etc. No initial public issue. The number of directors is not to be less than two nor more than five. The first are:—H. Hamilton, and G. H. Hamilton. Qualification, £50. Remuneration as fixed by the company.

JASPER REDFERN AND Co., LIMITED.—Registered February 24. Capital, £3,000 in £1 shares. Object, to acquire the business recently carried on at 53 to 57, Surrey Street, 104 and 106, Norfolk Street, both in Sheffield and elsewhere, as Jasper Redfern, Limited, to adopt an agreement between H. Jasper Redfern and G. W. Lloyd of the one part and E. Brook of the other part, and to carry on the business of opticians, refractionists, manufacturers of optical, photographic, and scientific instruments, photographers, experts in animated photography and Rontgen rays, electricians, public entertainers, etc. No initial public issue. The first directors (to number not less than two nor more than five) are Jasper Redfern, G. W. Lloyd, and G. Mettham. Qualification, £1.

A PHOTOGRAPHER'S BUSINESS.—At a sitting of the Brighton Bankruptcy Court on Thursday last, before the Registrar (Mr. A. O. Jennings), William Avenell, trading as W. Avenell and Co., of 48, West Street, Brighton, photographers, was examined by the Deputy Official Receiver. The debtor said his liabilities were £682 and he estimated that his assets would produce £520. During the last two years, he had had very bad trade, and he found it impossible to pay his way on his turnover, although in 1903 his gross takings were £1,495. Last year they had fallen to £1,000. When he went into the photographer's business he borrowed £1,200, and that he had never been able to repay, but he had paid the interest regularly. The examination was closed.

A NEWSPAPER'S ADVERTISING SCHEME.—Mr. Gustave Auerbach, a photographic manufacturer, 15, Houndsditch, sued the Pictorial Newspaper Company, Limited, the proprietors of the "Daily Mirror," to recover £180 odd, made up of £134 for breach of contract, and two sums of £31 10s. and £14 8s., the loss on pendants and brooches obtained by plaintiff for the purpose of completing his contract. The case for the plaintiff was that the defendants agreed to employ him to supply all the miniatures and brooches required for the "Daily Mirror" under a scheme submitted by him to them. On the ground of delay in the execution of orders, the defendants, it was said, put an end to the employment without notice—hence the action. Besides damages an injunction was claimed to restrain the defendants or their agents from employing any other person than the plaintiff to supply the miniatures required for the paper. The plaintiff denied in his evidence that there had been any delay, and it was argued on his behalf that, even if he did make default in his contract, it did not entitle the defendants to repudiate it. The Common Serjeant, after hearing the evidence, gave judgment for the plaintiff for £150.

News and Notes.

CROYDON CAMERA CLUB.—On Wednesday last a practical demonstration of the manipulation of the projection lantern and the oxy-hydrogen limelight was given before the members of this club by the President (Mr. W. H. Smith).

PHOTO ART CLUB, ABERDEEN.—A lecture on "Architecture" was delivered by Mr. David, at Gray's School of Art, last week. With a large number of excellent slides Mr. David explained the features of the various styles of architecture, beginning with the ruined Doric Temples of Athens, and showing the characteristics of Ionic, Corinthian, Roman, Byzantine, Romanesque, Norman, Gothic, and Renaissance or Elizabethan. The club has affiliated with the Scottish Photographic Federation.

ART in Advertising.—Over 500 specimens of advertisement display are now on view at 134, Salisbury Square, Fleet Street, E.C. They are the exhibits sent in in connection with a £500 prize competition promoted by Mr. Walter Haddon and the editor of the "British Printer," with the object of encouraging a wider interest in effective and artistic advertisement display, an important condition being that all the types and borders used should be British made.

THE Photographic Convention.—The first meeting of the Reception Committee in charge of the arrangements in connection with the visit in July next of the Photographic Convention of the United Kingdom was held on Thursday last in the Leinster Lecture Hall, Molesworth Street, the Earl of Rosse, K.G., presiding. On the motion of Mr. Thos. Mayne, seconded by Sir Howard Grubb, the following resolution was passed unanimously, viz.:—"That this meeting approves of the action of the Photographic Society of Ireland in inviting the Photographic Convention of the United Kingdom to hold its annual meeting for 1905 in Dublin, and pledges itself to use every effort to secure the success of the convention." Sir Howard Grubb and Mr. J. A. C. Ruthven were appointed hon. treasurers.

PHOTOGRAPHY Past and Present.—The President of the Scottish Federation, Mr. G. D. Macdougald, gives some interesting reminiscences in the current issue of "The Secretary's Letter." As a boy, "he remembers having spoken on photographic matters with the aged Fox Talbot at a time when, in order to possess a few ounces of the precious fluid called collodion, we made with our own hands the gun-cotton and redistilled the ether and alcohol. A time when only an occasional wet plate was developed with a new and strange material—pyrogallie acid—costing one pound sterling per ounce." Such a comparison as this shows the immense advance made since that time, and when it is remembered that dry plates as we now know them were then unknown, it helps to a better understanding of the conveniences of to-day, and the consequent popularity of the camera.

MR. JOHN MACKENZIE, an experienced photographic operator of the Urban Trading Co., will accompany Mr. Harry de Windt, the celebrated explorer, on a very interesting expedition which is to be made shortly. Mr. de Windt, with Mr. Mackenzie, starts from Cattaro, on the Adriatic coast, in Montenegro, and will ride from there to Nisch (Serbia), which is famous for a tower of human skulls. Mr. de Windt then makes his way to Belgrade, returning thence to Sofia, in Bulgaria. From that place he will strike northward in the direction of Bucharest. Near Jassy (Roumania) he crosses the Russian frontier, and will skirt the northern shores of the Black and Azov seas to Rostov, on the Don. He also proposes to visit Tiflis, and to cross the precipitous ranges of the Caucasus. Mr. Charles Urban anticipates that some

unique and vastly interesting films will be the result of this expedition.

THE third annual meeting of the Photographic Survey of Surrey is fixed for Saturday, March 11, when the President, Viscount Midleton, will address the meeting on the work of the Society in the Council Chamber of the Town Hall, Croydon, at 5.45 p.m. The meeting is open to all who are interested in recording by photographic means the notabilia of the county. During the evening, and until the 15th inst., a representative selection of the thirteen hundred prints in the Survey collection will be shown in the Town Hall Lecture Room, and a short lantern lecture will be given each day illustrated by specially interesting examples of subjects in the collection. Surrey residents having prints depicting anything relating to the county which is worth preserving, are invited to forward them for addition to the collection to the hon. secretary, Mr. Harry D. Gower, 55, Benson Road, Croydon. Prints by any process are accepted, but preference is given to carbon, platinotype, or bromide.

THE King's Portrait in Politics.—"I had some talk to-night with Mr. W. Downey, of the great photographic firm of W. and D. Downey, of Ebury Street," writes a correspondent to the "Yorkshire Daily Observer." "The Downeys, as you know, have been photographing the Royal Family since quite early days in the history of photography. Mr. William Downey brought to my notice a newspaper paragraph in which it is stated that a Yorkshire clergyman has written to the King calling his attention to a political manifesto in the Barkston Ash Division. It is in the form of an almanack bearing portraits of His Majesty, Mr. Arthur Balfour, and Mr. Joseph Chamberlain. The description suggests the Tariff Reform League, or 'Consistent Birmingham,' as the originating source. The Yorkshire clergyman pointed out that the King's photograph is being used for political purposes, and His Majesty's private secretary has replied that steps have been taken to prevent the use of the Royal portrait in this manner and to serve these uses. Mr. Downey says, in fact, His Majesty is very much irritated at his portrait thus being put to party uses. There is one way of putting an effectual end to anything of that sort. Photographs of the King are copyright, and if the Yorkshire clergyman will communicate with Mr. Downey, giving him necessary particulars, something may take place which will make it inadvisable in future to represent the King as a factor in party politics."

THE modern society photographer would be brave indeed if he adopted the methods of the portraitist in the anecdote related in the current number of "The Lady's Pictorial":—"On one of the large P. and O. boats going to Australia there happened to be a Chinese artist noted for his quick portraiture. He was soon surrounded by a crowd of the fair sex, who wished to have their portraits painted. He, not unwilling to turn an honest penny during the tedium of the voyage, agreed to make rapidly finished sketches of each sitter. He asked each lady whether she would have the portrait 'handsomey-handsomey,' or 'likey-likey.' Not one of the sitters had the moral courage, in the presence of the sterner sex, to admit what was doubtless the desire of their hearts, so said they wished them 'likey-likey!' Now, the Chinese are remarkable for their extreme fidelity in copying, so when each sitter was rewarded with a representation of herself, the result was not always as pleasing as could be wished, and many of the paintings were successfully smuggled from the saloon, and surreptitiously dropped overboard in the dead of night. One lady, braver than the rest, remonstrated with John Chinaman on the ugliness of her portrait; he explained in his pigeon-English that he had 'askey likey-likey or handsomey-handsomey—no handsomey, if likey, how can?'"

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given
- * * We do not undertake responsibility for the opinions expressed by our correspondents

AN APPEAL TO CHARITY.

To the Editors.

Gentlemen,—About two years ago you were good enough to allow me to appeal through your columns on behalf of a poor ex-professional photographer, bed-ridden for very many years, and supported only by a small weekly dole from "the parish," and such little money as a devoted daughter (who is his nurse and sole attendant) can earn. This case had been thoroughly investigated by the Photographers' Benevolent Association, which gave a small grant weekly during the last few years of its existence. The response to my appeal was very good, and as some of the contributors promised weekly or monthly subscriptions I hoped that it would be possible to continue sending the little weekly sum for the rest of the poor photographer's life; but, unfortunately, the regular contributors felt the pinch of bad trade; so that now only one continues, contributing 13s. per quarter. The accumulated fund is quite exhausted, and what I now earnestly ask is that a few of those who can afford it will send me further contributions, however small, or, if possible, promise an annual sum. Two shillings a week (in addition to the sum already coming in) will maintain our pensioner in his independent position, free from the work-house; and four shillings a week will keep him in what he, poor man, considers real affluence. Only £10 8s. a year is needed for the greater object. Though he has not touched camera or printing frame for many years he keeps up his interest in the craft by reading the journals and books which are sent to him regularly by some who cannot contribute much in money.

Enclosed is a balance sheet, properly verified for your own information. A copy has been sent to each of the old contributors. I make this appeal in the hope that it may have such response as will render its repetition quite unnecessary.—Yours faithfully,

H. SNOWDEN WARD.

February 28, 1905.

BRITISH POSTCARDS.

To the Editors.

Gentlemen,—You write from time to time in the BRITISH JOURNAL OF PHOTOGRAPHY about good ideas which should occur to photographers, so as to increase their trade. I suppose these hints are eagerly taken up, considering that the Englishman is a tradesman from birth and not liable to let any chance of making money slip away.

Here is an illustration of a case in point. You hinted several times at the way businesses could be enlarged by addition and sale of illustrated postal cards. French picture cards are, I think to be found in England. So far I have been unable to trace one here in Paris. Some time ago I asked, through your kindness and "Answers to Correspondents," to give me the name of a firm publishing some English postal cards of a certain subject. You kindly answered by giving me the names of three likely firms. I wrote to all three asking for catalogue and prices. Result is not very satisfactory so far. After three weeks time I received one letter from a firm. This letter, stamped with a penny stamp, instead of 2½d., and leaving an expense of 3d. to pay here, contained a few lines, stating that an enclosure was made of a price list and a few samples; but unfortunately these enclosures were totally absent. This for No. 1.

The other firm forwarded my address to another firm in Switzerland, which in turn sent me a catalogue of Swiss views only. Imagine the beauty of my asking for English views and to have to go to a village in Switzerland for them, and receive another catalogue of what I do not ask for. This settles No. 2.

No. 3 has not answered at all. Is not this way of doing business quite English? It seems to me, however, that there are such views published in England, and that they should be found in a small village like Paris without having to go to Switzerland for them, and not receive them even then.

I received lately a catalogue from a firm in Detroit, Mich., U.S.A., giving a certain quantity of views (coloured), taken in England. I suppose I will have to order in this roundabout way to get views, two or three hundred miles distant, from a place about four thousand miles away.—Yours truly,
A. LEVY.

P.S.—Since I wrote the above I received full explanation and rectification from parties forming item No. 1, which proved satisfactory.

A. LEVY.

4, Avenue Pinel, Asnières (Seine).

March 4, 1905.

[Our correspondent's experience is surely exceptional, for postcard publishers in this country, so far as our knowledge of them extends, may be aptly described in the Gilbertian phrase of "pressing prevailers." Probably the publication of his letter will acquit them, in Mr. Lévy's eyes, of the charge of apathy which he brings against them.—Eus. B.J.P.]

ROYAL Photographic Society.—At the next meeting of the R.P.S., on March 14, Mr. D. S. Chalmers will lecture on "Some Results of Lens Testing."

THE "Furniture Times" is a publication which Mr. Carl Hentschel, who issues it during the present furniture exhibition at Earl's Court, is anxious to dissociate from the organ of Printing House Square. "The Times" has gone into the furniture trade only in the matter of book-cases for encyclopedias, and the "Furniture Times" exists only to point out, in a mean, underhand, amusing, and eminently successful way, how furniture firms can promote business by good half-tone and three-colour illustrations. Hentschel, colourtype, and Meisenbach are words that crop up in every paragraph and in advertisements in the "Furniture Times," but the issue is none the less good reading, and in its way a model of artistic advertisement.

THE work of John W. Alexander, an American artist of note, is the subject of an article in the current issue of "The World's Work and Play." It is more particularly to the illustrations accompanying the article we would draw the attention of figure photographers in search of new poses and effects. Expression of gesture and movement appears to be the chief aim of this artist's work, which is characterised by a mingling of reticence with spirit, while with his female figures, of which the illustrations chiefly consist, he shows a frequent partiality for large, balloon-like masses of skirt, which lend a certain discreet voluptuousness to many of his compositions.

WELSH Water and Photography.—A correspondent of the "Birmingham Daily Post" asks if any photographic readers of that paper have had any trouble with bromide prints since Welsh water has been in Birmingham. He says: "I have lately done some prints on a well-known bromide paper, and have been greatly troubled with blisters. Some I have just done are absolutely covered with blisters of from $\frac{1}{8}$ in. to $\frac{3}{8}$ in. in diameter. I do not know yet if it is the fault of the water or if I have got some very old paper." Possibly Mr. Harold Baker's article on "Blisters on Bromide Paper" (B.J., February 17) would prove of assistance, especially as Mr. Baker himself is a Birmingham photographer.

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- *.* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED.—

- G. Milne, 45, High Street, Turiff. Photograph of the Rev. W. Edie, B.D.
- A. Greenwood, 77, Standish Street, Burnley. Two Photographs of Bishop Pearson of Burnley. Photograph of a Group of Bishop Pearson and Two Curates.
- T. Taylor, 299, Green Terrace, Whitefield, near Manchester. Photograph of the Crystal Palace Thousand Guineas Trophy for Brass Band Contests. Photograph of A. Holden, Conductor of the Hibbourn Colliery Brass Band, and the Thousand Guineas Crystal Palace Trophy.
- G. Collie, 35, Claremont Place, Aberdeen, N.B. Photograph, Snow Scene of Glenkindie House, Towie, Aberdeenshire, N.B.
- W. Parsons, 147, North End, Croydon. Four Photographs of the Rev. A. E. Easter.
- J. A. Jones, 29, High Street, Walton-on-Naze, Essex. Photograph of Steamboat, "London Belle." Photograph of Steamboat, "Walton Belle."
- H. Munro, 10, Crown Street, Aberdeen, N.B. Photograph of the Aberdeen Football Club, Limited.
- W. Woolf, 117, Pinstone Street, Sheffield. Photograph of Geo. Harrop.
- W. A. Thomas, 45A, George Street, Hastings. Photograph of the Orchid sent by Mr. Chamberlain to Hastings to be sold at a Bazaar.

PURCELL AND BETH.—Grove Works, Lombard Street, Battersea, London, S.W.

J. A. D. LLOYD.—(Kodaikanal, India), Penrose and Co., 109, Farringdon Road, London, E.C.

T. A. M.—You should address the various producers of films, such as the Urban Bioscope Co., London, W.; Messrs. Williamson's, Brighton, etc.

E. H. GIBSON (Burton-on-Trent).—There is "Enamelling and Retouching," by P. Piqueppe, price 2s. 6d., from Dawbarn and Ward, 6, Farringdon Avenue, London, E.C. We believe the "Art of Photographic Painting" is still in print.

OTHELLO.—Yes; your circular marks are flare. Carefully examine the lens to see that there are no bright reflecting surfaces inside the tube, if there are any blacken over. You would be able to see these patches if you focus a lamp in a dark room, and could probably get rid of them by slightly unscrewing one, or both, of the combinations, thus altering the distances.

GROUND GLASS PAINT.—Can you supply me with address of the firm in London who, I believe, have put on the market a paint which gives the same effect as ground glass?—A. E. STANLEY.

We cannot. Ordinary white lead paint, dabbed on with a short brush, will answer for obscuring glass windows. There are a number of ground glass varnishes on the market, but these, we take it, are not what you require.

F.R.P.S.—Will you kindly inform me what one has to do to gain the letters F.R.P.S.?—A. A. SCOTT.

The Fellowship of the R.P.S. is granted to persons applying for it in recognition of services rendered in the advancement of photography. The secretary of the society (66, Russell Square, London, W.C.) will send you a circular explaining what these services may be.

H. SPARROW.—The results are certainly very good, although there are processes for giving similar tones. We think the general

character of your prints are superior to their results. But we are very doubtful as to the process having any commercial value, because the demand for such tones is very limited. You might offer it to makers of chemical specialities for photographers whose names you will find in our advertisement pages.

GASLIGHT PAPER, PRINTED-OUT.—In printing-out a piece of Velox (bromide) by daylight, I find it prints a violet colour. Is there any formula for making it permanent?—S. J. W.

If the paper is very thoroughly printed out—say, by exposure for an hour in bright sunshine—the print can be fixed in the ordinary hypo bath, the colour being thereby somewhat altered. But why torture the process in this fashion?

ANATOMY IN RETOUCHING.—I am greatly obliged to you for having put me on to the "Art of Retouching," by R. Johnson. Would you now do me the further kindness of telling me where I can get a book describing the anatomy of the human face in detail, by means of illustrations?—L. B. HAWKES.

"Retouching," by Arthur Whiting, in other respects an excellent book, is the only one we know which deals with and illustrates retouching on anatomical lines. It is published at 1s., by Dawbarn and Ward, Ltd., 6, Farringdon Avenue, London, E.C.

GOLD CHLORIDE.—Will you kindly state the chemical composition, giving notation of the above salt as sold in tubes for toning, showing how it contains 7 grains Au., and also please say how a toning solution may be made up from pure metallic gold in the form of brown powder?—TOM HEATH.

The formula of commercial gold chloride is $\text{HAuCl}_4 \cdot 4\text{H}_2\text{O}$. The combining weight of this compound is 412, and as the atomic weight of gold is 197 the formula corresponds with 7 grains of gold in 15 grains of the substance. (2) The gold is dissolved in aqua-regia (2 parts hydrochloric acid and 1 part nitric acid), the solution evaporated to dryness on a water-bath to expel the acid and dissolved in water. You may calculate that 1 grain of the gold forms 2 grains of chloride, but unless you have some chemical experience you had much better buy your gold chloride.

COPYRIGHT.—A friend has lately sat to me for some genre photographs I was making, without payment either to him or to me, but simply to oblige me as a model. Can I now publish or dispose of these photographs without first obtaining my friend's permission? In other words, does the copyright in these photographs belong exclusively to me, and can I do as I like with them? Is it necessary to register the photographs, and, if so, can I then publish or otherwise dispose of them without a specific permission from the sitter?—T. TREE.

The copyrights are exclusively yours. As to the use you can make of them, you are limited only by common law. Your sitter cannot hinder, so far as copyright is concerned, but if you employ the photograph to his, or her, moral, social, or commercial disadvantage, action may be taken against you. You should register the copyrights to legally establish your proprietorship in them.

PLATINUM PRINTING.—I enclose three prints (platinotype), and shall deem it a great favour if you will tell me (1) the cause (or causes) of the stains on them, (2) your opinion of the work.—G. E. G.

(1) As to the prints which we have numbered on the back, negatives Nos. 1 and 2 are probably very thin, and the paper has the appearance of being somewhat old or slightly damp. Increased contrast can be obtained by adding one grain of bichro-

mate of potash to every twenty ounces of developer; in no case must more than two grains be added, or the paper will yellow in time. The effect of the bichromate will wear off. This can be rectified by the very cautious addition of the chemical. The markings are due to dirt, defining dirt as "matter in the wrong place." Probably the paper has been allowed to come in contact with some contaminating substance, laid down on a dirty table, for instance. The defects are probably not due to any fault in the paper. The sky in print 1 shows indications of scum on the developer. This should always be skimmed before use, and it is wise to rock the dish between each development. This print also shows finger marks, indicative of careless working. Print 2 looks as if it had been scraped against metal. The storage tube must always be lined with paper. (2) The prints are not up to a good standard of platinum work. More care is needed, we think, as to the dryness of the paper.

BUTTON PICTURES.—COPYRIGHT.—(1) I shall be glad if you will give me information as to the manner in which celluloid is attached to the front of photographs for making buttons. Liquid gelatine does not attach itself with moderate pressure to the celluloid, and the print attached in this way can be peeled off with a slight effort. (2) I have a registered photograph copyrighted by me some time ago. A local stationer has lately had it reproduced as a postcard by some London firm, and is exposing it for sale in his window, and acknowledges having sold some grosses of them. There is no question about my right to protection, as the photograph was taken without payment being made to me. I am not at present a member of the Photographers' Association, although I intend joining. Will the association take up the matter for me when I am a member? I take it I can proceed against both the stationer and the firm who actually did the work of copying? What would you suggest as a fair amount to claim for damages, as no doubt the infringement has interfered with the sale of the photographs themselves.—H. S.

(1) The print is dipped in alcohol and the celluloid disc pressed in contact with it by a hot roller. The celluloid is thus softened and the print cemented. If you write Jonathan Fallowfield, 146, Charing Cross Road, London, W., he will send you book descriptive of the process and apparatus. (2) The case is one which we should think the P.P.A. would move in on your behalf. You can proceed against both parties. As we know nothing of your sales of the prints it is not possible for us to name a sum for damages.

NOTICE.

Several replies are held over for insertion next week.

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EX CATHEDRA.

For the past four days an exhibition of instruments, promoted by the Royal Meteorological Society, has been open at the house of the Institution of Civil Engineers, Great George Street, Westminster, and will have repaid any photographer who has chanced to visit it. He will have seen how largely the photographic method is employed in registering climatic variations. Among other exhibits is the kite camera and cage used in the Scottish Antarctic expedition, an ordinary Goerz-Anschütz instrument, with electric release for its focal-plane shutter. The exhibition closes to-day (Friday) at five o'clock.

Celluloid and Xylonite Risks. For the safety of premises where celluloid and xylonite are stored or worked a memorandum has been issued by the Home Office in which the following precautions are advised:—(1) Where large quantities of xylonite or celluloid are stored, fireproof rooms should be provided. (2) Where xylonite or celluloid is used, or temporarily stored, the material not in actual use should be kept in metal or other fireproof receptacles. (3) Xylonite or celluloid shavings or dust should not be allowed to accumulate on the floors, but should be swept up daily and placed in receptacles of non-inflammable material, not in the sacks or wooden boxes now commonly employed for the purpose. (4) The use of naked lights should be avoided as far as possible; used at all they should be at least 3 ft. from any boring or glazing machine.

Optical Convention. Photographic optics do not figure prominently among the papers set down for reading at the Optical Convention, to be held about May 31 next, but the list as sent to us by the Secretary, Mr. S. D. Chalmers, is confessedly not yet complete. Mr. Chalmers, who has already several times shown

his personal interest in photographic optics since he accepted the directorship of the Optical Department at the Northampton Institute, will be glad to hear from anyone interested in the subjects with which the Convention will occupy itself. Among the papers at present announced are:—"Some Properties of Lens Systems," by H. Dennis Taylor; "Some Problems relating to Optical Glass," by Walter Rosenhain; introduction to a discussion on aberrations, by Dr. C. V. Drysdale and S. D. Chalmers; "Diffraction in Optical Instruments," by J. Gordon; and "Lens-testing Bench," by H. Beck.

Mercury Vapour Poisoning.

To be set against the many advantages of the new mercury-vapour lamps there is one fact which is not particularly pleasant to contemplate. In the event of a tube breaking there will be a discharge of the highly poisonous mercury vapour, and it is not difficult to imagine conditions in which such an accident might be the cause of death. There is no need for fearing fracture of the tube save by the collapse of the installation or other accident to which any piece of glass apparatus is liable, but the intensely poisonous character of the source of light should prompt the photographer to take more than usual precaution in having the lamps fixed.

A Preventive of Mercury Poisoning.

We may mention here, although the information cannot be advanced as of any practical service, the remarkable power of finely divided aluminium of absorbing vapour of metallic mercury. The fact has recently been applied by a Spanish chemist, N. Tarugi, to the manufacture of a respirator which has been introduced with good results into the mercury mines of Monte Amiata. It is found that mercury vapour, when largely diluted with air no less than the dense vapour evolved by heated mercuric chloride is completely arrested by the spongy aluminium. We would not seriously suggest that the photographer must safeguard himself by habitually donning an aluminium gag, but occasions may arise when such precautionary measures are advisable—and possible.

The Spectre of the Brocken.

In the current number of the "Photographische Korrespondenz" is given a half-tone reproduction of an extremely successful photograph of the well-known phenomenon, the spectre of the Brocken, taken by Herr K. Heller. This, as is well known, is the projection of the shadow of a person on a cloud or mist, produced by the sun being behind the person, and it is usual for the person's head to appear surrounded by three or four concentric coloured rings, or rainbows. In the reproduction it is possible to see not only Herr Heller but also the camera shadow. The negative was obtained with a medium yellow screen and an orthochromatic plate with one second's exposure.

with F 62. We believe that this is the first time that this phenomenon has been photographed.

Cash Prize Competitions.

The competitions organised from time to time by various well-known makers of photographic materials appear to not only meet with a highly gratifying measure of success, but may be regarded as forming an undoubted indication of the widespread interest taken in photography. This is evidenced by the recent "Barnet" competition, the awards in which are published on another page. No less than 10,000 entries from all parts of the world formed the response to Messrs. Elliott and Sons' offer of £500 for photographs produced with their plates and papers. An analysis of the awards shows that several of the competitors secure sums of money ranging from £15 to £30. Prizes worth winning, forsooth. An even larger amount is now on offer in Ilford Limited's competition, which closes on the 31st of this month. No less than £750 in cash is offered in prizes to users of Ilford plates and papers, etc.; 116 prizes amounting to £380 are for professionals only; £282 10s. is set aside for distribution to amateurs in 136 prizes; and £87 10s. will be divided into 130 prizes for junior amateurs. This generous scheme for the reward of their supporters should bring in an enormous return to the Ilford firm. Particulars of the competitions will be sent post free from Ilford Limited, Ilford, London, E.

The Free Portrait Dodge.

Our contemporary "Truth," which has done so much to show up the notorious Tanqueray, states that a rival has arisen in Paris under the name of the Société Franco-Américaine, of which one Saenger is the director, while it boasts of a "Chief of the Artistic Department" in the person of William Hildebrand, Academic Painter. This concern appears to be very active at present in South Africa, from which country the information about it comes. It is true, of course, that Saenger might easily be Tanqueray under a new name, but respect for the inventor and "boss" of the free portrait swindle prevents the supposition that this is so, for the clap-trap of the Société Franco-Américaine is but a shoddy imitation of Tanqueray's highly-finished bunkum. In proof of this, one of Saenger's reproductions of testimonials received from his delighted customers is given:—

"Sir G. A. Finch, Right Honourable M.P.

"Burley-on-the-Hill, Oakham (Rutland),

"sept. 17th 1904.

"Mrs. Finch who sent a photograph of her in Mr. Finch's name is so pleased with the picture which is a very good copy of the photograph. She is sending the coupons to her friends.—Yours faithfully

"This is one of the numerous testimonials sent to us daily and which will be printed in a few days."

A Rule for Exhibition Judges.

At the annual general meeting of the Hackney Photographic Society, reported elsewhere, a proposition was put forward that should prove of interest not only to all photographic societies that hold exhibitions, but also to exhibition judges. The following addition to the rules was proposed: "At any future photographic exhibition of the Society, the judges be furnished with the number and title of the pictures only, the names of the exhibitors being withheld till the awards have been made." The opinions of the members, who include many well-known exhibitors, on this subject, were markedly different in the discussion that followed, and the final decision was to refer the matter to the Council rather than add anything to the rules. We have always been under the impression that it was an unwritten law that

the judges at an exhibition were not made acquainted with the identity of the exhibitors until after they had made their awards. We understand this is always the case when judging the Royal Photographic Society's exhibitions, and that it is the usual custom at most provincial societies, to paste a strip of paper over the names of the exhibitors in the copies of the catalogue given to the judges. If, however, the proposition made at the Hackney Society becomes a precedent for a rule when drawing up the regulations of photographic exhibitions, it will be well to consider two points at least in connection with the judges' knowledge of the exhibitors. The first, and probably most important, is, that under existing conditions the addition of the exhibitor's name to the front of the picture is permissible, which fact, if made full use of, would, of course, defeat the object of the proposed rule; and the second is that, in many instances, more than one award is made to the same exhibitor in one class when the regulations allow only of one award being made. The knowledge of the exhibitor's identity would obviate this, and the judges would be saved much extra labour in re-judging a class. We shall note with much interest the outcome of the Hackney Society's move in the matter, and observe how it works out in practice.

VIGNETTE PORTRAITS.

It has become fashionable of recent years to decry the vignette, and as far as landscapes are concerned, we think there is plenty of reasons for this; but for portraiture the vignette at times is not only appropriate, but advisable. Nevertheless, there are few, very few, subjects that call for this treatment, and it is the use of vignetting for the wrong pictures that has brought the method into disrepute.

Speaking generally, we would say that ladies and young children are the only appropriate subjects; men, never. Thus, again, the ladies and children should be dressed in light materials; if they are not, the dark dress strongly contrasting with the background, which, of course, is light shading off to white, tends to make this subsidiary feature of more importance than the delicate half-tones of the face. The ideal subject is a beautiful woman or child in white costume, taken against a perfectly white or very light grey ground. The picture will then be all in light tone, with the flesh tones slightly darker than the ground and drapery. The pictorialist will say, perhaps, that this is a poor imitation of a pencil drawing or rough study, and that imitation is not art. With this we would disagree. The camera is capable of being used to any end, and, so long as that end is beautiful or artistic (in these days not always the same), an imaginary or accidental resemblance is no drawback. It might with equal truth be retorted that those of the ditch-water school, addicted to huge patches of ungraded black with infinitesimal amounts of half-tone, are imitating poor, very poor, engravings, though, of a truth, the engraver would not be flattered; he delights just as much as the possessor of the latest anastigmat in reproducing every detail and gradation. So long as the vignetting was used foolishly and indiscriminately, as it was when the "cabinet vignette" was the chief stock-in-trade of the professional, the crusade was just—even laudable; but having made their point, and having exterminated the vignette from all but the most backward of professionals' specimens, it is time for the critics to stay their hands and welcome a sensible resurrection of this dainty style.

In our opinion, a certain public must very soon get tired of the brilliant dark background effects, and call for something more light and more suitable for the delicate and transient charms of youth and fashion. Since fashions,

we are told, always travel in cycles, the vignette is certain to be again welcomed, but this time professionals, from their greater knowledge of art, will not perpetrate the monstrosities that drew forth the ire of the cultivated only some ten years ago.

"Drapes," to use an American term, are very useful for vignette busts, and to the uninitiated we may say that a "drape" is some light, soft, filmy material kept to drape the shoulders of those not provided with suitable bodices, also for somewhat ethereal-looking portraits of children. The reader must have seen how extensively this handy material is being used by the London professionals. The usual form is merely a couple of yards of "chiffon," usually cream, and it can be used as the operator may prefer. A "fichu," to borrow another ladies' word, is also requisitioned; it is of the same material, but is made up and usually is provided with a frill or two.

The background now claims attention, and it was here as much as in the selection of subjects that the old exponents of vignetting made mistakes. The ground must be light, for, although a dark ground may be vignetted by a skilful printer, yet they never look well. A perfectly white ground is best. Next best, perhaps, is a grey so skilfully chosen that, though darker than white drapery, it is lighter than the flesh tones. Needless to say, such a ground is somewhat difficult to get. The ground must, at any rate, not be much darker than that if a successful sketchy result is to be obtained.

The great objection to the best ground, the white, is

the difficulty of operating so that the delicate flesh tints and drapery detail are retained on the light side of the model. A very little practice and common-sense arrangement of the light will soon obviate any difficulty. The light must be well ahead of the sitter, none coming from the side for at least six feet in front. We prefer to have the light coming from a large square space directly beside the camera, with the latter, say, six feet from the light. Measuring from the side light, the sitter should then be twelve feet into the room. If the sitting is for a bust and one has an uncovered shoulder which must have modelling retained, we use practically no side light.

These rough guides should be sufficient data for successful use of the white ground. This lighting not only has the effect of keeping modelling on the side nearest to the light, but has the equally desirable effect of giving perfect roundness to the face, with no deep shadow that would be out of keeping with the general scheme.

Developing is, of course, as usual, though care is necessary to stop before one smothers any high lights in the background. The actual vignetting of these prints is the very easiest job that could fall to the printer's lot, little or no skill being required. Practically an old piece of card with hole cut to shape will do, even serrating the edges is not actually necessary. The easiest vignettes to make, in our opinion, however, do not have serrated edges, but holes are punched with a "leather punch" as close to the edge of vignette and each other as possible; this makes a very soft vignette, even with dark grounds.

FINISHING ENLARGEMENTS WITH PASTEL AND BRUSH.

In a previous article I dealt with a method of retouching bromide enlargements with pastel, which is characterised by speed combined with effectiveness, and although it is undoubtedly the best method of finishing for the majority of photographers to employ, there remain one or two others about which it may not be amiss to say a few words.

Probably the next most popular method of finishing is with the aid of the aerograph, which is undoubtedly most useful, and best in all cases when smooth paper has been used, or if the portrait is upon opal or celluloid. The working of the aerograph is readily learnt, and when once the instrument is ready for use the work is rapid enough; but inasmuch as the company which manufacture it are always willing to train purchasers in its use, it is superfluous to occupy space here with directions concerning it.

Another method of finishing is by using sable brushes alone, the work being applied either with hatching or stippling touches. Next to the aerograph, it is the most satisfactory way of retouching opal enlargements; but, inasmuch as it is very slow, it is inferior to the pastel, or combined pastel and brush, finishing of paper ones. In this latter method the work is commenced in pastel, the background, draperies, hair, etc., being principally attended to, as described on page 24 (January 13) of this present volume; but instead of finishing with pencil and stump, brush and colour are substituted, the effect being that of an enlargement from a perfect negative finished by brush-work alone.

Method of Applying Brush-work.

Using water-colour which accurately matches the tone of the enlargement, a sable brush is very sparsely charged with same (it should be almost dry—washes of colour, of course, being quite out of the question). It is then applied to the picture with hatching strokes, or, if preferred, the slower stippling touches.

And for the benefit of the learner it may be as well to state that hatching consists of marks or lines which generally cross one another at a more or less acute angle, whilst stippling consists of dots (made with the point of the brush) instead of lines.

Of hatching strokes there are a variety of forms, and in some of them the lines do not cross one another. One of these consists of zig-zag lines disjointed at their angles, and running horizontally, obliquely, or vertically across the picture, forming a very effective stroke for running over large backgrounds, especially if they are vignetted.

When it is necessary to cover large spaces the strokes should be light, broad, and well scattered. If they are over accessories or draperies they may take the usual direction obliquely downwards from right to left. First make a series of short strokes over the part to be covered at an angle, say, of 45 deg. with the horizontal or sight-line, and then cross these with short lines running about 55 deg. The more they are separated from one another the lighter will be the tone produced, and, conversely, the closer together they run the darker the effect.

When hatching over the flesh it is usually better to let the direction of the strokes follow the form of the features, using fine, curved, over-lapping strokes. Many artists prefer to stipple over the face entirely, and there can be no objection to doing so if there is sufficient time, for, as with retouching, stippling is slower, but produces a finer grain. There is also a form of hatch and stipple touch which gives a nice effect. It consists of oblong dots made with touches of the brush-point, combined with a slightly downward movement, the tails of the dots being downwards.

Again, as finishing a bromide enlargement is similar to retouching a negative, any of the various touches employed for the latter may be made with the brush on the former, the chief points to remember being to have the brush fairly dry, lightly charged

with colour, and to sit well back from the work, for unless this latter matter is observed, the work will certainly have a dirty and unfinished appearance. Of course, in working up the hair, brows, etc., no other definite form of stroke will be employed than that necessary for the mere evening-up or modelling of the part, as hatching over these parts usually produces an artificial look altogether.

For the development of heavy shadows the brush may be more fully charged with colour, but the necessity of keeping it fairly dry must be fully observed.

After the artist has severally attended to the various parts needing touching, a general survey of the whole will usually discover a few imperfections owing to the more or less finishing of part by part. With a little practice, however, it is easy to "pull the work together" with a very few strokes. Do not put on a lot of unnecessary work; not only is it a waste of labour, but the truthfulness of the reproduction will be seriously endangered. It is best to make a habit of endeavouring not to make one unnecessary stroke, experience alone teaching how to make every touch tell.

ARTHUR WHITING.

THE WEEK IN HISTORY.

Beginnings of Dry-Plate Photography.

THE wet collodion process of Archer, introduced in 1851, was not very long in use before the first signs of reaction to a dry method commenced to be apparent. Thus in 1853 we find M. A. Girod, in "La Lumière" of March 19, explaining that he lays a second glass plate on the one he has collodionised and sensitised. Thus protected, the sensitive plate may be kept for a day before exposure. Though M. Girod writes positively that the collodion film sustains no damage in the interim between sensitising and development, his method was an obvious *tour de force* outside the limits of practical photography. A few weeks later, in "La Lumière," M. Gaudin recommended separating the two plates round their edges with strips of blotting paper, and also carrying the plates in a grooved box, thus hindering the evaporation of moisture from the film. But these plans, cumbrous in themselves, doubled and trebled the weight of the sensitive plates, and the day of the dry plate was brought in, not by them, but by the chemical advances which rendered possible, first the dry-collodion and collodion-emulsion plate, and then the gelatine emulsion.

Toning without Gold.

I cannot assign a date to the introduction into photography of a process for obtaining a dark or black tone on paper prints without the aid of gold or other of the precious metals. Gold toning commenced with Daguerreotype, and was modified in numerous ways to fit the various processes as they arose, but toning without gold, that will-o'-the-wisp which has laid waste the labours of many photographers, apparently grew gradually out of the practice of calotype workers to employ an old or highly worked fixing bath for toning purposes. The

action which took place was probably nothing more than "sulphur toning," as we now apply the term and the operation to bromide work for warm tones, but, whereas a "sulphur-toned" bromide has some reasonable claims to permanency, old print-out papers when treated in this manner gave an image not only of silver sulphide, but containing other sulphide compounds which speedily altered in the light and ruined the print. Quite a different process, however, is forty-five years old on Tuesday next, March 21, it having been patented in 1860 by two Americans, J. C. Rutherford and B. H. Steele. The toning bath, which presumably was to be applied to prints on plain paper, is specified in the patent (No. 735) as follows:—A mixture is made of corrosive sublimate, tartaric acid, sal soda, hydrochloric acid, and water. It is left standing forty-eight hours, and, after filtering, is ready for use. This fantastic mixture of acids and alkali apparently amounts to tartrate of mercury, and may have been suggested by Sir John Herschel's printing process, in which that material was used. (Hunt's "Researches on Light," 2nd edition, page 160). Herschel found the prints fugitive, but the patentees of the mixture were in no doubt as to the permanency of the toned pictures.

The Liverpool Photographic Society.

There are three photographic societies in Liverpool at the present time, but none of them perpetuates the "Liverpool Photographic Society" founded on March 22, 1853. That society has a special interest for readers of the B.J.P., because the journal which it established a year later became in 1860 the present BRITISH JOURNAL OF PHOTOGRAPHY. But the original Liverpool Photographic Society, if I am not mistaken, did not survive the year 1866.

HISTORICUS.

MESSRS. FUERST BROS., 17, Philpot Lane, London, E.C., send us their current list of photographic chemicals.

"THE B.P.S. Journal."—Under this title the monthly programme of the Birmingham Photographic Society is enlarged into a presentable and admirably gotten-up little booklet, and forms the official record of the association. Notes on lectures and demonstrations given at the society's headquarters, Norwich Union Chambers, Congreve Street, Birmingham, particulars of the society, correspondence, and an exchange column—at present blank—help swell the publication to twelve pages and an art green cover. Editorial comments on topics of interest to members are a feature, and they appear under the heading of "Ex Cathedra." We seem, somehow, to have observed this title somewhere else in print, but no matter. This energetic and flourishing Midland society is to be congratulated on a production which exudes the secretarial balm of esprit de corps from every page.

SPEAKING Postcards.—The subject of phonographic postcards, as likely to oust the popular picture postcard, forms the topic of humorous comment in an editorial of "The Express." The opinion is offered that "if you call a man a chuckle-headed son of a sea-cook on a postcard or ask how much he got for the umbrella he took out of your hall, you are liable to be cast in damages for libel, no matter how illegible your handwriting. At the end of the present month you will be able to say the same thing or sing it to a Gregorian chant into a gramophone and send the resultant disc to your friend without coming within the peril of the law—at least, so we suppose. Gramophone discs capable of being struck on an ordinary postcard and sold for sixpence will by that time, we are assured, be on the market. What need henceforth even the lovers' meetings? Amaryllys will have naught to do but place her gramophone on the stool at her feet and hear her lover swear in the throaty voice peculiar to lovers and gramophones. Creditors likewise will hear their debtors swear, but in a different language."

THE AMIDOL DEVELOPER.

THE notable developing property of amidol, especially its strong reducing action in the absence of an alkali, has led to its being widely adopted. In spite of the ease with which this developer can be mixed just before use, it is not so generally employed as one might assume, because it loses its developing power fairly quickly.* We have undertaken to determine the causes of the changes of the amidol developer, and to find means to preserve its developing power.

Up to the present it has been believed that the most important cause lies in the ease with which dilute solutions of amidol absorb oxygen from the air. We may, in fact, assume that the developer, in which the sodium sulphite plays the part of alkali, loses its developing power from the moment in which the substance which acts as an alkali no longer possesses this property. One may also assume that the first yellow, later brown, and finally red colouration which the solution acquires in proportion to the diminution of reducing power is to be ascribed to the increasing oxidation of the amidol on account of the destruction of the sodium sulphite.

The True Cause of the Trouble.

We have determined that these generally accepted hypotheses are erroneous, and that the alteration of the amidol developer does not rest on the destruction of the sodium sulphite, but on the oxidation of the amidol by the air, and which is only delayed but not prevented by the presence of the sulphite.

In fact, if the quantity of sodium sulphite is determined which a normal amidol developer of the composition here given contains,

Amidol	5 g.
Anhydrous sodium sulphite	30 g.
Water	1,000 ccs.

when it has lost all its reducing properties and the solution is a deep red, it will be found that it still contains 75 per cent. of the original quantity of sulphite, a quantity which is absolutely sufficient to give to a freshly mixed developer a developing power which is very near that of the normal developer.

It will be found on the other hand, that when more sodium sulphite is added to the inactive solution its developing property is not increased to any extent, whilst the developer will attain its original power if the original quantity of hydrochlorate of diaminodiphenol (amidol) is added. It appears, therefore, that the loss of the developing power is caused by the destruction of the amidol.

In order to determine whether this destruction is caused by absorption of atmospheric oxygen, a litre flask was filled with normal developer, tightly corked, and paraffined, and left for about a year. We were able to determine that under these conditions the developer only turned a faint yellow colour, and that its reducing power had not decreased to any extent after being kept so long.

The change in an amidol developer in an uncorked bottle may be considerably retarded by covering it with a film of ligroin or petroleum, which prevents the access of the air. It is therefore the oxygen in the air which causes the change.

The Influence of the Quantity of Sulphite.

As sodium sulphite considerably retards the oxidation of the hydrochlorate of diaminodiphenol, we have investigated whether the keeping power could not be increased by increase of the quantity of sulphite in the developer. For this purpose the keeping property of a normal

developer was compared with that of solutions in which the quantity of amidol was normal, but that of the sulphite was both reduced and increased. The solutions contained 5 grammes of amidol per litre, and the following quantities of anhydrous sodium sulphite:—

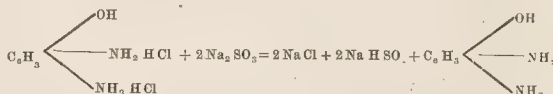
No. 1.—Amidol solution without sulphite.	
No. 2.—Amidol solution with 1 gramme sulphite.	
No. 3.— " " " 2 " "	
No. 4.— " " " 5 " "	
No. 5.— " " " 10 " "	
No. 6.— " " " 15 " "	
No. 7.— " " " 30 " "	
No. 8.— " " " 50 " "	
No. 9.— " " " 75 " "	
No. 10.— " " " 100 " "	
No. 11.— " " " 150 " "	
No. 12.— " " " 200 " "	
No. 13.— " " " 250 " "	

The solutions were kept in uncorked flasks at the same temperature. It was determined that the solutions which contained up to 3 per cent. of sulphite darkened less quickly the less sulphite they contained, but above this proportion the discoloration was, in the same time, the more intense the more sulphite was present. In solution No. 13, which is saturated, the discoloration increased more rapidly than with all the others; it was weaker and weaker from the surface of the solution to the bottom, from which it is obvious that the absorption of oxygen at the surface took place much quicker than the diffusion of the oxidised solution into the underlying liquid. If the alteration of the amidol developer is to be ascribed to the oxidation of the sulphite one must have observed the opposite; as the solutions which were richer in sulphite would oxidise more slowly. We have in fact proved in a previous paper that solution of sodium sulphite absorbs oxygen from the air more slowly the more concentrated it is.†

Keeping Concentrated Solutions of Amidol and Sulphite.

We have tried the possibility of increasing the stability of the amidol developer by simultaneously increasing the proportion of amidol and sulphite. For this purpose, to a saturated solution of anhydrous sulphite, 250 grammes to the litre, the corresponding quantity of amidol, 40 grammes, was added, so that a normal developer would be obtained when the concentrated solution was diluted with seven volumes of water.

Under these conditions the solution blackened, even in well-corked bottles, quicker than a normal developer under the same conditions, and there was formed in a short time at the bottom a brown crystalline precipitate, which slowly increased. It is easy to explain why solutions with equal proportion of amidol should oxidise more quickly in the air the richer they are in sulphite. One may in fact assume that the sulphite is first used to set free the base of the hydrochlorate of diaminodiphenol, according to the following equation:—



* As the rapidity of the loss of the developing power varies with the temperature, it is impossible to accurately determine the time in which a normal amidol developer becomes useless. Still it may be experimentally determined that when the developer is kept in a half filled litre bottle, without a cork, at about a temperature of 17 deg. C., the developing power gradually decreases, until in about twenty days it is nil.

Calculating from this equation, 6.3 grammes of anhydrous sodium sulphite are required for 5 grammes of diamidophenol hydrochlorate in each litre. When the sulphite surpasses this theoretical quantity, one must take into consideration the reducing power of this salt, and the alkaline reaction which it imparts to the solution and which increases with the increase of the quantity. As alkalinity considerably assists the oxidation of the phenols and amines, it is probable that the reaction of the reducing power is kept in equilibrium by a certain ratio of sulphite to the amidol solution.

On the other hand the diminution of the reducing power of concentrated amidol solution in saturated sulphite solution, in which in full corked bottles a copious brown crystalline precipitate appears, may be explained by the fact that the diamido phenol, the base, is very slightly soluble in saturated sulphite solution. One may assume that this very variable substance is precipitated, and thus the reducing power of the solution is considerably lowered.

Conclusions.

We may therefore draw the following conclusions from the above statements:—

1. The alteration of the amidol developer is not to be ascribed to the oxidation of the sodium sulphite, but to the oxidation of the amidol, as the sulphite is much less oxidised in the presence of sulphite than in a simple aqueous solution.

2. An excess of sulphite over the normal quantity in the developer does not retard the oxidation of the amidol; indeed it rather accelerates it.

3. The solutions saturated both with amidol and sulphite oxidise more readily than the normal solutions, and cannot be kept even in well-corked bottles on account of the precipitation of the amidol.

4. On the contrary the normal developer may be kept without marked change in a full well-corked bottle for a long time.

A. and L. LUMIERE and A. SEYEWETZ.

LANTERN MANIPULATION.

LANTERN manipulation is an undoubtedly large subject, appealing not only to the professional lanternist, but more particularly to photographic societies, whose evening lectures and demonstrations largely depend on the successful working of the society's lantern. It will be generally found that in the absence of the hon. lanternist there is generally a great dearth of members who are willing and able to undertake his duties, and carry through their part of the evening's entertainment without a hitch. Mr. W. H. Smith, president of the Croydon Camera Club, in a lecture to the members of that association last week, dealt very fully with the subject in a manner that should make clear to the amateur lanternist many points of difficulty that are likely to occur when using the lantern and oxy-hydrogen jet.

Oxygen Cylinders.

The lecturer dealt first with the jet. He said that the jet known as the "blow through" is almost universally used by amateurs, and would alone be considered. With this jet, the oxygen gas only is required under pressure. The hydrogen being represented by the gas supply from the mains. Oxygen is now readily obtainable in nearly all localities in steel cylinders, compressed to 120 atmospheres, which is a convenient method of storage, inexpensive, and, above all, safe; as the cylinders are periodically tested at a pressure greatly in excess of the actual working one, and re-annealed at fixed intervals. There can be but little doubt that if lanternists all made their own gas the percentage of accidents would be considerable indeed. The gas is supplied in cylinders of almost any capacity, but for lantern work, cylinders of from 6 to 20 cubic feet are most convenient. Ten cubic feet will be found ample for a two hours' entertainment; and, as a matter of fact, with care and a good jet, 6 cubic feet would be sufficient for any ordinary lecture. Owing to the pressure at which the oxygen is stored, viz., about 1,800 lb. to the square inch, it would not be possible to turn the gas down at the jet without the rubber tubing and fittings giving way; and, this being so, it is almost compulsory to use a regulator or reducing valve, which will deliver the gas at a convenient pressure—about 2 lb. per square inch is found suitable in practice.

The Regulator.

The first thing we have to see is, naturally, that a supply of oxygen is at hand, we can then turn our attention to the regulator to ascertain if it is in proper working condition. This must be screwed on

to the cylinder; if we have any experienced friend to show us how this is done, well and good, if not, by carefully following the instructions of the makers (which will be sent on request) no difficulty should be experienced. The regulator having been satisfactorily adjusted, the outlet should be stopped; a finger-tip is generally utilised for the purpose. The jet can now be turned on at the cylinder, about one quarter turn being quite sufficient. If, on listening, no sound of escaping gas is heard, the regulator may be considered in proper working order. The valve is forthwith closed, and the cylinder placed on one side for the time being. The cylinder valves should be closed tightly, but not forced, as any undue pressure is apt to destroy the plug seating. The same remark also applies to the regulator.

Making Ready the Lantern.

Assuming the ordinary supply of coal gas to be available, and knowing the limes are in good condition, viz., perfectly dry and unbroken, we can proceed to set up the lantern. When erected, note that the condenser and projection lens are clean; if dirty, take them apart, and, with a soft clean piece of material, carefully wipe each surface, taking care to replace the parts in their correct position. It is very easy for an inexperienced hand to wrongly re-insert the components, unless attention is paid in the first instance. We next see to the gas connections. The oxygen tap of jet is generally marked, but, if not, it can be easily traced, being fitted on to the tube, terminating at one end centrally in the jet. When connecting the rubber tubes to the jet and sources of gas supply, take care that good joints are made, especially to the regulator, or much of the oxygen may be wasted. The tube connections to the cylinder must be free from dust or coal gas, and, if the tubing be new, it should be washed before use. These are by no means needless precautions.

Everything being so far satisfactory, we now place a lime cylinder on the pin provided for the purpose. The lime, it will be seen, has a small hole bored through; frequently this hole is too small, or is full of dust. In either case it must be cleared, and for this purpose a bradawl is as good as anything. The lime must fit the pin quite freely, but not too loosely, any adherent dust being blown or brushed off. Its correct position is about $\frac{1}{4}$ in. from the nozzle of the jet.

Adjusting the Gases.

The coal gas may next be turned on and lighted, with enough flame to well lap the lime, the jet at the same time being drawn an inch or two back from the condenser. In order to warm the lime

equally, it should be slowly rotated for a minute or two, and left with the flame on it. If possible, this preliminary lighting up should be done about half an hour before the lantern is required for use. Meanwhile the screen can be fixed, the slides wiped, and deposited in a warm place. If there is a fire or stove handy, they may advantageously be placed in front. With the lantern, slides, projection lens, and condenser well warmed there should be no trouble with condensation, the *bête noir* of the lanternist, and the risk of cracking the condenser is minimised. All being ready, the lantern can be placed at the right distance from the screen for focussing adjustment. First note that the oxygen tap on jet is closed, and turn the gas on at the cylinder; next turn on a little oxygen at the jet tap, then a little more coal gas, and so on, until the most brilliant light is obtained.

Obtaining the Best Light.

Should there be too much oxygen, then a small black spot will appear on the lime, due to a cooling effect. This can be conveniently observed by its reflection from the back surface of the condenser. If apparent, try turning on more coal gas, which may cause it to disappear, if not, the oxygen must be reduced. A little practice is all that is required, but it will be found that a slight excess of coal gas is necessary. There should be no noise at the jet, which signifies waste and less light. Directly the light is good—it need not be at its best for the moment—insert a slide in the lantern, and adjust the jet roughly. There is no need to trouble about even illumination at this stage, so long as some light gets through on to the screen. Focus sharply, and withdraw slide. The circle of light

will probably be found very uneven, but by shifting the jet backwards or forwards, and up and down, the best position is soon found.

The lantern may now be considered ready for use, and will give no further trouble. If not required at once, the oxygen tap should be shut off at the cylinder and the coal gas reduced a minute or two sufficing to get everything working again.

Points to Remember

In conclusion, there are a few other matters which should receive attention while the lantern is running, the observance of which makes all the difference between a good and a bad lanternist. In the first place, it must not be forgotten to turn the limes occasionally; the heat from the mixed gases is very great, and burns hollow places in the limes, and these depressions or pits sometimes divert the flame on to the condenser, with disastrous results. When a lime is being turned, the light is momentarily reduced, do not, therefore, fall into a common error of performing this operation whilst a slide is being shown—it is best effected when a slide is being changed, then the diminution of light is hardly noticeable. Be careful, also, to drop the slides into the carrier without unnecessary noise, and to withdraw them without shaking the following slide. Focussing should be done rapidly, but the movement of the lens should not be extended so far in either direction as to transform the image on the screen into a pronounced "fuzzy-type," which would have a distressing effect on the eyes. To ensure nice focussing, the lens must slide sweetly in its socket, a condition of affairs which, in the commercial lantern, does not always exist.

THE CAPACITY OF DIFFERENT PRINTING PROCESSES FOR RENDERING GRADATION.

II.

Comparison of Negatives.

As it seemed improbable that negatives would contain anything like such extreme gradations as those mentioned in the first portion of this paper (see last week's "B.J."), I proceeded to test the gradations of some of my own, the test being the same as before, viz., finding the exposures required to give an equal tint to the deepest shadow and the highest light which would be required to print. It seems needless to consider the *extreme* opacity to be found in the negative, as there may be a patch out of all relation to the rest of the negative and which could never be required to print. I therefore considered as the highest light that which would show on a P.O.P. print as a slight tint before toning and as pure white after the print was finished. In the negatives which I have made in recent years, using amidol as the developer, I find a range of opacity of about 1 to 40 or 50 very common in landscape subjects, and I show you one which I consider a fair average printer which has a range of 1 to 40. Others of the still-life kind seem to run rather higher. One I show you has opacities 1 to 100, and another of 1 to 150. Going back to the negatives I made in the days of pyro-ammonia and albumenised paper, I find a much greater contrast. The example I show has contrast from 1 to 350, partly due to pyro-stain. Later on you will see that negatives of the class we produced twenty years ago are very unsuitable for some of the modern printing materials. Of course, the introduction of so many soft-working developers has produced quite a different type of negative, and manufacturers turn out their papers to suit the new conditions.

Now let us see what degree of contrast the different processes are capable of rendering effectively.

Printing-out Papers.

naturally claim first attention. I show you a number of prints taken from my graduated screens on different makes of P.O.P., some well known, others less so. It would be absurd to say that one paper is good and another bad. All are good for some particular kind of negative, and no really bad paper could possibly remain on the market. Many of you, however, will probably be surprised to find so much difference in the printing capacities of even gelatine P.O.P.

Amongst all the printing processes now at the command of photographers, those which give a fully visible image in the printing frame undoubtedly remain most popular, especially those gelatino- or collodio-chloride papers familiarly known as P.O.P. They are all capable of rendering a fairly long range of gradation, but amongst the various examples I have tried it is noticeable that one kind differs from another, sometimes to a considerable extent, and that even the less enterprising photographer, who shuns carbon or platinum because he "likes to see what he is doing," will find some advantage in using more than one make of P.O.P. They differ in the extent of gradation they register, ranging between 1 to 15 and 1 to 20 tints on my screen, representing opacities of 1 to 64 and 1 to 256. That means that a negative possessing a large range of contrast may have all its tones registered on a paper of the latter class, while on the former class there must be blocking up of shadows or loss of detail in lights with such a negative.

Depth of Colour a Factor in P.O.P.

A still more important difference, however, lies in the *steepness* of the gradation. Two papers may be found which register exactly the same number of gradations, but the depth of colour attained in the deepest shadows may be very much greater in one than in the other. The discoloration due to one unit of light and twice that unit is not the same in all papers, and the difference may be illustrated by two flights of stairs, one having higher steps than the other, so that one rises to a greater height than the other for a given number of steps. These two papers will give prints of a different character from any negative. If the negative contains the same gradations as the paper is capable of rendering, the steeper paper will give the most "brilliant" print, but both prints will be good each in its own way. If, however, the negative is flat, and *within* the scale of the paper, the steeper paper will give the better print. On the other hand, of course, the softer paper will best render a harsh, over-developed negative, because the shadows will be lighter in tone, although they will contain no more detail; in other words, the print will be softer.

Gradations in P.O.P. not Correct.

The gradation in all printing-out papers presents a certain important peculiarity. Examination shows that, in all the examples prepared, there is a gradual decrease in the steepness of gradation towards the shadow end, which becomes very marked in the deeper tones, where the difference between any two contiguous exposures becomes hardly perceptible. The explanation is simple. As the silver compounds darken during printing, the discoloured particles act as a screen to those lying beneath them, so that the darkening of the latter is delayed. The greater the amount of darkening, the greater the screening effect; hence the lighter of two tones tends to overtake its darker neighbour, and the contrast between them is less than the contrast between the corresponding tones of the negative used. The effect of this is to soften the shadows of the print and lengthen the scale of gradation, as will be seen by comparison with other classes of papers where this screening effect does not arise. At the other end of the scale there is also a somewhat abrupt falling off in the gradation not quite so easily explained. It will be noticed that the gradations *print out* clearly enough, but that they disappear, or are disproportionately reduced during toning and fixing. I ascribe the loss of these delicate tones to the fact that silver chloride prints out more rapidly than the organic silver compounds which are associated with it, and which give richness and depth of colour to the print, hence the lighter tones consist mainly of chloride alone, which is more reduced during toning and fixing than the organic compounds. This seems the more likely, because I have noticed that in these experimental prints the lightest tones—those which suffer most in the after processes—are, when taken from the printing frame, distinctly bluer in colour than the somewhat darker tones adjoining. The conclusion is therefore inevitable that printing-out papers cannot possibly give a correct rendering of the negative, although their vast popularity indicates that they give a rendering which pleases the majority of photographers. No doubt the softening in the shadows is rather welcome than otherwise, while the abnormal gradation at the other end of the scale gives a certain sparkle or brilliancy which is equally desired.

Assisting Detail and Shadows.

The strength of the light in P.O.P. printing does not seem to affect the total range of gradation much, but it does affect its character. Printing in the sun considerably strengthens the detail in the lights. It seems that the stronger light causes the earlier formation of the organic compounds which I have already spoken of, so that the abrupt falling off in fine detail, due to the absence of these compounds, does not take place, hence the advice to print dense negatives in the sun is sound.

The surface of the paper has considerable influence on the rendering

of gradation. It appears that when the colouring matter is spread throughout a comparatively thick layer of transparent medium such as gelatine there is a depth and transparency which is lacking when the particles are crowded into a thin layer. No doubt the gelatine acts as a varnish, preventing the surface reflections which rob the shadows of depth when the surface is "matt." Enamelling still further improves the depth of shadows and enables minute differences of shadow gradation to show themselves, which would be invisible even with the natural gloss of the paper.

There is a P.O.P. paper of foreign manufacture designed for printing negatives of very small range of gradation. It evidently contains a yellow dye, to which its peculiarity is due, and is made in several degrees of hardness. I do not know which degree the sample I have tried represents, but it gives a range of 1 to 12, thus equalling some of the gaslight papers.

The Carbon Process.

Closely allied to P.O.P. we have the processes of printing in pigmented gelatine, to which the general term carbon printing is applied. It is a peculiarity of this process that its range of gradation is variable at will, over fairly wide limits, by varying the strength of the sensitising bath. An average bath of 4 to 5 per cent. of bichromate will give a range about the same as the majority of the P.O.P.'s, but for such a gradation a negative of a considerable range of opacities is needed to bring out the full value of the rich deep shadows which are characteristic of the process. If, however, the tissue is sensitised on a bath more diluted, the range of gradation is shortened and rendered much steeper, and the negative may be correspondingly thinner. On the other hand, tissue to suit a negative of extreme contrast may be prepared by sensitising on a bath of greater strength up to about 8 per cent. Beyond that strength trouble arises owing to crystallisation of the bichromate in the film, and even at 8 per cent. I have noticed signs of it.

The Sensitising Bath and Gradation.

The gradations I have obtained are:—

8 per cent. bath	1 to 64
4 per cent. bath	1 to 32
1 per cent. bath	1 to 16
$\frac{1}{2}$ per cent. bath	1 to 8

But these show carbon at its worst, as they refer to tissue twelve hours after sensitising.

I regret that I have been prevented from finishing my experiments with this process, but it is known that its range of gradation increases with keeping, and it is usually supposed to be at its best about four days old, when it probably is about equal to P.O.P.

The Effect of Keeping.

Since writing the above I have made further experiments, and find that after keeping the sensitised tissue five days, the scale increases approximately as follows:—

8 per cent. bath	1 to 96
4 per cent. bath	1 to 48
1 per cent. bath	1 to 24
$\frac{1}{2}$ per cent. bath	1 to 12

And after ten days:—

8 per cent. bath	1 to 128
4 per cent. bath	1 to 64
1 per cent. bath	1 to 32
$\frac{1}{2}$ per cent. bath	1 to 16

The tissue was kept in an air-tight tin, and the temperature did not exceed 45 deg. during the period of keeping.

In warmer weather it would probably "ripen" more rapidly. It is important, therefore, in controlling results with carbon, to pay attention to the age of the tissue as well as the strength of the bath.

WILLIAM GOODWIN.

[The conclusion of this paper is to follow.—Eds., B.J.P.]

THE BARNET COMPETITION.

£500 in prizes and 10,000 entries.—Those are the two outstanding facts of the great enterprise which Messrs. Elliott and Sons, Ltd., completed last week. That such an assemblage of photographic work should be brought together from all parts of the world under the aegis of one firm of manufacturers is evidence not only of the popularity of its products, but also of the solidarity of photography as a pastime for the million. Messrs. Elliott spread their nets for the amateur and the collection of pictures, which a representative of THE BRITISH JOURNAL OF PHOTOGRAPHY inspected at Barnet, includes the work of a notable proportion of the best-known people. That fact should particularly gratify the promoters of the competition, inasmuch as the sensitive materials employed by the prize-winners represent almost every photographic process and method. The preference for Barnet products among a number of skilled and discriminating photographers is not confined to one only of the many different plates and papers of which Messrs. Elliott are the makers. The following is the award list issued by the judges, Messrs. T. Bedding, A. C. Brookes, and A. Horsley Hinton:—

Class 1.—First prize (£10), Herbert Bairstow, Halifax; second prize (£5), W. A. I. Hensler, South Hackney; third prize (£3), E. B. Vignoles, Streatham, Berks; fourth prize (£1), John Hummel, Wandsworth Common. Half-guinea prize-winners.—Harry S. Parsons, Harlesden; H. Everard Winter, Harlesden; Wouter Cool, Rotterdam; W. G. Hill, Eaglescliffe, R.S.O.; A. M. Walters, Tewkesbury; Robert Marshall, Grangemouth; J. Johnson, Kettering; Ernesto Moreschi, Italy; Frank Gregg, Brixton; J. Ludlam, Leicester; Charles Branch, Eastbourne; Charles J. Reade, Wolverhampton; William Allan, Beith, N.B.; C. G. Jones, Manor Park, E.; Frank E. Huson, Streatham.

Class 2.—First prize (£10), J. C. Varty-Smith, Cumberland; second prize (£5), Oscar Hardee, Chislehurst; third prize (£3), W. Fry, Manchester; fourth prize (£1), W. A. I. Hensler, South Hackney. Half-guinea prize-winners.—T. W. Simonson, Sheffield; Miss A. B. Warburg, 8, Porchester Terrace, W.; Thomas L. Winnett, Gravesend; Rev. H. H. Lowe, Kensington, W.; A. H. Blake, Charing Cross Road; E. Hall, Whitby; Dr. Ernest G. Boon, Italy; Auguste Minguet, France; Charles E. Wanless, Scarborough; David Charles Branch, Eastbourne; Charles J. Reade, Wolverhampton; Louis C. Logan, Woking; B. Wiehr, Dresden; James Patrick, Edinburgh; Ellis Kelsey, Eastbourne.

Class 3.—First prize (£10), Charles Kirk, Glasgow; second prize (£5), Miss Kate Smith, Watford; third prize (£3), Herbert Bairstow, Halifax; fourth prize (£1), Mrs. M. Preston Durn, Wotton-under-Edge. Half-guinea prizes.—E. Nogel, Sydney; R. B. Spanswick, St. Albans; W. Kilbey, London; R. Organ, Swansea; W. T. Brass, near Taunton; F. C. Cobb, Margate; A. G. Pike, London; R. Tepe, Holland; W. A. I. Hensler, London; A. W. Sargent, Cardiff; G. H. Stanford, Boscombe; Philip A. Wickeison, London; Mrs. D. Mahony, County Dublin; Frank Herbert Biddle, Birmingham; F. W. Barnes, Sheffield.

Class 4.—First prize (£20), J. C. Richards, Birmingham; second prize (£10), Oscar Hardee, Chislehurst; third prize (£5), David Murray, Wolverhampton. £1 prizes.—W. A. Cadby, Kent; Miss A. M. Walters, Tewkesbury; Herbert Bairstow, Halifax; Stuart E. Neame, Bristol; E. B. Vignoles, Berks; E. H. Blake, London; Mrs. G. A. Barton, Birmingham.

Class 5.—First prize (£10), Charles A. Slatter, Luton; second prize (£5), Dan Dunlop, Motherwell; third prize (£3), E. Seymour, Watford; fourth prize (£1), C. J. King, Scilly. Half-guinea prizes.—Miss D. Dillon, Folkestone; H. A. Briscoe Harrison, Edgbaston; Thomas H. Jenkinson, Hadley; A. E. Burgess, Addlestone; Harry Cross, St. Leonards-on-Sea; George T. Nichols, Peterborough; William Stubbs, Blyth Bridge; George R. Henderson, Hebburn-on-Tyne; Alf. J. Loughton, Southwell; Charles Upton Cooke, Islington, N.; S. G. Kimber, Southampton; Arthur Smith, Nelson; A. W. Cooper, Preston; James Dunlop, Motherwell, N.B.; Albert England, Barnet.

Class 6.—First prize (£10), H. H. Luther, Huddersfield; second prize (£5), A. G. Thistleton, Newton Heath; third prize (£3), J. H. Osborne, Brighton; fourth prize (£1), David Murray, Wolverhampton. Half-guinea prizes.—Arthur Black, Nottingham; W. G. Hill, Eaglescliffe, R.S.O.; W. R. Lathbury, Bristol; Frank W. Gregg, Brixton; John W. Harrison, Middlewich; W. H. Reed, Haddingley; Thomas R. Somerford, Brixton, S.W.; Carslake Winter Wood, Brighton; T. H. Cliffe, Hertford; A. J. Lindford, South Tottenham;

Harrop P. Wight, Newcastle-on-Tyne; Charles J. Reade, Wolverhampton; James Dunlop, Motherwell, N.B.; Albert E. Burnett, Redland; George T. Nichols, Peterborough.

Class 7.—First prize (£10), E. O. Hoppé, London; second prize (£5), Miss Maud Shilling, London; third prize (£3), Miss Winifred Fink, London; fourth prize (£1), John Dunlop, Motherwell, N.B. Half-guinea prizes.—H. Briscoe Harrison, Birmingham; Owen G. Williams, Liverpool; Mrs. Straton, Hertford; James F. Ryan, Fermoyle; William Ferguson, Auchterarder, N.B.; Miss Helen Pollock, Glasgow; S. H. Fry, London; Sam Swinden, Leeds; Wm. Thorburn, Glasgow; Edgar R. Bull, London; Ompond, Orkney; W. Deeley, Enfield; Miss A. Shipway, London.

Class 8.—First prize (£10), H. C. Leat, Bristol; second prize (£5), W. A. Casson, London; third prize (£3), H. A. Briscoe Harrison, Edgbaston; fourth prize (£1), Leonard Marshall, Italy. Half-guinea prizes.—Vico Diem, Trieste; E. S. Baker, jun., Birmingham; T. C. Richards, Penrith; Miss Elsie Ross, Cheshire; E. O. Hoppé, London; James Ompond, Orkney; Lucy Ross, Tain, N.B.; Edgar R. Bull, London; James H. Saunders, Leeds; Sam Swinden, Leeds; Wm. Deeley, Enfield.

Class 9.—First prize (£5), James Shaw, Manchester; second prize (£3), Edgar R. Bull, London; third prize (£2), Paul Mattia, Alger; fourth prize (£1), John W. Ellis, M.B., Liverpool. Half-guinea prizes.—Harry Holt, West Kirby; G. Kimber, Southampton; A. W. Searley, Devon; John B. Anderson, Belfast; Frank W. Gregg, Brixton; W. L. F. Wastell, South Woodford; A. W. Cooper, Preston; Thomas H. Greenall, Chorley; C. Wade, Carnoustie; Alex. Marshall, Weston-super-Mare; C. W. Appleyard, Sale; J. Dencey Whittles, Birmingham; Fred Ashwell, Morley; Amy Heimann, Berlin; Thomas Jackson, Leeds.

Class 10.—First prize (£10), Harry S. Parsons, London; second prize (£5), S. E. Neame, Clifton; third prize (£3), John Smith, Liverpool; fourth prize (£1), A. H. Blake, London. Half-guinea prizes.—Charles E. Wanless, Scarborough; E. Seymour, Watford; Charles H. Cooke, Islington; Fred G. Price, Crumlin; Charles J. Reade, Wolverhampton; H. C. Leat, Bristol; Leonard Marshall, Italy; Oscar Hardee, Chislehurst; J. W. Barnes, Sheffield; Frank Wilkie, Bristol; Miss Elsie Ross, Cheshire; John Hummel, London; James Shaw, Manchester; J. C. Varty-Smith, Penrith; Robert Marshall, Grangemouth.

Class 11.—First prize (£10), Mrs. G. A. Barton, Birmingham; second prize (£5), Stuart Elwin Neame, Clifton; third prize (£3), George T. Nichols, Peterborough; fourth prize (£1), J. Whiteman, Lincoln. Half-guinea prizes.—W. A. Casson, London; Kate Smith, Watford; Mrs. E. W. Girdlestone, Sutton Coldfield; B. J. Mitchell, Frome; Harry W. Witcombe, Maidstone; John Hummel, Wandsworth; Camille Vernet, France; W. Foster Brigham, Scarborough; W. J. Hart, Shettleston; William Brotherton, Barrow in Furness; W. I. F. Wastell, South Woodford; Fred G. Price, Crumlin; A. G. Thistleton, Newton Heath; R. Tepe, Holland; S. G. Kimber, Southampton.

Class 12.—First prize (£10), Mrs. G. A. Barton, Birmingham; second prize (£5), Mrs. Turnbull, Hawick; third prize (£3), H. Sutcliffe, Eccles; fourth prize (£1), E. Seymour, Watford. Half-guinea prizes.—G. A. Fowkes, Duffield; Alf. E. Allen, Saxmundham; E. Till, Dukinfield; Rev. G. Hugo Heynes, Nottingham; H. Aylward Game, London; Thomas J. Croft, Bristol; A. Shelley, Longton; Owen G. Williams, Liverpool; F. C. Pritchard, Hereford; Robert S. Briggs, Darlington; Alfred Hyder, London; V. G. P. Hendriks, Rotterdam; Oliver G. Pike, Winchmore Hill; Albert E. Burnett, Redland; Sam Swinden, Leeds.

Class 13.—First prize (£10), Miss Hilda Stevenson, Birkenhead; second prize (£5), Mrs. G. A. Barton, Birmingham; third prize (£3), Dan Dunlop, Motherwell; fourth prize (£1), Fred Graves, Kenilworth. Half-guinea prizes.—A. J. Lindford, South Tottenham; W. G. Hill, Eaglescliffe, R.S.O.; A. G. Thistleton, Newton Heath; Mrs. E. D. Girdlestone, Sutton Coldfield; Francisco Toda y Namode la Rosa, Madrid; Amy Heimann, Berlin; S. Elwin Neame, Clifton; A. E. Burnett, Bristol; Charles Upton Cooke, Islington, N.; Harrop P. Wright, Gosforth; Mrs. Yates Bainbridge, Newbury; G. M. T. Smyth, Tenby; Herbert Aylward Game, Bayswater; T. Moyser, Streatham, S.W.; Thomas Norman Jenkinson, Hadley.

Class 14.—First prize (£10), J. Cruwys Richards, Bournville; second prize (£5), Henry Light, Birmingham; third prize (£3), A. H. Blake, London; fourth prize (£1), Walter Briggs, Hexham-on-Tyne. Half-guinea prizes.—Thomas R. Somerford, London; Thomas Humphries, Portsmouth; W. Foster Brigham, Scarborough; John Hummel, London; M. Montgomery, New Brighton; A. Nicholson, Roundhay; S. G. Kimber, Southampton; C. C. Lyon, Burnham; E. Seymour, Watford; Hinchcliffe Smith, Halifax; W. J. Southall, Barrow-in-Furness; H. J. Bain, Hither Green; Mrs. G. A. Barton, Birmingham; Thomas L. Winnett, Gravesend; William Stubbs, Blyth Bridge.

Class 15.—First prize (£5), J. Ayton Symington, Kew; second prize (£3), W. Baldwin, Tonbridge; third prize (£2), J. Blount Hopkins, Cardiff; fourth prize (£1), Robert Marshall, Grangemouth. Half-guinea prizes.—A. W. Sargent, Cardiff; Walter Briggs, Hexham-on-Tyne; Oliver G. Pike, Winchmore Hill; J. T. Field, Blackheath, S.E.; J. C. Richards, Bournville; J. O. Samuels, Cheshire; E. Seymour, Watford; Edgar R. Bull, Forest Hill, S.E.; Thomas Sanderson, Clusburn; J. S. Lamb, Campden Hill; Fred Whitaker, Nelson; Sam Swinden, Leeds; A. W. Cooper, Preston; William Harold Wane, Lytham; E. C. Winney, Leytonstone.

Class 16.—First prize (£10), Miss A. M. Walters, Tewkesbury; second prize (£5), W. D. Williams, Hampton Wick; third prize (£3), E. B. Vignoles, Strealey; fourth prize (£1), William Claydon, Plymouth. Half-guinea prizes.—Walter B. Woodland, Leicester; Thomas H. Greenall, Chorley; Alf. Pulford, Scarborough; J. W. Holmes, Barrowford; Charles Kirk, Glasgow; J. Blount Hopkins, Cardiff; Gib. Graham, Girvan; W. A. I. Hensler, South Hackney; R. H. Tomkinson, Liverpool; Mrs. Manson, Bury St. Edmunds; Clarence M. Stead, Chapelallerton; William Rawlings, Hackney; John Smith, Hastings; E. J. Jarvis, Plymouth; Harold Moore, Sidcup.

Class 17.—First prize (£10), H. T. Parsons, Harlesden; second prize (£5), D. Richmond, Paisley; third prize (£3), William A. Clark, Birmingham; fourth prize (£1), W. Northwood, Stourbridge. Half-guinea prizes.—J. Cruwys Richards, Bournville; David Murray, Wolverhampton; Charles Kirk, Glasgow; Henry Robinson, Colne; George H. Halliday, Belfast; A. Stanley Brookes, Clifton; W. G. Hill, Eaglescliffe, R.S.O.; Arthur Black, Nottingham; J. Ayton Symington, London; N. Bradwell, Sunderland; Mrs. G. A. Barton, Birmingham; H. P. Harwood, Rugby; Amy Heimann, Berlin; Brund Wiehr, Berlin; Lewis Lloyd, Birmingham.

Class 18.—First prize (£5), Eric N. Exell, Stretford; second prize (£3), Eric Collinson, Ipswich; third prize (£2), T. H. Collins, Kidderminster. Half-guinea prizes.—B. H. Dawson, Cambridge; E. R. Widdows, Plumstead; J. Peat Millar, Junr., Beith; Master Frank Lovell, Bristol; G. H. Berry, London; James Frank Gunn, Northampton; George Henry Else, Nottingham; Laurence Parkin, Shipley; Harry Foster, New Brighton; Gordon Phillips, Prestwich; Dudley H. H. Temple, Brentwood; Thomas G. Peters, Birkenhead; Thomas Harold Reade, Earl's Court, S.W.; Fred Green, Sunderland; Constance Cook, Warrington.

Class 19.—First prize (£10), W. Renton, Rhodesia; second prize (£5), Gerald Edgar Jones, Auckland, N.Z.; third prize (£3), H. Kinamond, Melbourne. Half-guinea prizes.—H. Amon, Cape Town; E. S. Pegler, Palmerston, N.Z.; Lancelot Ussher, Cape Colony; F. Styant Browne, Launceston; Ed. J. Steer, Cape Town; Robert Lewis Parker, Launceston; Ada Black, Timaru, N.Z.; A. Hardy, Timaru, N.Z.; George H. Mitchell, Melbourne; Matthew Kiernan, Victoria; Claude Phelps, Trinidad; Sam. G. Frith, Auckland, N.Z.; C. J. Ellerbeck, Auckland, N.Z.; R. Hamilton, Singapore; Herbert P. Dickens, Victoria.

PRINTING, etc., for amateurs is now a large department of Messrs. Sanders and Crowhurst's Hove house, which has just issued a neat list of prices. It is sent free from 55, Western Road, Hove.

At the annual meeting of the Photographic Survey and Record of Surrey, which was held on Saturday last, Viscount Middleton highly praised the work done during the year, the number of prints having been doubled, and now totalling close on 1,300, but pointed out that there was still much to be done, and the experiences of similar societies showed that, with increased research, objects were brought to light the existence of which had been unsuspected. As regards the antiquities of the county, no one knew how many more remains of prehistoric man might be found within its limits. The flora and fauna of Surrey seem to have received insufficient attention, and much might be accomplished there by perseverance. Some fine old trees had passed, of which there was no pictorial record. The same held good as regarded churches and other buildings. Surrey had suffered terribly at the hands of the unsympathetic "restorer." Although they were not so rich in architecture as other districts, they could fairly hold their own, and there were scattered over the weald beautiful farmhouses, manors, and cottages well worth preserving. The speculative builder and fire were the chief dangers to which these were exposed, and he was inclined to think that the former was the worse evil.

Photo-Mechanical Notes.

THE EXHIBITION OF PROCESS-ENGRAVING AT SOUTH KENSINGTON.

ALTHOUGH this exhibition has at last opened its doors, one must admit, from even a cursory glance, that the opportunity to see so fine a collection was well worth waiting for. Here we have an exhibition of the growth and extent of the application of photography to illustration, of which those actually engaged in making illustrations are probably not aware, and of which those outside the crafts do not dream.

We have work not only from England and from all over the world, from Sweden and Japan, from the United States and India, no less than sixteen separate countries being represented, besides a historic section which shows the growth of process from the earliest examples, including a proof from the celebrated engraving by Niépce, "The Cardinal d'Amboise," referred to in the historical notes in the BRITISH JOURNAL last week.

The exhibition consists of every kind of process reproduction, exclusive of the commonest of all, viz., monochrome half-tone. There is photogravure by every known variety of method—collotype, two-, three-, and four-colour half-tone, photolithography, in monochrome and in colours from stone and from the metals zinc and aluminium, collotype and half-tone in combination with lithography, gigantography—in short, almost every conceivable process, and most of it in colour. It is, therefore, possible not only to compare the standing of this country with other countries, but to see from the historical section how far possibility is ahead of what it was a few years ago. We must leave a more detailed description of some of the exhibits until next week, meantime advising our readers on no account to miss going to see the collection which is in the Indian Section of the Victoria and Albert Museum, and, when there, not to omit to buy a catalogue, because the introduction is written by Major-General Waterhouse, and contains the most succinct account of the history and details of process-engraving that it has ever been our pleasure to read.

Dry Enamel.

Photo-engravers in this country should have reason to peruse with interest an article in our contemporary, "The Illustrator," in which is advanced a formula for the dry enamel process as one that has been exploited throughout Europe. "There is no question of the genuineness of the formula," says the writer, who gives it as follows:—

No. 1.	
Water	8 ounces.
White rock candy	1 ounce.

No. 2.	
Water	4 ounces.
Citrate of iron and ammonia	50 grains.

Dissolve this and then add:

Chromic acid	35 grains.
Liquor ammonia	$\frac{1}{2}$ ounce.

No. 3.	
Water	4 ounces.
Bichromate of ammonia	$\frac{1}{2}$ ounce.
Albumen	4 ounces.

Great care must be used in compounding this solution, and the formula must be followed in the order given. First grind the rock candy in a mortar and then dissolve it in the water, after which prepare No. 2, adding the liquid ammonia to prevent possible coagulation of the albumen when final mixture is made.

Beat up the albumen for No. 3, dissolve the bichromate in the water and add it, and then add No. 1 to No. 3, and then No. 2 to both very

slowly and with constant stirring. Filter and the solution is ready for use.

The copper plate is coated as in the glue enamel process, and the printing by electric light will require from three to eight minutes, and by sunlight from two to four minutes. This time is for line work. Half-tone negatives require a little longer time.

Development must take place in a special room where moisture can be controlled. Generally this room must be dry, but in the hot season it may require a little moisture. Experience will teach a printer just how much is necessary. The developer is common washing soda (carbonate of soda), which must be ground to a fine powder and dried in the sun until it is pure white. Rub this soda with a tuft of cotton lightly over the print, being careful not to breathe on the surface. Experience, again, must tell you how far to carry the development, but when right it will have a yellowish appearance and be ready to "burn in," which should continue until the print is a light brown. Then plunge the print into a tub of clean water, where it will clear up and be ready to etch. If it does not come off all over it may be cleaned up with a little salt and a bit of cotton.

We have reason to think that the formula given above as having been offered to photo-engravers round Europe is badly "twisted." If the iron citrate and chromic acid were omitted it would be nearer the mark. There is, indeed, no particular secret in such sensitising prescriptions, and one is pretty nearly as good as another. But the instructions given for making the developing powder—baking crystallised carbonate of soda in the sun—are certainly not those which would be offered as a means for obtaining a powder of definite composition. If the dry or anhydrous carbonate is desired as a developer—and we believe it is an excellent one—it can be bought ready for use. If it is to be made, drying the crystallised salt in the sun is not enough. It must be heated to a little short of redness. The most suitable raw material for the preparation of anhydrous carbonate is sodium bicarbonate, which easily loses water and carbon dioxide, on being heated in a porcelain dish, and leaves behind pure dry sodium carbonate.

A French Manual of Photo-Engraving.

In "La Photogravure Pour Tous," by G. Braux (Ganthier Villars, Paris, 1 fr. 50.), the author very tersely describes the making of a screen negative on wet collodion—he ignores dry plates—and the printing of the same by the bitumen and enamel processes. There is also a chapter on photo-zinco in line. The instruction is somewhat meagre, but better than we anticipated after reading in the publisher's circular that photo-engraving was plain sailing to the wet collodion worker, and that the only obstacle in his course was the proper adjustment of the screen at the right distance from the plate.

Dry Plates v. Wet Plates.

In the current number of the "Zeitschrift für Reproductions-technik," Dr. Aarland points out that photo-mechanical gelatine plates have been in use a long time in England and America, but the German process worker has adhered to the use of wet collodion. Experimenting with some gelatine plates which have lately been put on the German market, the author finds them very suitable, and giving results quite equal to collodion, and without the necessity of intensification. The particular formulae recommended by Dr. Aarland are as follows:—

Pyro Developer.

1. Pyro	20 g.
Potassium metabisulphite	10 g.
Water	1,000 ccs.
2. Sodium carbonate	100 g.
Sodium sulphite	150 g.
Potassium bromide	2 g.
Water	1,000 ccs.

For use, mix in equal parts. After fixation the negatives should be washed for a short time, and then immersed for a minute in the well-known citric acid, alum, and ferrous sulphate clearing bath.

Hydroquinone Developer.

1. Hydroquinone	9 g.
Potassium metabisulphite	9 g.
Potassium bromide	2 g.
Water	1,000 ccs.
2. Caustic Potash	18 g.
Water	1,000 ccs.

For use, mix in equal parts.

Removing Ink from Plates.

Among the methods of removing varnish or ink from plates, the following is recommended by Mr. Joseph R. Ford, of the Photo and Process Department of the American Bank Note Co., New York, in a letter to "Process Work":—"I will say that I have also experienced the same difficulty in that line, and, having tried a great many things, I cheerfully offer you my method. Take a piece of blotting paper a little larger than the plate, lay it on a flat surface and pour on a little chloroform. Then lay the plate face down for a few minutes, when the chloroform will frill up the surface of the ink, so that it is then easy to move with turps or methylated spirit."

Exhibitions.

BRENTFORD.

THE seventh annual exhibition of the Brentford Photographic Society was opened on Tuesday last by the Rev. T. Eland, M.A., F.R.G.S., in the Lecture Hall, Brentford Public Library. This is the first year that this flourishing Middlesex society has been able to secure the room, and although not quite so large as the Baths, in which the exhibitions have been heretofore held, an admirably lit and very compact exhibition is possible in the new quarters. The pictures are displayed on tastefully arranged screens around the room, and the show of pictures contains some work of a high order.

A great proportion of the works on view have been forwarded direct from the South London exhibition, and at the conclusion of the present show will be sent on to the Cripplelegate exhibition. The awards of the judges, Messrs. J. C. S. Mummery, Reginald Craigie, and Thomas Bedding, appear to give complete satisfaction, and it is interesting to note that although the exhibition contains most of the pictures winning awards at the South London exhibition, not one of these productions receive so much as a "commended" from the Brentford judges. In the Open Classes a new class has been introduced—"Any Subject; pictures not previously exhibited"—and a surprising amount of first-class work is entered. The silver-gilt plaque goes to H. O. Bannister for "Finishing Touches," depicting a sculptor at work on a life-size statue. This is not only a perfect piece of good technical photography, clean and straightforward, but intelligent use of a knowledge of composition, and what is required to make a picture, is shown. "The Edge of the Common," by Bertram C. Wickison, is awarded the silver plaque in this class. This is an upright picture, pleasing in every particular, and much more pleasingly lit than this worker's "Vesper Hour." Some striking portrait work is also shown in this class by Peter A. Terras, while "A Nocturne in Green" and "Hamo Thornecroft," by R. R. Enfield, are admirable efforts in auto-pastel, but obviously inspired by Steichen's "Moonrise" and "Rodin," shown at the last Salon. J. Fielder Haden has some excellent pictures on view, and shows a keen appreciation of mist effects, but without approaching in any

way "fuzzyism." A. and F. Read's work in this class is also outstanding.

The awards in the other classes of the exhibition are as follows:—

Class B: Silver plaque, "The Morning Mist," Albert E. Bowers; bronze plaque, "Shadows," Arthur Marshall; commended, "The Vesper Hour," Bertram C. Wickison, and "October, 8.30 a.m.," H. C. Leat.

Class C—Lantern Slides: Silver plaque, "Flower and Fruit Studies," E. Seymour; silver plaque, "Four Slides, Various," Rev. H. W. Dick; commended, "Bird Studies," William Farren, and "Assorted," H. Wormleighton.

Class D (Members): Silver Plaque, "A Sussex Lane," H. Gordon Stollard; commended, "In Brittany," H. Gordon Stollard.

Class E: Silver plaque, "In Old Madrid," Hilton Grundy; commended, "The Shepherd," Miss M. A. Newlands.

Class G: Bronze plaque, "Silver Birches," William Squire.

Class H—Lantern Slides (Members): Bronze plaque, Miss M. A. Newlands; commended, Hilton Grundy and A. and F. Read.

WOLVERHAMPTON.

THE fourth annual exhibition of the Wolverhampton Photographic Society was opened by the Mayor of Wolverhampton on Thursday last at the Old School of Art Gallery, Darlington Street. The exhibition is a decided advance on previous shows, and speaks well for the energy of the exhibition secretary, Mr. D. Murray, and the general secretary, Mr. A. Eaton Painter. The loan section was well supported by numerous well-known workers, and examples of different photographic printing processes by the president, Mr. James Gale, formed a considerable entry.

The judges, Messrs. A. J. Leeson and A. E. V. Lilley (of the Municipal School of Art) made the following awards:—Class I.—Medals: "Early Spring in a Birchwood," C. J. Reade; "An Old Mill," F. R. Turton; "Tho' days return and you are gone, I still remain alone," D. Murray; Hon. Mention: "Bridgnorth," E. V. Jones; "The Moated Grange," F. R. Turton; "The Last Rays," C. J. Reade. Class II.—Medal: "Arch and Columns," E. V. Jones; Hon. Mention: "Sheep and Shelter," E. V. Jones; "View on the Worf," E. V. Jones.

G.E.R. MECHANICS' INSTITUTE.

THE members of the Photographic Section in connection with the G.E.R. Mechanics' Institute held their twelfth annual exhibition on the 7th and 8th inst. The judges—Messrs. Furley Lewis, F.R.P.S., A. Mackie, and J. Holden—made the following awards:—

OPEN CLASSES.

Class H (Any Subject): Silver medal, "The Vesper Hour," B. C. Wickison; bronze medals, "The Brewer's Tap," W. Selfe, and "Tugging Home," W. Clayden. Class I (Lantern Slides): Silver medal, set by Rev. H. W. Dick; bronze medal, set by G. A. Booth; commended, set by W. L. F. Wastell. Class J (Stereoscopic): Bronze medal, set by H. Wormleighton.

MEMBERS' CLASSES.

Class A (Landscape): Silver medal, "A Winter Sunset," S. S. Jenkinson; bronze medal, "Winter Sunshine," F. L. Warner; commended, "A Norfolk Lane" and "Among the Pines," A. Woolford, and "The Guardian," A. Cracknell. Class B (Architecture, etc.): Silver medal, "In Blythburgh Church," L. C. F. Robson; bronze medal, "The Baptistery," A. Woolford; commended, "In Ely Cathedral," S. S. Jenkinson. Class C (River Scenery, etc.): Silver medal, "Harbouring," P. J. Perry; bronze medal, also special prize for most original print by a member, "Under a Medway Bridge," F. L. Warner; commended, "The Fury of the Waters," H. D. Banks, and "Time and Tide," A. Cracknell. Class D (Engineering and Mechan-

cal Subjects): Silver medal, "Loco. Smithy," C. H. Day; bronze medal, "Dynamo, Mechanics' Institute," F. Bason; commended, "Climbing the Bank," J. W. Steward. Class E (Miscellaneous): Silver medal, "A Butterfly," W. Salter; bronze medal, "Portrait," L. C. F. Robson; commended, "Portrait," F. L. Warner, and "Daffodils," S. S. Jenkinson. Class F (Lantern Slides): Silver medal, set by A. Woolford; bronze medal, set by H. Restiaux; commended, set by J. K. Ayling. Class G (Beginners): Awards withheld.

CAMERA CLUB.

AN exhibition of the works of Mr. Alexander Keighley has been opened at the Camera Club, Charing Cross Road, W.C., and the undoubtedly high position held by this exponent of photographic art should secure a large attendance of visitors. Most of Mr. Keighley's well-known pictures are on view, and some new ones. Many of these have already been seen at the Photographic Salon, but will easily bear a second inspection. The beautiful composition entitled "Peace" may be regarded as one of the masterpieces of the collection, but there are many others equally as striking. The exhibition will remain open for some time, and the general public will be admitted on presentation of visiting card at any time, while Tuesdays and Fridays, from two to five, have been set aside specially for ladies.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between February 27 and March 4:—

PRINTING APPARATUS.—No. 4,150. "Improvements in photographic printing apparatus." Hervey Heman McIntire, 3, Upper Vernon Street, London.

COLOUR PHOTOGRAPHY.—No. 4,290. "Improvements in three-colour photography." Edwin Tranter Butler, 24, Southampton Buildings, Chancery Lane, London.

FLASH LAMPS.—No. 4,326. "Improvement in photographic flash lamps." Marwood Short, 9, Tempest Hey, Liverpool.

DEVELOPING DISH.—No. 4,421. "An improved developing dish to protect sensitive (to light) surfaces during photographic development." Frederick William Pilditch, 217, Albert Road, Aston Manor.

CINEMATOGRAPHS.—No. 4,423. "Improvements relating to cinematographs, cameras, and the like." Harry Hamilton Moon, 18, Southampton Buildings, Chancery Lane, London.

MAGAZINE CAMERAS, ETC.—No. 4,432. "Improvements in cameras, magazines, plate sheaths, and focussing devices." Henry Major, 24, Carholme Road, Forest Hill, Kent.

CAMERAS.—No. 4,515. "Improvements in photographic cameras." The Thornton-Pickard Manufacturing Co., Ltd., and George Arthur Pickard, 6, Bank Street, Manchester.

FINDERS.—No. 4,555. "Improvements in photographic finders." William Henry Tomkinson, 6, Lord Street, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

FOCAL PLANE CAMERA.—No. 25,379, 1904. "The invention is a camera consisting of a focal plane shutter and a roll-holder. The

specification does not admit of useful abridgment." J. S. Wright, Duxbury, Plymouth, Mass., U.S.A.

HAND CAMERA.—No. 27,867, 1904. "Protection is claimed for a special construction of folding camera comprising in its construction a drop front and extension for long and short focus lenses." J. S. Wright, Duxbury, Plymouth, Mass., U.S.A.

PRINTING PAPER.—No. 25,897, 1904. "The chief claim is for a mixture of agar-agar and starch as the vehicle for sensitive silver salts. The mixture is prepared by dissolving in 4 oz. of water, by heat or boiling, about 100 grains of starch, and mixing with this solution, a solution of agar-agar obtained by boiling 18 grains of the agar-agar in 2½ ounces of water. A little sugar, mannite, glycerine or analogous sugar-like substance may be added to the above mixture when a rather soft coating is desired. About 30 grains of the sugar-like substance to the above quantity is a desirable amount. This preparation, in its non-sensitised state may then be used to coat the paper or other material which is subsequently sensitised. The coating mixture for a self-toning paper contains: Starch, 1½ drachms, dissolved in 3½ ozs. of water; sugar, 30 grains; citric acid, 35 grains; ammonium chloride, 8 grains, and Rochelle salt, 30 grains. To this mixture, after cooling, is added 72 grains of silver nitrate dissolved in 1 oz. of water, 80 minims of gold chloride solution (of strength 1 grain per drachm) with 5 drachms of water. Agar-agar, 13 grains, is finally dissolved in 2½ ounces of water, is then stirred, and the paper coated in the usual way. For an ordinary print-out emulsion the above preparation, minus the gold chloride, is employed." J. H. P. Gillard, 2, Beaufort Villas, Sandycroft, Kew Gardens, and H. H. Molyneux, Rathleigh Gate, West End Lane, West Hampstead.

TRANSLUCENT PRINTS.—No. 6,018, 1904. The chief claim is for a paper support, somewhat more transparent than ordinary printing paper, and less transparent than waxed paper. This material is for sensitising on both sides for the production of a photograph, giving a plastic effect as set forth in patent No. 11,219, 1903. Parchment-paper, as it is called in the trade, is coated on both surfaces with a photographic emulsion. The subsequent procedure is similar to that followed in ordinary photographic work. The duplex material is not only suitable for producing positive photographs, but also for producing negatives; the duplex coating giving depth and roundness, resulting from the slight diffusive power of the medium and the separation of the two coatings. The exposure, moreover, is shortened and halation is absolutely eliminated. In practice, a rather thin printing paper is chosen. This paper is passed through a hot solution of gelatine in ten times its weight of water is allowed to dry, and dipped in a mixture of formaline with 20 times its volume of water and once more hung up to dry. It is then rolled, and both sides coated with an ordinary sensitive emulsion." O. Fulton, 493, High Road, Chiswick, and W. M. Gillard, Glen Rosa, St. Margaret's Road, Twickenham.

New Books.

"*Précis de Photographie Générale.*" By Edouard Belin. Part I. 7 fr.

"*Le Procédé à la Gomme Bichromatée.*" By A. Maskell and R. Demachy. 2 fr.

"*La Photogravure pour Tous.*" By G. Draux. 1 fr. 50 c. Paris: Gauthier-Villars.

M. Belin's aim is to offer a full but elementary introduction to practical photography, and this he succeeds in doing within his 240 pages. Perhaps optics takes more space than it should in a scheme which aims to avoid mathematics; but practically every later page is devoted to matters strictly practical. It is noteworthy that a French writer, when dealing with field cameras, should give the place of honour to English types. M. Belin signals out the Thornton-Pickard "Ruby" as the model of a tourist's instrument.

"Demachy on the gum process" practically describes the second of the above volumes, for the re-issue of an English book, which was the joint work of Monsieur Demachy and Mr. Alfred Maskell, now owes almost all, apparently, to the French author. We are not often accused of an excess of sympathy with the aims and achievements of many pictorial workers whose medium is gum-bichromate, but if the study of M. Demachy's instructions—which are everywhere very precise—can put the gummist in the way of turning out work of the technical character of M. Demachy's, or some of his associates', it has our sincerest wishes for an immense edition. M. Demachy would have his reader distinguish between a print by the gum process and a good gum print, and the distinction is one which we would press upon many persons who seem to imagine that they have only to reproduce an indifferent negative in this manner, and lo! at once it is Art. M. Demachy commands our respect for his marvellous technique in gum-bichromate, and we wish that those who must dabble in gum would take the trouble to study his methods.

The third work, from MM. Gauthier-Villars, is briefly noticed under "Photo-Mechanical Notes."

A "PHOTOGRAPHIC Exposure Note-Book" has been issued in handy shape by Messrs. R. and J. Beck, Ltd., 68, Cornhill, London, E.C. It contains a number of useful memoranda for the photographic tourist, particularly on the use of a telephoto lens.

UNDER the title "Patent Abstracts, Photography," Messrs. Rayner and Co., 37, Chancery Lane, London, W.C., have collected in one strongly-bound volume the official abstracts relating to photography from 1889 to the latest publication. Each "void" patent is so marked, and the value of the volume to those purchasing protection for their inventions is therefore considerably increased. The book runs to 600 pages and contains over 2,500 patents. Patentees and disputants of patents should certainly find this a valuable work of reference. Messrs. Rayner issue it at 21s. net, for which sum they undertake to forward also the remaining publications as they are issued for the year 1904.

"PHOTO-MECHANICAL Processes," by W. T. Wilkinson, has appeared in a third and revised edition from the press of Hampton and Co., Cursitor Street, London, E.C. Several chapters have been added on photogravure, which was not dealt with in the previous issues of the book, and, though nothing is said on machine-printed photogravure, a highly important form of the process at the present time, the instructions are in commendable detail. Those portions of the work which deal with the photo-engraving of line and half-tone blocks

A New South African Photographic Society.—A meeting to consider the question of forming a photographic section of the Scientific Association was held recently in the Library Buildings, Bulawayo, South Africa. The prescribed number of ten having signified their intention to become members, the Chairman (Mr. A. J. C. Molyneux) intimated that the sub-section was thereby formed. The membership fee will be one guinea, and each member will be entitled to the full privileges of the Scientific Association. A monthly meeting of the sub-section will probably be held, and members will then have an exhibition of photographs.

are brought up to date, and many operations and pieces of apparatus are illustrated. The author is apt to give very precise instructions as to how certain things shall be done without explaining why one method is better or worse than another; but his teaching throughout is nevertheless practical, and we can recommend his work as a reliable and comprehensive guide to modern "process." The price of "Photo-Mechanical Processes" is 4s.

New Materials.

The Ilford "Zenith" Plate. Made by Ilford, Ltd., Ilford, London, E.

The gelatine dry plate is sometimes spoken of as though there were but one fixed quality of it and that there were little to choose between the various brands upon the market. That is the inference which might be drawn from the comparisons which are sometimes made by writers between the gelatine process and its predecessor—wet collodion. No doubt it is far from the intention of any writer to convey such an erroneous impression. Almost every one must be aware that the progress which has been made in dry-plate manufacture is as great, if not greater, than that which marked one step from wet-collodion to gelatine. Only a few years ago a plate of great rapidity possessed, and deserved, the character of liability to fog and coarseness of grain; but now we can obtain emulsions of extreme speed in which these defects are conspicuous by their absence. We believe we are within the mark in naming the Ilford "Monarch" plate as one of the modern triumphs of the emulsion maker, and that fact lends additional interest and importance to the issue of another plate, the "Zenith," from the Ilford factories. It is a formidable array of qualities that the makers claim for their new product—fine grain, long range of gradation, freedom from fog, and rapid development, with extreme speed along with these qualities. The plate is offered specially for portrait work, in which the particular combination of properties is more than usually desirable. Samples for testing purposes are offered to the profession, and probably many will elect to come, from their own trials in the studio, to a decision as to the justice of these claims. We may, however, set down here certain facts and figures which prove to us that the "Zenith" plate bears an emulsion of distinctive quality. Of several exposures made on a portrait in a rather badly-lighted room, two were purposely underexposed, and, though development was continued for thirty and fifteen minutes respectively, the negatives are bright and unveiled, and not of the "chalky" character which might reasonably be expected. The plate assuredly possesses "cleanness of working" to a notable degree, despite its speed. In specification of its other qualities, we may quote from determinations made for us by Mr. C. E. Kenneth Mees, B.Sc.: "Grain, examined at 100 diameters magnification, very good. Opacity to blue light of wave length, 4,300, .22 (good)."

This opacity, we would remark, refers to the unexposed plate, and is an index to its latitude.

"Inertia (pyro) obtained by Hurter and Driffield's system, and expressed in candle-metre-seconds, referred to the normal pentane candle, .202, equal to an actinograph or H. and D. number of 168."

The greatest possible steepness of gradation which can be obtained is numerically expressed by Mr. Mees by "2.79, a very high figure for a fast plate."

These figures, which should tell their own tale even to those who are not intimate with sensitometry, show the "Zenith" to be an excellent plate, and one which photographers can be congratulated

at obtaining at the "popular" prices of 1s. and 2s. 3d. in the quarter and half-plate sizes.

The "Owl" Toner for Bromide and Gaslight Papers. Made by Elliott and Sons, Ltd., Barnet, Herts.

The desire for warm-coloured prints that is evidenced not only by the photographic exhibitions throughout the country but by the show-cases of prominent professional photographers in every town has been bound to result, sooner or later, in the introduction of a reliable method of producing these tones, other than those offered by the carbon and sepia platinotype processes. This is especially the case when enlargements are considered, and bromide papers appear to be more popular for the purpose than any other method. Numerous toning processes have been advocated from time to time for bromide papers, including uranium, copper, and the hot alum hypo bath. All have had their vogue, but each seems to have had some drawback that rendered their complete adoption by all classes of photographers impossible.

The sulphide method of toning bromides can, however, now be regarded as one of the best that has so far been advocated for the production of brown tones, and Messrs. Elliott's latest production, "The Barnet Brown 'Owl' Toner," appears to meet the demand in every respect, for a toning process for gaslight and bromide prints, that not only gives a pleasing warm sepia colour, as nearly as possible resembling the rich tone of the standard brown "Barnet" carbon tissue, but a process is offered photographers that is astonishingly easy in application, and as likely to be as permanent as the untuned print. No more than this can be asked for in reason, nor is expected, and our experiments with the new toner amply substantiate all that Messrs. Elliott claim for it.

The toner is sold in two bottles—No. 1 and No. 2. No. 1 solution can be used over and over again, and should be returned to the bottle after use. Its function is to bleach the print, which should be immersed (dry or wet) into the solution, full strength, until all trace of blackness has disappeared, and only a faint image remains. This takes about one minute. The print is then rinsed in two changes of water, and is flooded with No. 2 solution, 1 dram to water $2\frac{1}{2}$ oz. In this solution the print rapidly changes to a rich brown colour, quite evenly, and with no appearance of double toning. It should be allowed to remain for about two minutes, and is then washed for a quarter of an hour in running water, and dried. The process is so exceedingly simple, both in the ease of working and the results obtainable, that it should commend itself to all workers.

Our trials with the new toner show that a slight reducing action takes place during the operation of toning, and that fully exposed and developed prints give undoubtedly the best results. Prints that are somewhat hard, and black and white in character, are not helped to any great extent by the change of colour, but, on the other hand, prints that would be regarded as flat and of a bad colour will undergo a vast improvement by treating with the "Owl" toner. The bleaching solution (No. 1) can be employed as a good intensifier for bromide prints that are flat and weak; the print, after bleaching and rinsing, is redeveloped with an ordinary metal hydroquinone, or other developer (not pyro), when the image is greatly strengthened, and becomes of a rich black colour. Many prints that would otherwise be regarded as wasted will thus be made into presentable pictures. The toner is put up in 8 oz. bottles for 1s., and 1 pint bottles for 2s. 6d., and should be in the equipment of every photographer who uses bromide and gaslight papers.

A NEW CATALOGUE, in a most striking cover, has just been issued by the Lumière N.A. Company, 4, Bloomsbury Street, London, W.C.

It lists the firm's plates, films, papers, and developers, and contains a large number of useful formulae.

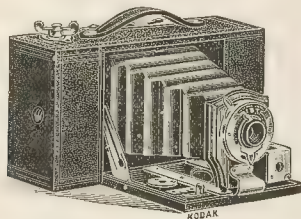
Messrs. J. H. Smith, Zurich, Switzerland, ask us to notify that the three-colour plates mentioned last week will be ready early in April, when orders will be filled in the sequence of their receipt.

BLACK MOUNTS.—Messrs. H. and W. Green, Rotherham, are now supplying suitable covers or portfolios for their "Ebona" mounts. The covers are dead black art paper, with some embossed decoration, and are effective if somewhat sombre. They are priced at from 2s. 6d. to 5s. 6d. per 100.

New Apparatus, &c.

A New Kodak: The No. 2 Folding Brownie. Made by Kodak, Ltd., Clerkenwell Road, London, E.C.

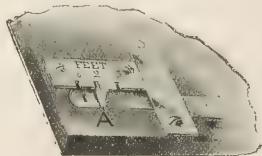
The Kodak Company is now putting on the market a new Kodak, which is a folding model of the well-known Brownie, and is called the No. 2 Folding Brownie. This little camera is offered at 21s., a price which brings it within the reach of all, and at which it is exceedingly good value. The design and efficiency of the instrument leave nothing to be desired. Concerning the all-important question



The No. 2 Folding Brownie.

of portability, the No. 2 Folding Brownie measures only 7 in. by $3\frac{1}{2}$ in. by 2 in., and weighs but 15 ounces. The shutter gives three varieties of exposure—time, "bulb," and instantaneous, one trigger release serving for all. The lens is a meniscus of good quality, provided with Iris diaphragm stop with three indicated apertures.

The focussing device is a novel feature, and the new camera derives a large measure of its good value from this useful accessory. The camera springs open in the manner usual with Kodaks on pressing the concealed button at the top of the camera, and the base board is firmly fixed in position by the spring struts at the side. The front of the camera is drawn out by the finger and thumb until it is checked and held by the ingenious locking catch on the side of the base board opposite the finder. This locking catch automatically



The Focussing Catch.

fixes the front at one of three positions, representing respectively 8 ft., 20 ft., and 100 ft. between the camera and the object. All one has to do is to set the catch by downward pressure on the lever A, and movement right or left, to the slot representing the distance at which one is working, and pull out the camera to its

limit. The simplicity of this provision cannot fail to commend itself to all users of the instrument.

The No. 2 Folding Brownie gives pictures similar in size to the No. 2 Brownie, viz., $3\frac{1}{4}$ in. by $2\frac{1}{4}$ in., takes the usual No. 2 Brownie spool, and is loaded and unloaded in daylight. The finder is of the reversible type, for upright or horizontal pictures, and two screw sockets are provided to allow of the camera being used on a stand. The new Kodak is made of wood, and the metal fittings are nickel-plated, giving the camera an exceedingly handsome appearance.

The little illustrated manual supplied with the new Kodak so fully describes the operations of loading and manipulating the camera, the mechanism of the shutter and how to expose, the making of flash-light pictures, removing, developing, and finishing the film, and printing the negative, that even the absolute beginner may be sure of the proper course.

The Kodak Company will send a descriptive leaflet of the No. 2 Folding Brownie to any address on receipt of a request.

The Eclipse Printing-frame Holder. Made by W. Horseman, 25, Florence Road, Stroud Green, London, N.

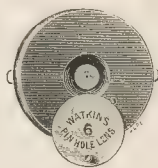
A convenient attachment for printers on gaslight papers. The frame, which is of stout wire, is slipped over the ordinary gas-



burner, and holds the printing-frame fixed at a distance of about six inches from the flame. When not in use, the frame folds flat. The price is 1s. post free.

A Pinhole "Lens." Made by the Watkins Meter Co., Hereford.

Mr. Watkins has put on the market a series of pinholes, each in a separate mount, of a kind that is instantly attached to a lens-hood not larger than 2 in. The pinholes are conveniently marked on a system, evolved jointly by Mr. Watkins and Dr. D'Arcy Power, of San Francisco, according to which the number on the pinhole is



multiplied by the focal extension. The product is used as the *f* number in calculating the exposure in the usual way, save that the result in seconds is taken as minutes. The convenience of this plan, and of the pinholes themselves, which can be carried without fear of damage, recommends the new accessory to those wishing to adopt the stenopaic method in negative-making.

The "Antinous" Release for Studio Shutters. Supplied by Messrs. W. Watson and Sons, 313, High Holborn, London, W.C.

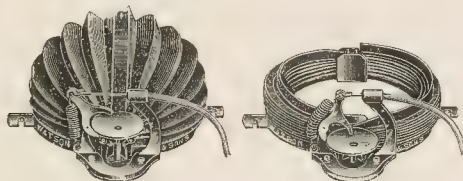
The release of the shutter used in portraiture should, before all others, be adjusted to work to a nicety as regards smoothness, silence, and certainty, and every photographer has probably found to his cost at one time or another that the pneumatic bulb and tube cannot be regarded as infallible. Rubber is a perishable material, and sooner

or later the time arrives, without warning to the operator, when the shutter fails to respond to pressure on the bulb. For this reason we are glad to find that Messrs. Watson have at length adapted their now well-known "Antinous" release to two patterns of studio shutter, the "Guerry" and the "Silent." The "Antinous" release,



The "Antinous" Release, fitted to Watson's "Silent" Studio Shutter.

we may say to those who are not acquainted with it, is a flexible metallic connection resembling blind-cord in appearance, but with its encased working part composed entirely of metal. Although flexible, the connection between the operator's hand and the mechanism of the shutter is in the nature of a direct thrust, and the shutter can thus be opened steadily—even slowly if required—without the jerk which is frequently needed in working the pneumatic bulb. Absence of vibration is the natural result of such a system, and the release is obviously not liable to miss fire if carelessly handled. Messrs. Watson supply the accessory in such form that the photographer who already has a "Guerry" or "Silent" shutter fitted to his camera can himself replace the pneumatic release by the "Antinous." The change is made in a few moments with the aid of



The "Antinous" Release.

a screw-driver. The price of the release complete, with some feet of connection, is—for the "Guerry" shutter 6s. and for the "Silent" 8s. 6d., and the expenditure of this trifling amount will be fully repaid to the photographer in the smoothness and certainty imparted to his operating.

THE R.P.S.—The following committees have been appointed by the Council of the Royal Photographic Society:—Fellowship Admissions Committee—Pictorial Section: Messrs. H. Bennett, J. Hodges, E. T. Holding, Rev. F. C. Lambert, M.A., Furley Lewis, J. C. S. Mummery, W. Thomas, B. Gay Wilkinson, Dr. C. F. Grindrod. Science Section: Messrs. St. Lawrence Carson, B.A., B.Sc., T. R. Dallmeyer, F.R.A.S., Douglas English, B.A., T. E. Freshwater, F.R.M.S., A. Haddon, Chapman Jones, F.I.C., F.C.S., C. H. Oakden, E. Sanger Shepherd, C. Winthrop Somerville. General Purposes Committee: Messrs. A. W. W. Bartlett, L. E. Clift, Douglas English, B.A., T. E. Freshwater, F.R.M.S., A. Haddon, J. C. S. Mummery, C. H. Oakden, H. Snowden Ward, B. Gay Wilkinson; with power to add to their number. Laboratory Committee: Sir W. de W. Abney, K.C.B., St. Lawrence Carson, B.A., B.Sc., The Right Hon. the Earl of Crawford, K.T., F.R.S., T. R. Dallmeyer, F.R.A.S., A. Haddon, G. Lindsay Johnson, M.A., M.D., B.Sc., F.R.C.S., Chapman Jones, F.I.C., F.C.S., C. E. K. Mees, B.Sc., Professor Raphael Meldola, F.R.S., John Sterry, Alexander A. K. Talbot, Professor W. C. Unwin, Sir Henry Trueman Wood, M.A., S. E. Sheppard, B.Sc.

News and Notes.

THE Ilford £750 Cash Prize Competition.—Our readers are reminded that this competition closes on March 31. Particulars will be sent post free on application to Ilford, Ltd., Ilford, London, E.

ON Thursday, the 2nd inst., the Watford Camera Club held its annual social gathering, at which there was a gratifying attendance. The proceedings included a concert and a whist drive. The club must be congratulated on having held a most satisfactory and successful meeting.

MESSRS. A. E. STALEY AND Co., of 19, Thavies Inn, E.C., write us that they will be pleased to welcome all trade visitors to London, at the Photographic Exhibition, Earl's Court, from March 16 to 30, and to submit to them their new models of cameras, lenses, etc., for the coming season.

THE Edinburgh Photographic Society, which recently held a successful Survey Exhibition, have arranged for another similar exhibition on more extended lines, to be held the first week in December next. Mr. James Burns has been appointed hon. secretary, and his past experience in this connection will go a long way to ensure the success of this new exhibition.

A "TABLOID" Competition.—Messrs. Burroughs, Wellcome are offering prizes of £5 5s., £3 3s., and £2 2s. for negatives developed with "Tabloid" pyro-metol developer. Prints are to be submitted in the first instance, and an empty carton of the developer must accompany each entry form. The closing day of the competition is May 15. Messrs. Burroughs, Wellcome will send from Snow Hill Buildings, London, E.C., a circular of the rules and conditions of the competition.

DENNISTOUN Photographic Association.—Blackfriars Hall, Dennistoun, was on Wednesday evening of last week the scene of a preliminary meeting in connection with the formation of a Dennistoun Amateur Photographic Association. The following officers were elected:—Hon. President, Mr. Peter Whyte; president, Mr. Charles Bathgate; treasurer, Mr. George R. Johnston; secretary, Mr. James Watson, Alexandra Parade. The annual subscription was fixed at 7s. 6d., and the officials were empowered to look for suitable rooms.

OBSCURING the Studio Light.—In reference to a recent reply in the "Answers" column, a correspondent points out that a paint for the purpose is put on the market by Walter Carson and Sons, Grove Works, Lombard Street, Battersea, London, S.W. Mr. Staley, of the firm of A. E. Staley and Co., of Thavies Inn, E.C., have also drawn our attention to the Geka Flexoid ground glass screens, which may be employed for the purpose mentioned by our correspondent. These screens, for which Messrs. Staley are the sole agents in England, are of various thicknesses, and have a beautiful matt surface. The thicker varieties are intended for focussing screens, or can be employed for the improvement of weak negatives. They are supplied in any size, and are comparatively cheap.

THE annual general meeting of the Photographic Society of India was held on February 15 at the society's rooms, Chowringhee, under the presidency of Mr. G. P. Symes Scott. The following were elected for the ensuing year:—President: Mr. A. F. Norman. Vice-presidents: Messrs. Oldbury, Burne, and A. Toucher. Committee: Messrs. A. E. Shorter, T. H. Wilson, C. Cummins, G. P. Symes Scott, W. J. Simmons, H. G. Pearson, R. Baker, S. B. Futché, Count D. de Soligostowsky. Hon. Treasurer: A. J. Olive. Hon. Secretary: Mr. T. R. Pratt. The annual report showed the total number of members to be 464, that a most satisfactory year had been passed, and the financial position was sound. Affiliation with the New York Metropolitan Camera Club has been arranged.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
17.....	Aberdeen Photo. Assn.	<i>A Large Aperture.</i> Demonstrated. Mr. Wardall.
17.....	West London Photo. Society ...	<i>A Trip in North Wales.</i> Mr. J. R. Lynch.
17.....	Wakefield Photo. Society	Y.P.C. Invitation Print Portfolio.
19.....	Bowes Pk. and Dis. Ph. Soc.	Competition, "Lantern Slides."
20.....	Wishaw Photographic Assn.	"A.P." Prize Slides.
20.....	Southampton Camera Club	Lantern Slide Competition.
1.....	Birmingham Photo. Society ...	<i>Styles of Architecture.</i> Mr. W. H. Bidlake, M.A.
21.....	Royal Photographic Society	<i>Marine Photography.</i> Mr. F. J. Mortimer.
21.....	Glasgow Southern Photo. Assn.	<i>Photography Prize Slides.</i>
21.....	Leeds Photographic Society	<i>Annual Lantern Exhibition of Members' Work.</i>
21.....	Brentford Photo. Society	Discussion of Summer Programme.
21.....	Devonport Camera Club	<i>Lantern Slide Making by Contact and Reduction.</i> Mr. J. Trountr Trend.
21.....	Nelson Photographic Society	<i>Pictorial Composition.</i> Mr. J. Emmott.
21.....	Monklands Ph.S.	<i>"Odds and Ends"—Members. "A.P." Prize Slides.</i>
21.....	Paisley Phil. Institute.	Opening of Exhibition.
21.....	Blairgowrie and Dis. Ph. Assn.	<i>Carbon.</i> Demonstrated. Mr. V. C. Baird.
22.....	Glasgow Eastern Co-Op. C.C. ...	<i>Behind the Scenes—The Camera at the Wild West.</i> Mr. J. W. Eadie.
22.....	Photographic Club	Open Night.
22.....	Cricklewood Photo. Society	<i>Troubles Commonly Met with in Using Plates and Papers.</i> Mr. J. Stevenson.
22.....	G.E.R. Mechanics' Institution	<i>Photography Applied to Book Illustration.</i> Mr. H. W. Bennett, F.R.P.S.
22.....	Boro' Poly. Photo. Society	<i>The Pains and Pleasures of an Architectural Worker.</i> Mr. F. W. Gregg.
22.....	North Middlesex Photo. Soc.	<i>Animated Photography—Past, Present and Future.</i> Mr. Birt Acres.
22.....	Sefton Park Photo. Society	<i>Excursion Lectures.</i> Mr. E. Ward.
22.....	Everton Camera Club	<i>Jamaica.</i> Mr. C. W. Childs.
22.....	Hull Photographic Society	<i>Photographic News Prize Slides.</i>
22.....	Batley and Dis. Photo. Soc.	<i>Short Papers on Excursions by Members.</i>
23.....	Glasgow Eastern A.P.A.	<i>The Hand Camera and what can be done with it.</i> Mr. W. A. Frame.
23.....	Shotts Camera Club	<i>Exhibition—Sending in Day.</i>
23.....	Greenock Camera Club	<i>Joint Lantern Night with Paisley and Bridge of Weir Societies.</i>
23.....	L.C.C. Sch. of Ph.-Engraving ...	<i>The Printer and the Illustrator.</i> Mr. T. Jacob.
23.....	Leigh Photographic Society	<i>Beck's Cameras and Lenses.</i> Mr. W. F. Slater, F.R.P.S.
23.....	Rodley and District Ph. Soc. ...	<i>Post Cards.</i> Mr. S. B. Hollings.
23.....	Rugby Photographic Society	<i>Members' Night.</i>
23.....	Liverpool Amateur Ph. Assn.	<i>Lecture Evening.</i>
23.....	Southport Scientific Societies...	<i>Pictures from Portugal.</i> Mr. G. E. Thomas.
23.....	London and Prov. Photo. Assn.	<i>Pigment Papers.</i> Mr. R. J. Kinon.
23.....	Watford Camera Club	<i>Ootype.</i> Demonstrated. Mr. Manley.
23.....	Richmond Camera Club	<i>Paper by Mr. P. Broomhall.</i>

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held March 14.—Mr. J. C. S. Mummery in the chair. Mr. S. D. Chalmers, Head of the Department of Technical Optics, Northampton Institute, read a paper on "Some Results in Lens Testing," in which he described the method of testing for lateral aberrations, due in the first place to Professor Hoffmann, and consisting of the separate tracing of the paths of rays coming through the various zones of the lens. A plate, perforated with two or more diametric lines of holes, is placed in contact with the diaphragm, and the behaviour of the lens thus traced in positions in front of and behind the focus. The method which has been modified by the author for photographic lenses is a photographic one, a series of exposures corresponding to different angles being made on one plate. It possesses the advantage of showing, by one operation, both the effect of the aberrations and the portions of the lens coming into play. A second method strongly recommended by Mr. Chalmers as one from which the amateur could himself gain much information as to the performance of a lens, consisted in photographing a flat chart of lines on a plate inclined at an angle of about 15 deg. to the axis of the lens. On the negatives made in this way the curves of coma and astigmatism might be very easily traced. In response to the vote of thanks, Mr. Chalmers stated that critical examination of photographic lenses was undertaken by his department of the Northampton Institute.

DONCASTER CAMERA CLUB.

THE annual exhibition of this club took place in the Dolphin Chambers last week, when about 200 exhibits were submitted to Mr. Godfrey Bingley (Bradford), president of the Yorkshire Photographic Society, and Dr. W. Fisher Ward (Bawtry), and satisfactorily pronounced upon, improvement being the keynote of the judges' award. Ten silver and bronze medals were awarded in five classes, and the following were the winners:—Landscape and seascape: Mr. H. G. Snow, silver; Mr. F. A. Jordan, bronze. Architecture: Mr. H. W. C. Drury, silver; Mr. E. E. Burgess, bronze. Figure studies: Mr. J. W. R. Napier, silver; Mr. F. A. Jordan, bronze. Flowers and still life: Mr. F. A. Jordan, silver; Mr. Drury, bronze. Slides: Mr. W. Gundrv. silver; Mr. Snow, bronze. Mr. C. R. Girdlestone (president) and Mr. T. H. Connor (secretary), with Mr. Snow assisting, supervised the arrangements.

DEVONPORT CAMERA CLUB.—Last year's exhibitions of the Royal Photographic Society and the Photographic Salon were illustrated by upwards of a hundred lantern slides before the members of this club last week. The pictures were introduced by Mr. H. S. Hill, whose efforts in bringing together the collection is to be commended.

BELFAST Y.M.C.A. CAMERA CLUB.—The monthly meeting of this club was held on Tuesday evening of last week at Wellington Place. A new departure was adopted at this meeting. Instead of the customary demonstration, the night was devoted to the useful discussion of photographic questions, such as: What is the use of the swing front and 'swing-back'? What is the most suitable brand of plates for high-speed work, with focal-plane shutter? What developer should be used for snap-shot work? etc. A highly successful and instructive evening resulted.

THE LEEDS PHOTOGRAPHIC SOCIETY.—On Tuesday evening of last week, in the Law Institute, Mr. Alex. Keighley gave a lecture entitled "The Flowers of the Months." Mr. Keighley, in opening, stated that the love of flowers was one which did not die with childhood, but was a love which went with us through life. To the photographer, the study of this interesting branch of the art opened up endless possibilities for pictorial photography. Referring to his methods, he said that the photography of flowers in their natural situations presented some little difficulty, which patience and perseverance would overcome. The camera should be fixed near the ground, and, as wild flowers are mostly small, as near as convenient, considering at the same time the surroundings and the position of view if a pictorial rendering was to be produced. Then, again, focussing sharply on the foreground, a very small stop, and a fairly long exposure were necessary in order that some degree of sharpness might be obtained in the background. There should be no wind, as this rendered the photography of flowers impossible. Other difficulties would be met and overcome with practice. Mr. Keighley showed appropriate lantern slides to illustrate his subject.

CROYDON CAMERA CLUB.—The fixture arranged for March 8 having fallen through, Mr. H. P. C. Harpur gave a short address on the "Art" side of photography, into which was woven "local reduction" by Howard Farmer's reducer. The ethics of "faking" were also introduced. The lecturer was of the definite opinion that an art photographer could be, so to speak, constructed out of an ordinary mortal, in fact, the latter "could be made to grow artistically, like a well-watered bulb in a garden" (a simile which, in some aspects, does not seem altogether kind), but there were several points to be observed in the process. In the first place, the art of "seeing" must be cultivated, and here long-focus lenses gave much truer perspective, as it enabled a more distant standpoint to be taken, with frequently increased atmospheric effect. The elementary laws of composition must also be obeyed, and interest

concentrated, by local reduction, sunning down, and other devices. In reference to local reduction Mr. Harpur showed a very neat method, where the chances of failure appeared to be minimised, and small opaque spots, or even thin lines, would be successfully dealt with. The negative, or transparency, as the case may be, if dry, is first wetted, and the surplus moisture absorbed with fluffless blotting-paper. A weak solution of Howard Farmer's reducer is then taken and applied with a fine camel-hair brush (not wire-bound) to the part requiring reduction. After allowing a short time for action, the negative is rinsed, and the operation repeated as often as may be necessary. The fact that each application of the reducer never occupies exactly the same position as the preceding one obviates any tendency to a hard line showing.

WOODFORD PHOTOGRAPHIC SOCIETY.—The last but one of the series of "Instruction Meetings" which this society is giving for the benefit of beginners, was held on Wednesday last at the Wilfrid Lawson Hotel. Mr. W. L. F. Wastell was instructor on this occasion, and took for his subject "Exposure and Development." The method the lecturer advocated was the employment of one of the many numerous "meters" now in use for measuring the actinic value of the light, of which he instanced and lucidly explained the working of Messrs. Burroughs and Wellcome's and the "Watkins" meter, and then, having thus ensured the proper exposure or somewhere near it—for modern plates admit of an error as great as eight times without seriously affecting the resulting print—Mr. Wastell followed this up by recommending the "factorial" method of time development. A plate is put in the dish, the time noted, and is then covered with a standard pyro-soda developer, the "factor" for which is, e.g., 6. Now, supposing it takes thirty-five seconds for the first trace of image to appear, multiply this time by the factor and 210 is obtained. The theory is that if the plate (covered up) is developed for this time, i.e., 210 seconds, all will be got out of the said plate that it is capable of giving, without the trouble of constantly taking it out of the dish to judge density, thereby running risk of fogging it, staining one's fingers, misjudging the density, and a host of other errors into which it is easy to fall.

HACKNEY PHOTOGRAPHIC SOCIETY.—The sixteenth annual general meeting of this Society was held on March 7. The secretary's report showed that marked progress had been made both generally and financially. The Society is to be congratulated on the sound position in which it finds itself, and also on the fact that it numbers amongst its members such a collection of first-class workers in the world of photography. The recent exhibition showed a balance of £20 2s. 10d. The election of officers for the ensuing year resulted as follows:—President, H. W. Lane; secretary, Walter Selfe; assist. sec., A. D. Fort; treasurer, A. W. Cook; curator, A. J. Linford; lanternist, H. W. Dunkley; excur. sec., F. C. Stimpson; Council: E. Farmer, F. W. Gosling, J. O. Grant, W. Rawlings, F. E. Roofs, Dr. Roland Smith, J. J. Westcott, L. S. Wilks.

SOUTHAMPTON Camera Club.—On Monday evening, the 13th inst., Mr. A. R. Sargeant, the hon. secretary of the Hove Camera Club, lectured on "With a Camera in Egypt." With great lucidity Mr. Sargeant described the belief of the ancient people in the six-fold character of man, and showed pictures of the more recently discovered statues of the deceased kings, which were buried beside the mummy awaiting the ultimate return of the vital essence, the sixth part of the being. A most cordial vote of thanks was accorded him at the close, on the proposition of the president, Mr. W. B. Hill.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.—A meeting of the general committee was held on Friday, the 10th inst., at 51, Baker Street, W. Present: Messrs. A. C. Banfield, F. A. Bridge, Alfred Ellis, Wm. Grove, S. H. Fry, H. E. Hull, Martin Jacquette, A. Mackie, D. Prodger, E. Scamell, Lang Sims,

T. C. Turner and R. Fellows-Willson. Mr. T. C. Turner, president, in the chair. A considerable portion of the time was occupied in the consideration of communications and other matters which it is inadvisable to report. The question of the institution of a Benevolent Fund was finally considered, and it was decided that in the absence of a general expression of desire on the part of the members that the committee should undertake the task, and failing a promise of sufficient support, it was impracticable to carry out the idea, at any rate at present. The committee dinner was fixed to take place on Friday, March 31, full particulars to be announced in the *BRITISH JOURNAL OF PHOTOGRAPHY*.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given
- * * We do not undertake responsibility for the opinions expressed by our correspondents

COMPETITIONS FOR CASH.

To the Editors.

Gentlemen,—The development of trade cash competitions for photographs taken on a specified brand of plates or films, or printed on a certain maker's paper appears to have grown considerably during the past few years. Not only do the manufacturers regard such competitions as a sure gauge of the popularity and use of their specialities, but the offering of money prizes is often the inducement for photographers, both amateur (*sic*) and professional, to buy a maker's goods expressly for the purpose of entering such a competition, and encouraged, maybe, by success therein, continue to use the materials, to the benefit of both parties. Such is the scheme in theory. On the other hand, one pauses to consider whether the fortunate individuals whose names appear with conspicuous regularity in the award lists of competitions inaugurated by different manufacturers, really do more than satisfy their consciences by the actual production of the prize pictures on plates or papers made by the particular firm offering, for the time being a tempting bait in the shape of not inconsiderable amounts in hard cash. As I read in these competitions are founded to ascertain not only the extent to which a certain maker's goods are used, but more particularly to find the extent of the regular users. It appears, however that the recurring prize winners, who net a very desirable sum of money yearly from this source, obviously cannot have a "one and only love" to whom they pin their faith, and, therefore, much of the object of the competitions—which undoubtedly do a great amount of good in other directions—is nullified.—Yours truly,

ALICE B.

[Our correspondent, who is evidently in "Wonderland," raises a point that may appeal to the organisers of the very successful competitions for cash announced from time to time. We have no doubt, however, that so long as the various enterprising manufacturers responsible for these competitions are satisfied, there can be no reason for anyone to grumble.—Eds. B.J.P.]

STOLEN GOODS.

To the Editors.

Gentlemen,—May I ask you, through the medium of your journal, to make known that, as the result of a burglary on these premises on the night of the 7th inst., the following camera and lenses were stolen, and to warn the trade against dealing with the same:—Vérascope No. 14,198, 45 by 107 m.m., fitted with a pair of Zeiss

Krauss-Tessar lenses, F5.5, Nos. 45,537-8. Thanking you in anticipation for the insertion of this letter,—I am, dear Sirs, yours faithfully,

Lumiere N.A. Co., Ltd.

T. K. GRANT, London Manager.

4, Bloomsbury Street, New Oxford Street,
March 11, 1905.

OBSCURING GLASS.

To the Editors.

Gentlemen,—The following hint may be of service to those who find themselves, as I did recently, with a broken focussing screen. By the following method I can soon rig up a temporary screen, giving even better illumination and finer grain than the ordinary one. Take an old negative according to size of camera, clean thoroughly, and with a weak solution of clear gum or glue smear glass, and apply a piece of paraffin wax paper (such as used by plate manufacturers in packing plates) and rub or squeegee out all air bubbles, thus leaving one with a very good substitute for ground glass.

I have done all my glass in this manner on south side of studio, and thereby softened the light at little cost and trouble.—Yours obediently,

W. BRIGGS.

West Hendon, N.W., March 11, 1905.

[The method advocated by our correspondent is, though not new, certainly one which in its second application may be noted. We frequently receive queries asking for a simple method of obscuring the studio light. For a focussing screen the paraffin paper, we fear, will not prove fine enough for any critical focussing.—Eds. B.J.P.]

THE promise made by the Hon. Secretary of the Royal Photographic Society in the January and February numbers of the Society's "Journal," to the effect that in future that publication would appear on the 15th of the month is carried out in fact this month. The "Journal" was actually published on the 15th, and was in the hands of all members of the R.P.S. on that date.

F. W. WOOD, LTD.—Registered March 3, by P. Becher, 26, Bedford Row, W.C. Capital, £2,500, in £1 shares. Objects: To acquire the business of a photographer carried on by F. W. Wood; and to carry on the business of photographers, manufacturers of and dealers in photographic apparatus, appliances, chemicals, materials and accessories, dealers in optical and scientific instruments, etc. No initial public issue. Registered office, 349, Edgware Road, W.

THE Chemists' Exhibition opened in Covent Garden Theatre, Bow Street, London, W.C., on Monday last, March 13, and closes to-night at ten o'clock. One hundred and twenty stalls make up a very interesting and brilliant show, in which the photographic trade is represented by a number of leading firms. The Rotary Photographic Company exhibit their latest novelties, tri-colour pigment films, and Roto P.O.P. Messrs. Houghtons, Ltd., show a great variety of apparatus in a very well designed stall. Messrs. W. Butcher and Sons occupy three stands, and then have to crowd their many specialties. Among other photographic goods are the chemical preparations of J. E. Lockyer; the Schleussner plates, shown by Thos. Christy and Co., Walsgrove developers and toners, shown by Messrs. Sanger and Sons; cameras and other apparatus, for beginners, of Messrs. J. Theobald and Co.; and chemicals by Messrs. Johnson and Sons, Ltd. A number of prints from a competition promoted by the "British and Colonial Druggist" occupied the Grand Saloon, and could not be called a brilliant lot in any sense, though the first place is certainly deserved by a fine piece of landscape by H. W. Lane.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

Shaw & Son, 62, Preston New Road, Blackburn. Photograph of Billinge End; Station Road; Market House; and Town Hall. Photograph of Church Street; the Almshouses; Nurses' Home; and Fever Hospital; all at Blackburn.
R. Thirwell, 21, Bridge Street, Stockton-on-Tees. Nine Photographs of S. Coleridge-Taylor.
J. M. Smith, 13, High Ousegate, York. Photograph, Alderney Cove, Suckling Pig. Kate Osborne, 17, Dampier Street, Bridgwater, Somerset. Photograph of a Picture Postcard in the form of a Puzzle.
O. W. Seville, 104, Narborough Road, Leicester. Photograph of the Rev. John McNeill.
G. C. Smith, 3, Seyton Avenue, Langside, Glasgow. Two Photographs of the Rev. Dr. Fergus Ferguson.

G. H., JUSTICE, STUDIO, AND OTHERS.—In our next.

W. H. TAYLOR.—We have handed your letter and enclosure to Mr. Snowden Ward.

TRANSFER OF COPYRIGHT.—The copyrights should be registered by the author of the negatives, who can assign them to you in writing at the time of purchase.

C. N. A.—As the prints were not returned you are entitled to be paid for them. You can sue for the money in the county court, if you think that is worth your while.

J. J. BRISCO.—We think the formula directed treating with chloride of gold solution after bleaching, but we have not found that any of these methods are of the slightest use. The best plan is to make a copy of the print.

A READER.—"Photographische Chronik," published twice weekly by W. Knapp, Halle a. S., Germany. You must get terms from them. A widely read professional organ is the "Deutsche Photographen Zeitung," published by K. Schwier, Weimar.

T. CLEGG (Rawtenstall).—The printer has good points and might possibly be taken up by one of the large houses. But there are several makes of apparatus for a similar purpose already on the market. Better write one or two leading firms and get their views of it. It will be time enough then to take out provisional protection.

CHARACTER DELINEATION.—A seaside photographer delineates character, etc., from the hands free of charge, with a view to attract people to his studio. Could you kindly inform me if he is committing an offence against the law?—OCCULT.

There is no law which will prevent a man from giving anything away, whether it be information or a pound of tea—and certainly in this case there is no breach of the law.

T. W. SMALLEY.—The cost of provisional specification is 20s. and three guineas for one complete specification. These are the actual government fees, but it would be as well for you to find out whether anything of the sort has been done before, or whether you are merely attempting to patent a well-known fact. If you like to write us a description of your process, we will treat it in strict confidence, and tell you all we can on the subject.

SALARY.—We scarcely see how we can advise you in the matter, it seems so complicated by the fresh arrangements that were from time to time made—some verbally and some in writing. It seems that you have already given a receipt, though under protest, for the sum first agreed upon. We should say your best plan will be to consult a solicitor if the sum in dispute is sufficient to warrant your doing so. He will, with all the facts before him, advise you better in the matter than we possibly can.

LEASE OF PREMISES.—(1) I am about taking house for photo business for three years on agreement. Will it be necessary to have it stamped, what would it cost, and where shall I get it? (2) What is the best lens for 12 by 10 for taking groups in small places, outdoor?—**AGREEMENT.**

(1) The house, if taken for more than one year, requires a lease stamp, which may be obtained at any stamp office. The cost depends upon the rent. (2) An R.R. or anastigmat of about 12 in. focus.

PERMITS.—Where should I apply for permission to take photos of public places, parks, etc., in London?—G. G.

For the Royal Parks, H.M. Office of Works, Westminster. For the London parks and spaces, the London County Council, Regent Street, London, W. You will find a list of authorities to whom application must be made for other places in "Photography on Tour" (Dawbarn and Ward, Ltd., 1s.). The "Photographic Red Book" (issued to all members of the Royal Photographic Society and affiliated societies) constitutes a permit to take photographs in most of the public parks and other places of interest in London, a list of which is printed in the book.

FRAMING, ETC.—(1) I am framing some portraits, to hang in our town hall. They are to be oak, stained green. Can you tell me if fuming them with ammonia after staining will make them permanent, as my experience with the green stain has been that they go patchy after a little while? (2) I want some gilt tablets, with names, etc., written on them, similar to those you see in our public buildings, to fasten on them. Where can I get this done?—**FIFTY YEARS A READER.**

(1) Nearly all the green stains used for frames are aniline dyes, and fuming with ammonia is not likely to be of the slightest benefit. Perhaps you are using water stain, which is more liable to become patchy in time than a spirit stain. But no green stain is perfectly satisfactory in this respect. (2) The best person to write names, etc., is a local sign writer.

STUDIO AND LENS QUERIES.—(1) My front room upstairs is 17ft. by 15ft., window facing north, which is 4½ ft. wide and 6½ ft. deep, height of room 9½ ft. Do you think this would do for ordinary portraits, say three-quarter figure, providing I fit up as per sketch enclosed, about seven lights of about 100 candle power, in two rows? These are, in addition to light obtainable from window, or do you think less candle power would answer, providing I use quick-acting cabinet lens and special rapid plates? (2) At about what height from floor do you suggest for lights to be fixed, also size of reflector required? (3) Would it be advisable to have a few lights on other side where there is no window, or would a large glass mirror act as a sufficient reflector? (4) I am fully aware that the length of room is very short for standing figure, but it is chiefly for three-quarter and bust figure that I want; but, perchance, I should be required to take a full figure. What focus of lens would be required for cabinet?—**ANXIOUS.**

(1) We presume that you mean seven lights of a hundred candle power each. A light at 700 candle power is small for portraiture, for you must keep in mind that very little light from the window will reach the sitter, where the sketch shows he is to be placed. If you have less light the exposures must necessarily be long. We should say that when you have busts or three-quarter lengths to take, your best plan will be to put the sitter at the opposite end of the room and use the light from the window only. (2) About 5ft. 6ins., or 6ft. if the lights are arranged as shown. (3) Not necessary if a white paper reflector be used, as the light from the window will, to an extent, soften the shadows. (4) A lens about 9in. or 9½in. will be required.

PORTRAIT IN ROOM.—We have some photographs to do for a gentleman, who requires us to do them at his own place. The room we must operate in has a window facing north, 6 ft. by 6 ft. The window is straight up and down, no slant. Will you give us a hint as to how to diffuse the light? What part of the 6 ft. of light should be blocked out? What distance from the light should the sitter be placed for softest result? We require to turn out a pleasing portrait, nicely lighted, if it can be done. The portraits are head and shoulders, three-quarter length and full-length cabinet size. The room is a large one, 14 ft. by 20 ft.; light paper on walls, window 2 ft. from ground. No space or dead wall betwixt window and background. We have always been used to working at our own place, and will thank you for information.—B. and S.

One would almost have imagined that a firm of professional photographers who know the room would know better how to take the portraits than we should who have not seen it. However, as a rough guide, we should advise you to place the sitter about 6 ft. from the window and facing the centre of the end of the room. Then place the camera as close to the wall, on the window side, as you can. That will give you about a three-quarter face portrait. If the shadows are too strong they can be softened by a reflector, say a sheet or a tablecloth hung on a clothes-horse. You will probably find it necessary to stop off 18 in. or 2 ft. of the window on the background end by drawing the curtain. Anyhow, imitate the light of your studio, which you are used to, as nearly as you can. With such a light at command any professional photographer should be able to produce first-class portraits. For the full-length picture you will require a rather short focus lens.

NOTICE.

Several replies are held over for insertion next week.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

Memorial to Professor Abbe. A proposition is on foot to erect in Jena a memorial to the late Professor Ernst Abbe, whose distinguished achievements in physical science and in practical sociology entitle him to the veneration of all classes in the community. A representative committee, which includes Dr. Czapski, others of the scientific staff of Carl Zeiss, and a number of gentlemen of standing in the optical arts has been formed, and there should be no difficulty in raising money for a worthy memorial. The treasurer of the fund is Dr. Gustav Fischer, Jena, to whom subscriptions may be sent.

The National Physical Laboratory. Last week the annual meeting of the Board of Directors of this institution was held, and numerous visitors were invited to inspect the premises, which are under the directorship of Dr. R. T. Glazebrook. The principal work during the past year seems to have been almost entirely physical, and we presume that the work of organisation and directing has been so great as to preclude any special optical work, which one naturally expects from so distinguished an optical authority as Dr. Glazebrook. Elsewhere we refer to the matter of lens testing, but we also note that the committee hope to establish some primary photometric standard by the radiation from some definite surface at a definite temperature; this is obviously for visual purposes only, but we sadly want some standard photographic light.

Aerial Photography. An international exhibition is in course of arrangement by the Aeronautical Club of France, which seeks to bring together a collection of photographs and apparatus dealing with the aeronautical applications of the camera. The exhibits are to comprise both photographs obtained from balloons or kites and those of meteorological phenomena of which the balloonist makes

a study. The date of the exhibition is not yet announced, but it is asked that prints should reach the secretary, Roger Aubry, 58, Rue Jean-Jacques Rousseau, Paris, before October 30. Those interested in aeronautical photography are further reminded that this work is numbered among the activities of the Aéronautique Club de France, and that Monsieur Aubry, who is known in photographic circles as the editor of that substantial volume the "Annuaire Général de la Photographie," will be glad to come into communication with them.

A Point in Press Photography.

The Institute of Women Journalists assembled last week to hear a discourse from Mrs. Catharine Weed Ward on "The Camera in Illustration," and though mere man was not admitted to the meeting, we have since had opportunities of gathering what Mrs. Ward had to say. One point from what we imagine to have been a witty if strictly practical address we would fix in the minds of photographers who cultivate editors with a view to reproduction fees, and that concerns the various anniversaries and centenaries for which the illustrated Press require photographs. Editors make their plans for these certain events a long time—months, or even years—ahead, and the photographer who submits work a couple of weeks beforehand is doomed to disappointment. He is not merely a week or a month too late—he may be a year or more behind his farsighted competitor.

Photography and Advertising.

We recently commented on the subject of photographers' advertisements, and quoted a certain striking and somewhat humorous advertisement emanating from an American source. Two other specimens which might also be classed in the same delightful genus have come to our notice. An East Anglian photographer advertises in his local paper: "Your own baby, if you have one, can be enlarged, tinted, and framed, like the above, for 6s. 6d."; while in one of the London suburbs this somewhat alarming notice is posted: "Photographic artist. Children executed at any hour of the day or night." Mr. W. J. Casey's series of articles, which commence in this number, on the subject of "Advertising and Photographers," will doubtless appeal to, and should be read carefully, not only by these enterprising gentlemen but by the great bulk of professional photographers who seek publicity in a legitimate way.

Discolouration of Glass by Light.

The paper by Sir William Crookes, which we reprint on another page, deals with a phenomenon which has frequently been noticed in the past in its effect on photographic lenses. That a strong light causes discolouration of the substance of certain glasses is a fact well known to opticians and, from practical experience, to photographers

of the old school. The action, which was observed by Faraday so long ago as 1823, has frequently been found sufficient to make a noticeable difference between two lenses paired for rapidity, when one of them has been employed in strong light for a considerable time. Heavy flint was more liable to change of this kind than the lighter kinds of glass, and peculiarities in this respect have prevented otherwise valuable glasses from being employed in lens construction. Of late years cases of lens discolouration have been little heard of; nevertheless, the counsel of the maker that the instrument shall be exposed to strong light as little as possible is one which the photographer will lose nothing by following.

Sunday Trading.

An ingenious method of avoiding the statute regulating Sunday trading was put forward last week at the Dewsbury Borough Court, when a local photographer was fined 5s. and costs for following his vocation on the Sabbath. He made a somewhat novel request, namely, that he should be fined a nominal sum each week for opening his shop on Sundays, and moreover volunteered the information that when in business at Hull, he opened his shop on Sundays and paid the magistrate's clerk 5s. a week without being called before the court every time. Whether this aspect of the application of the English law appealed to the magistrates as a convenient method of increasing the revenue of the court does not transpire, but it is one that we hardly care to recommend to any of our readers, no matter how enterprising they may be, or an unpleasant surprise in the shape of a substantial fine, founded on a long series of "past convictions," might unexpectedly open their eyes to the error of their ways. As the magistrates stated in the case we quote, the defendant must take his own risk in the matter. We would likewise draw the attention of the ingenious evader of the law to the provisions of the new Sunday Closing (Shops) Act, which has passed its second reading in the House of Lords, and will doubtless soon become law. The object of this Bill is to provide for the closing of shops (with certain exceptions) and the prohibition of street trading on the Sabbath. One of its clauses is that the penalty for an infraction of the law should be 5s. for a first offence, and £1 and £5 for second and subsequent offences. Without wishing to discuss the pros and cons dealing with the necessity for this Act of Parliament, we are inclined to the opinion of the Lord Chancellor, who expressed the belief, during the reading of the Bill, that the importance of Sunday to everybody was being recognised to such a degree that it did not require legislation to stimulate it.

H. and D. Numbers and the "Zenith" Plate.

The necessity of fully specifying conditions in describing sensitive materials is one which a writer cannot keep too prominently before him. The case of the "H. and D." speed numbers is perhaps as familiar as any. The "inertia" of the plate, to which the speed number bears a definite numerical ratio, is intended by Hurter and Driffield to apply to pyro-soda development. But considerably higher readings are obtainable with certain other developers. That fact may be disregarded by some in reading our report last week of the Ilford Company's "Zenith" plate, which, as we pointed out in words, bears an extremely rapid emulsion. Therefore it may be well to emphasise the fact that this speed number cannot be taken as comparable with those of plates which are not speeded for the Hurter and Driffield standard developer. We hasten to refer to the fact, because one case has already come to our notice in which the "Zeniths" had been greatly over-exposed by disregard of the strict sense which we attached to the "H. and D." speed number, and we

would be the more sorry to mislead our readers, inasmuch as some further exposures confirm our opinion that the "Zenith" approaches the extreme rapidity of the "Monarch."

Loan Exhibitions of Pictorial Photography.

The praiseworthy endeavours that occur from time to time on the part of various associations, photographic or otherwise, to bring together representative loan collections of pictorial photographs, are not so frequent as could be desired. Little or no opportunity is therefore afforded the supporters of provincial exhibitions for seeing the work of past masters and other outstanding exponents of pictorial work who have given up exhibiting at competitive shows. This is more to be regretted when it is considered that such work is usually far more worthy of attention than much that is to be found in the average annual photographic exhibitions in this country. A notable effort is, however, now being made by the Fine Arts Committee of the Corporation of Brighton. They have decided to organise a photographic exhibition to be held in the new Corporation Art Galleries from April 17 to June 3. The undertaking will be carried out by the committee in conjunction with the Hove Camera Club, and will consist solely of a loan collection of pictorial photographs lent by those to whom an invitation to exhibit is sent. The exhibition, moreover, will be open free to the public, and efforts will be made to get together a representative show of the best British work, the venture should meet with the success it deserves.

The Proposed Photographers' Benevolent Fund.

It is with some regret, though not without surprise, we see from the report of the last meeting of the General Committee of the Professional Photographers' Association that it was decided to abandon the idea of instituting a benevolent fund in connection with that body. The P.P.A. went to considerable trouble in the matter. It sent circulars to all its many hundred members, asking whether they were in favour of the movement, and whether they would contribute any sum as a start to the affair. But comparatively few replied at all, and of those who did, only a tithe were in favour of it, and the sum promised was quite an insignificant amount. In these circumstances, we think the P.P.A. is wise in not moving further in the matter. Possibly many of those who replied in the negative to the Association's circular, and, perhaps, some of those who did not reply at all, had in mind the result of the old benevolent fund that was instituted some years ago, and the scant support it received from those for whose benefit, in time of sickness or trouble, it was established. Of the desirability of such a fund there can be no question, and certainly there is no body better qualified to carry out a scheme than the Professional Photographers' Association; but if it receives no support it is powerless to move in the matter. "Heaven helps those who help themselves," and the Professional Photographers' Association is judicious in waiting for some change in the apathetic attitude which photographers take towards movements intended to benefit the unfortunate in their ranks.

OFFICIAL TESTS OF LENSES.

Of the many matters in which photographers seek guidance from those who are able to supply it, probably none is more constantly in evidence than the differences in the optical properties of the modern anastigmat lenses. Very frequently the request is couched in such vague terms that it is not possible to give any useful answer. "Which is

the best lens?" is a query as common as it is silly, and about the only reply to it is to tell the querist that he might almost as well ask "Which is the best dog?" But among a class of photographers many degrees removed from such ignorant inquirers as these, are men able to decide for themselves many of the qualities which they desire in a lens to be employed for a specific purpose. It must have such and such an aperture, and such and such a focal length and covering power. But a decision as to these things having whittled down the number of lenses between which their choice lies, there still remains the question of correction of aberrations by which the Gordian knot of value for money must be cut. They would have some authoritative tribunal from which to learn wherein lens A. is better than B., or whether C. equals in performance the maker's claims on its behalf. Two events of last week lead us to draw attention to means of arbitrament which may be unknown to many people. The first was Mr. S. D. Chalmers' paper before the Royal Photographic Society; the second, the annual meeting of the Board of the National Physical Laboratory. Mr. Chalmers stated that the department under his direction at the Northampton Institute, viz., that of technical optics, was open to make tests of photographic lenses. Such tests also are numbered among the activities of the National Physical Laboratory, although only six photographic lenses were examined during the year 1904.

Of course, such facilities are not offered now for the first time. Fourteen years ago the Kew committee of the Royal Society established a scheme under which photographic lenses are subjected to a series of tests for an almost nominal fee, but, unless the demand for the results has greatly increased within the last year or two, the work which was thus done at Kew bore an insignificant proportion to the great volume of trade in photographic lenses. True, the Kew tests were visual throughout, and users of lenses are justified in doubting whether the refinements of a visual test give any correspondingly exact information as to the behaviour of the lens photographically. At the Northampton Institute—so we gather from Mr. Chalmers' paper—the test is a photographic one; the readings are from actual exposures on a photographic plate, and for that reason invite the confidence of the practical photographer. Tests of this character must be of particular value in their application to lenses intended for three-colour work. The method employed by Mr. Chalmers is a modification of that of Professor Hartmann, and is so different from others which have been widely adopted that we may briefly explain the principle on which it rests. The lens is pointed to a small, bright, distant source of light, but instead of focussing upon it, two exposures are made, each equally distant from the true focus. At the point occupied by the iris of the lens system a diaphragm pierced with a series of minute holes is placed, and the results of the two exposures is thus to obtain, for each position of the plate, a series of small circular spots of light, the centres of which may be taken as points on the rays from the centre of the source to the centres of the apertures in the diaphragm. The method can be so carried out in practice that inspection of the negative will show whether the lens is good or bad, and certain defects, such as coma, which are not easy to identify in other ways, are very plainly shown by the Hartmann method. The method can, of course, be carried out ocularly, and we believe that that has been done at the National Physical Laboratory, which, like the Northampton Institute, makes its tests upon the optical bench designed by Mr. Conrad Beck, and described in this journal for January 23, 1903. The apparatus required for the Hartmann method is, however, to be fitted to the bench at the National Physical

Laboratory, and we understand that it is the intention of Dr. Glazebrook, in reorganising the tests, to employ a photographic record of the lens's performance whenever possible.

It is not our present purpose to enter into the extent to which tests should be carried out or the form in which they should be expressed. We have said sufficient to remind our readers that the highest scientific methods are now being applied to verification of the chief instrument in the photographer's equipment.

APPARATUS FOR THE SEASON.

THE season has now arrived when apparatus that has been stored away during the winter months will be required for use again, and the question is, in what condition will it be found? If the precautions we advised towards the end of last season were taken, it will be found in the same state as it was when last employed. But if, as is not infrequently the case, it has been stored in the lumber-room, which, as a rule, is none too dry, things may be very different. Let us take the case of an ordinary field camera, with dark slides, which has been stored in a damp place. It is very probable that the shutters cannot be drawn, or only drawn with difficulty. If any force be applied the glue joints may be strained or the hinges injured, or, if the shutters have been pulled out, they cannot be pushed back; consequently they will be liable to warp or "cast" as they dry, and thus become permanently damaged. The best procedure in these circumstances is to put the slides, as they are, in a warm and dry room and let them rest for a few days—a week or so. During that period the wood will have shrunk to its original dimensions and the softened glue hardened, while the shutters are prevented from warping by the grooves in which they work. What has been said with regard to shutters applies to other wooden portions of the apparatus; if any parts are found to be jammed or work stiffly they should be left to themselves, as, like the slides they will right themselves. In no case should the working parts be eased with glass paper, as is frequently done, as then, when the wood has recovered its normal proportions, they will work too freely, and, in the case of the slides, may admit light. Patience is the best remedy for any trouble that may have arisen from damp storage. The bellows of the camera may have suffered in the same way as the wood-work from damp. If so, it should be expanded very carefully, as, if the gussets have stuck together and they are forcibly pulled apart, some of the outer coating may become removed and light may gain access. The best plan will be to separate them gently, and then allow them to rest with the bellows but slightly extended. If it is opened to its full extent, although it will dry quicker, it will become stiff in the folds, and will not so well shut up again, for it must be borne in mind that the foundation of some bellows is cardboard, and that might cockle to an extent in drying. As regards the metal parts little need be said, as it is scarcely probable that they have suffered by the storage. If, however, any pivots or hinges have become oxidised it will be seen at a glance, and a drop of olive oil, or, better still, one of almond oil, should be put upon them before any attempt is made to work them. As we have just said, patience, and keeping the things in a warm, though not hot, place for a week or so, is the best remedy for months of damp storage; and we might add that the remedy should be applied without delay, as it cannot be completed at an hour or two's notice.

ADVERTISING AND THE PROFESSIONAL PHOTOGRAPHER.

I.

IN dealing with the severe competition now existing in professional photography, the writer of an article in a recent issue of THE BRITISH JOURNAL OF PHOTOGRAPHY stated: "Many a photographer pays for circulars or newspaper advertisements, when he might just as well give the money to a benevolent institution for any good it does him," and inasmuch as he did not go on to show how the money could be more advantageously spent in the direction indicated, one may reasonably infer that his opinion of advertising coincides with that of the majority of professional photographers. Now, is this indifference the result of having thought out the pros and cons of the matter, or is it that the rank and file of the profession are drifting along and paying no heed to the recent development of advertising into one of the most potent factors in modern business life? Believing that the latter is the explanation, we should like to show that there is no reason why advertising should not be more extensively utilised by the profession, and also to briefly indicate a few of the ways in which it may best be used. First, then, perhaps it would be as well to give

A Definition of Advertising.

Probably as good a one as can be found is that given by a leading authority on advertising—viz., "Every move which has for its ultimate aim the sale of anything." At first sight this may appear to embrace too wide a scope, but we hope to show later that it does not. Simultaneously with improved means of communication, cheap books and newspapers, and other causes tending to broaden the ideas and interests of the mass of the people, there has been a rapid increase in the amount of advertising, so that there is now hardly one trade of any importance in which advertising, to a greater or lesser extent, is not used. Little more than half a century ago Carlyle bitterly attacked "The Hatter in the Strand of London," who, "instead of making better felt hats than another, mounts a huge lath-and-plaster Hat, seven-feet high, upon wheels; and sends a man to drive it through the streets," whereas, to-day, he who makes the best goods is, more frequently than not, he who exercises the most ingenuity in advertising them. For instance, does any photographer think that because Messrs. Elliott and Sons charm us with the "Dawson girls," or Messrs. Wellington and Ward amuse us with the doings of "Alphonso and Belinda," that the Barnet and Elstree products are not sufficiently good to sell solely on their merits? And yet has not nearly every photographer as many rivals in his town as have the above-mentioned firms competitors in their lines of manufacture? It may be urged that

Professional Photography is not a Trade.

and that advertising is therefore undignified; but, seeing that banking is also a profession, and one, moreover, in which there is every day more advertising being done, this excuse cannot be taken very seriously. Or another may say that the taking of a negative, submitting proofs, and then obtaining the order for so many copies, is a different matter from selling a tablet of Somebody's much-advertised soap. Granted; but is it a more lengthy process than getting a man to fill up a proposal form, answer some dozens of questions, and then undergo a medical examination—all of which the insurance companies require their customers to do—and yet are not nearly all the insurance companies advertisers? No matter how apparently secure a reputation any concern may enjoy, it cannot nowadays dispense with advertising; younger men enter the

same field, and by their aggressive methods compel the older firms in very self-defence to wield the same weapons, and thus it is that hardly a day passes without our seeing firms, whose names have been for generations "as familiar as household words," joining the ranks of the advertisers. No more striking instance can be adduced than that of the "Times," the venerable "Thunderer," spending thousands of pounds in advertising, first its edition of the "Encyclopædia Britannica," and later its own reduced subscription terms. For better or for worse—it is immaterial to our present purpose to argue which—then, advertising is a force that has come to stay, and no business man can afford to neglect the opportunities it presents.

Having thus briefly outlined the position of advertising in business life to-day, let us consider the question—

Ought the Professional to Advertise?

Turn we to our definition, "Every move which has for its ultimate aim the sale of anything." What has the professional for sale? Is it not the results of his ability to produce photographs—a something which is admittedly not so easily demonstrated as the merits of a tablet of soap, but, on the other hand, is simple compared with the problem which confronts the bank or the insurance company? The object is the same in each case—viz., to persuade the desired customer to enter the doors of the bank, office, or studio, as the case may be, and therefore the bank publishes its half-yearly reports and balance-sheets, the insurance company does likewise, and frequently backs them up with convincing arguments showing how an insurance policy is the best investment for the man of small means, and the photographer does—we will discuss what he does, and what he does not do, later. The first "move," then, is the inducement to come to the studio, and here the comparison with the bank and the insurance company must cease, because the first is practically their only "move," but with the photographer it is but one of a very great number. It is nevertheless a very important one, the most important one, in fact. Let us for the sake of our argument take the case of a country town situated in the midst of a well-farmed district, the dwellers in which are to all intents and purposes resident in the town itself so far as their buying is concerned, and, what is of, to us, equal importance, so far as their reading the two or three weekly newspapers which such a town would possess. In this town there will probably be

Half a Dozen Photographers.

not more than two of whom will have studios in positions that will be passed by the majority of people having business of any nature to transact. If near the railway station they are generally away from the very centre of the town, while if at one end of the main street, perhaps half of the people shopping therein will not pass their studio, so that, be the showcase or window display never so attractive, it will only be seen by a certain proportion of the people. Here, then, is the need for the first "move"—to bring people, desirous in many instances of having their photographs taken, or, if not actually desirous, at least in such a frame of mind that they may easily be persuaded to do so, to the doors of the studio. Can this first "move" be made by any better means than that of advertising in the newspapers already mentioned? In the great majority of cases we think it cannot.

A Signpost.

Occasionally one sees town councils utilising the street lamps as signposts by means of tablets with the inscription, "To the swimming baths." We apprehend that this is done not altogether with a view to guiding would-be swimmers to the baths, but also with the idea of reminding the townspeople that the baths are there in readiness for them—in short, the council is advertising its baths. Now, if Messrs. Hypo and Pyro in the High Street were the only photographers in the town we have instanced, similar signs on the lamp-posts would serve them equally well as advertisements, but if Messrs. Plates and Papers have their studio in the Market Place we see that there is the need for another set of signs, and although they would still serve as such, their value as advertisements would be greatly diminished, and if there were a third studio in another street with its set of directing signs, the value of all three will have become practically nil. It is evident, then, that each studio wants a signpost which shall not only direct the customer to its door, but which shall also offer some particular inducement to pay it a visit. What best fulfils these conditions—a sign which not only directs to Messrs. Hypo and Pyro's studio, but also offers some inducement to go there, and, still further, which can from time to time vary the nature of such inducements? Is there any better means than the newspapers?

The Newspaper Advertisement.

The signpost function of the newspaper advertisement is its most obvious one, and that is probably why the few photographers who advertise in the newspapers have utilised it; but it is remarkable that hardly any seem to get beyond it.

Week in and week out the same advertisement appears with about as much information as that which is afforded by the ordinary visiting card; no particular inducement is offered, nor is any reason advanced why the studio of the advertiser should be visited. One very important possibility in connection with their advertising that is almost entirely ignored by photographers is that of the stimulation of the desire to have photographs taken. How many buyers of the "Encyclopædia Britannica" even knew of its existence, let alone possessed any wish to be the owner of a set of the volumes, prior to the advertising of it by the "Times"? Is not the analogy clear? How is it, then, that photographers so frequently have a photograph ten, twenty, even thirty years old of a recently-deceased person, with the request that they should make a number of copies from it? Nay, even a wretched little scrap of a print from a negative taken with a child's toy camera is brought with the piteous tale, "It's the only one we have; do make the best you can of it." If photography were properly advertised, would this happen once to the twenty times it now does? Again, the majority of the advertisers in local newspapers are shopkeepers who, if they do anything more than give the mere announcement that they have a shop at a certain address, seldom go beyond what is practically an extract from their price list, so that if by the style of the photographer's advertisement, both as to its wording and the form in which it is printed (as the printers say, "its setting"), he can make it distinctive, he thereby gains so much the more value for his outlay.

In my next article I shall submit certain definite suggestions for the drawing up of advertisements which professionals can apply to their own cases.

W. J. CASEY.

THE WEEK IN HISTORY.

How Old is Gum Bichromate?

NEXT Monday, exactly eleven years will have passed since the death of John Pouncy, the man who is usually credited with evolving that wild cat of photographic printing processes—gum bichromate. I was slightly acquainted with Pouncy, some fifteen years before his demise, when he was proprietor of a professional business in the delightful little county town of Dorsetshire, and my recollection is that he was accustomed to disparage his work in gum-pigment printing, and to dwell with pleasure on a method of working up photographs in coloured oils, which he brought to a high degree of perfection. Pouncy received the medal of the Duc de Luynes for his gum process in 1859; but it is curious to recollect that the year of his death, 1894, marked the birth of gum for the purposes of your modern "pictorial photographer." It was in that year that MM. Rouillé-Ladevèze and Puyo exhibited work by the process at the Salon of the Photo-Club de Paris. The "gum" of Pouncy, and gum as it is worked at the present time, though technically the same process, are vastly different in their effects; and probably M. Demachy, who may be regarded as the arch-apostle of the process, would not admit Mdlle. Gomme-bichromatée to be more than eleven years of age.

Be that as it may, it will be well to quote Pouncy's method, which was then called the carbon process, as he originally published it, as then it will be seen (?) wherein it differs from the "gum-bichromate" process of the present day. Three solutions are prepared. 1. A saturated solution of bichromate of potash. 2. A solution of gum arabic about the consistence of thin varnish. 3. Vegetable carbon finely ground in water. Mix four drachms each of 1 and 2 together and add some No. 3. The

paper being laid on a glass plate, "commence coating freely with a broad camel's-hair brush, laying on a copious supply over the whole surface, and then allow the paper to absorb for about two minutes. This done, remove the superfluous liquid thus: Take a painter's 4-in. hog's-hair 'softener,' and work it regularly over the paper, with alternate vertical and horizontal motion, until the whole presents a smooth and even surface, partially dry. The drying may then be completed by the fire."

Cooling Gelatine Emulsion—the Bennett Process.

A simple step, but one which gave immense impetus to the gelatine emulsion process, was that taken by Charles Bennett in 1878. In THE BRITISH JOURNAL OF PHOTOGRAPHY for March 29 of that year, Mr. Bennett first published the working details of a method of making gelatine dry plates of greater rapidity than had before been possible. The innovation consisted in the mixing of the emulsion hot, and in allowing it to stew at this increased temperature. Mr. Bennett's methods would hardly suit present-day emulsion makers, for, after describing the mixing of the ingredients, he directs:—"Shake the emulsion very briskly, and replace it in the kettle for two, four, or seven days, according to rapidity required. The temperature should never be over 90 degrees: if you do not let it exceed that, you will not have red fog. 'Cosy' it up with flannel, and it will not lower many degrees in the night." I, however, use a stove two feet across, and place it on that: a faint gas jet below keeps it always at 90 degrees. I make up every twelve hours. If washed, in two days, the emulsion is rapid and dense; in four days, more rapid and less dense—quick enough for any drop-shutter known."

HISTORICUS.

AN IMPORTANT POINT FOR THREE-COLOUR WORKERS.

In the last number of the "Zeitschrift für Wissenschaftliche Photographie" Herren J. Precht and E. Stenger detail their experiments on this subject, which will be of considerable interest to three-colour workers and also of more general interest to the practical worker.

The distribution of luminosity in the spectrum of daylight has been repeatedly examined visually. We mention the measurements of H. C. Vogel,¹ who compared with a spectrophotometer the luminosity of sun and sky light to a paraffin lamp; further, the work of Crova² on the radiation of diffused sky light; and, finally, the complete researches of Else Köttgen,³ who considered the relative visual luminosities of a large number of sources of light. All these researches agree that the blue rays are considerably in the preponderance in sky light. Köttgen's work differed from the other observers in that he found that the proportion of blue in blue sky light to be greater than in direct sunlight, but this result appears to be influenced by the particular method of the measurement.

Variations in Daylight Actinism.

The actinism of the colours in daylight has not yet been quantitatively estimated; still, H. W. Vogel⁴ made numerous experiments on the variability of photographic action of daylight, by photographing a colour chart, consisting of pieces of coloured paper, under varying conditions. He used the silver eoside plate, first suggested by him, but with this could only estimate actually the blue and yellowish-green action, and was limited to the statement of the order of the colours according to the intensity with which they appeared on the plate. His numerous observations, which were partly made at sea-level and partly on the tops of mountains under manifold meteorological conditions, gave a series of important conclusions on the actinic variability of daylight. Thus he was enabled to state "that without exception the action of the blue of diffused sky light appreciably increased after sunset."⁵

The question of the variability of daylight has become of considerable importance since the discovery of new dyes, and the consequent improvement of the colour sensitiveness of dry plates has given a new impetus to trichromatic photography. In this, one of the most important factors for correct colour reproduction is the correct ratio of exposures behind the three filters, and really this ratio must be kept with much greater accuracy than the correct exposure in ordinary monochrome photography. From this it is obvious that with altered composition of daylight the reproduction of the colours must suffer considerably when the exposures given are according to the filter ratios of normal daylight.

Variations in Exposure-Ratios of Filters.

In order to give some idea of the amount of difference, the following examples may be mentioned. In clear weather and bright equal light on July 20, 1904, the ratio of exposures behind a set of additive filters of Meister, Lucius, and Brüning was estimated at blue: green: orange=1:4:17, whilst with the same ratio on July 22 the blue was so strongly over-exposed and the orange so much under-exposed that the density was photometrically measured, with the result that the ratio of the densities were, blue: green: orange=0.17:0.026:0.032. The result was that to obtain equal densities of 0.17 a ratio of 1:5.8:24.3 should have been given; that is to say, that the green exposure should have been 45 per cent., and the orange 43 per cent.

more. In other words, the green and orange actinism of the daylight had sunk to about two-thirds of the normal.

From such experiments it is clear, on the one hand, that the estimation of filter exposures by daylight must be beset with great inaccuracies; and it follows, on the other hand, that a definite opinion on the amount of the variations that occur may be obtained by exposing at different times. We have made a series of observations on this point, which, however, up to the present, are only few in number, because the time of the year prevents a continuation of the experiments, and, moreover, the experiments have proved that the differences which have been found can only be partly ascribed to the variability of the actinism of daylight.

The Method of Testing.

Our experiments were carried out to approximate as far as possible with practical work. A sheet of white paper was photographed with a three-colour camera with vertical shifting of the filter-holder, the size being 6½ by 18 cm. The distance between apparatus and paper was in all cases approximately 1 metre; the times of exposure were always 3:9:27 seconds, and care was taken, by suitably stopping down the lens, to obtain in a 5 per cent. edinol developer, with 45 seconds development, a medium density corresponding to the half-tones of a normal negative. By a simple arrangement, we were able to make two exposures, with characteristic differences, on the one plate. The difference between our exposures was generally less than might usually occur, as they were all made on the east of the Hanover Technical High School; some in a room so well lighted as to be similar to a studio, others in a verandah in the open air.

The filters are best described by their transmission of the spectrum, and with an arc lamp and a pocket spectroscope, it was found that the following regions were transmitted:—

Blue	...	...	...	λ 410 — 490.
Green	...	...	...	λ 505 — 580.
Orange	...	...	...	λ 570 — 725.

In the following tables we give some excerpts from our experiments:—

TABLE I.

Date.	Time.	Place.	Weather.	Relative Density.		Exposure Ratio.
				Blue : Green : Orange.		
				Measured.	Calculated for Blue = 1	
27/10/04	a.m. 11	In open	{ Sun, clear, bright day }	0.388:0.390:0.392	1.0:0.98:1.01	1:3.2:8.8
27/10/04	a.m. 11.10	In room	In shade	0.359:0.273:0.300	1.0:0.76:0.83	1:5.6:14.0

Conclusions:—All the conditions being kept equal, the exposure in the shade shows a relatively stronger decrease in the actinism of the orange and green than of the blue.

TABLE II.

Date.	Time.	Place.	Weather.	Relative Density.			Exposure Ratio.
				Blue : Green : Orange.			
				Measure.	Calculated for Blue = 1.		
16/11/04	a.m. 11.45	In open	{ Clear, sunny aut'mn day In shade	0.455:0.472:0.473	1.0:1.04:1.04	1:2.7:8.1	
16/11/04	p.m. 3.50	In open		0.718:0.642:0.644	1.0:0.89:0.90	1:4.0:11.7	

Conclusions:—The extraordinary inequality of the exposures in the open produced a considerable deficiency of green and orange action with decreasing actinism.

¹ Ber. Berl. Akad., 1880, p. 801.

² Compt. Rend., 109, p. 493, 1889.

³ Wied. Ann., 53, p. 793, 1894.

⁴ Handbuch d. Phot., 4th edit., 1894, vol. 2, pp. 256, &c.

⁵ Loc. cit., p. 266.

TABLE III.

Date.	Time.	Place.	Weather.	Relative Density.		Exposure Ratio.
				Blue : Green : Orange.		
				Measured.	Calculated for Blue = 1.	
15/11/04	a.m. 10.45	In room	{ Clear, bright	0.864 : 0.828 : 0.863	1.0 : 0.96 : 1.0	1 : 3.3 : 9.0
17/11/04	a.m. 10.30	In room	{ Dull, cloudy	0.263 : 0.210 : 0.177	1.0 : 0.80 : 0.67	1 : 5.1 : 21.3

Conclusions :—Under equal conditions of exposure in clear and very cloudy weather at the same time of day, a strong reduction of the green, and a still stronger reduction of the orange, is shown.

As regards these three tables, it should be noted that the values in each are rigidly comparable, as the two exposures were made on the same plate.

The numbers in the last column show what should have been the ratio of exposures in order to obtain an equal density of 1 behind all three filters, instead of 1 : 3 : 9, which was used. The authors proceed to discuss the ratio between exposure and density, and promise further communications, and state that the general assumption that the density is directly proportional to the time of exposure does not hold good for three-colour work.

Development as a Factor in Colour Records.

Attention is directed to the influence of the duration of development, and, as was pointed out by H. W. Vogel, the yellowish-green sen-

sitiveness is only correctly represented with a sufficiently long development, and this also applies to plates suitable for trichromatic work, though not to the same extent; on the other hand, the colour differences are lessened as the maximum density is approached.

A much more elaborate table is given by the authors, which merely emphasises the differences shown in those already given, and they come to the conclusion that the diminution of the actinism of the green and red rays may amount to as much as 100 per cent., and that any conclusive results can only be obtained by daily experiments.

Seebeck's original statement that in the evening the more refrangible rays are the first to disappear is shown to be erroneous, and this is due merely to the low sensitiveness of the retina to blue and violet, and this has been shown to be so by Helmholtz and König.

Variable Actinism of Arc Light.

In another paper the authors also consider the change in the actinic power of the arc light with increasing watts, using the same screens as mentioned in the first part of the paper, and give a table from which we abstract but three readings :—

Watts.	Blue.	Green.	Orange.
400	1.0	1.01	0.84
700	1.0	0.72	0.68
1,900	1.0	0.68	0.64

The results obtained by the authors open up a wide field of speculation, and are of considerable interest to three-colour workers generally.

THE CAPACITY OF DIFFERENT PRINTING PROCESSES FOR RENDERING GRADATION.*

III.

Characteristics of Carbon.

The general character of the process seems to be that the detail in the higher lights is robust owing to the absence of any abnormal falling off, such as I have described in speaking of P.O.P., while in the shadows contrast is well maintained almost to the last gradation. There is, however, little of the flattening already described, owing no doubt to the light having to penetrate more and more of the opaque tissue the greater the depth of shadow.

To some extent its characteristics must vary with the opacity or covering power of the pigment used, and the quantity of it in the tissue. I have used in my experiments black tissue, but for comparison have also tried sea-green and terra-cotta without finding any important difference in gradation. There is, however, the difference due to colour-contrast, the red print being of course distinctly lighter in tone throughout.

It is generally understood that for carbon printing with a normal 4 or 5 per cent. bath, a "plucky" negative is required, yet it seems that the range of gradation and steepness is much the same as P.O.P. I think the need for a contrasty negative is due to the very vigorous rendering of detail in the lights, necessitating a corresponding vigour in the shadows; that is to say, the negative should employ a large part of the available gradation, otherwise the print may appear flat owing to the comparative strength of the detail.

Non-transfer Processes.

The direct printing pigment processes, gum-bichromate, artigue, and its congeners, do not properly come within the scope of my paper, because I assume that they are seldom, if ever, used by their devotees without some artificial interference with the gradation. I would only remark that the depth of shadow will depend largely on the

amount of pigment used in preparing the coating, and the purity of the lights on the kind of paper used.

I have prepared two kinds of paper, one a glazed writing paper, the other a rather rough open-textured paper, using a fairly opaque coating. The development was unassisted in cold water, and the gradation appears to be very short, only about 1 to 5 or 6. On a part of the paper I have used abrasion, and it will be seen that the smooth paper gives a clearer high-light than the rough. (Since this was written, I have seen a print on a commercial paper of this class in which the lights were quite pure. The character of the print seemed to indicate a very short, steep gradation.)

Platinum Printing.

I have tested the three brands of platinum paper most used in this country. All these are development papers for use with cold solutions. They have a good range of gradation, but one in particular has the longest range of any daylight printing process, and this particular paper should be specially useful when a negative of unusual "pluck" is to be dealt with. With average negatives there is little to choose between the three, although the prints will differ slightly in contrast according to the paper used.

It is usual to say that "you want a plucky negative for platinum printing." The reason lies in the uniform character of the gradation. From the faintest stain up to the fullest black the steps go up at a steady increase. There is no falling away in the lights, no softening down in the shadows, as there is neither discoloured film to act as a screen during exposure, nor degradation in fixing. Hence every tone in the negative is rendered in its true value, and as the deepest shadow is a deep pure black, a very long range of tones is available which a flat or thin negative cannot fully employ. Hot development, although it decreases the exposure necessary, does not increase the number of

* The previous portions of this article appeared March 10 and 17.

gradations rendered. It warms the colour, and I think slightly adds to the "pluck" of the print.

Gradation with Platinum.

It is a peculiarity of platinum papers that when the maximum depth they are capable of rendering has been reached, a sort of reversal sets in, so that the shadows actually grow lighter with prolonged printing; this of course can only happen when the negative has too much contrast for printing by this process. That, however, is almost the same thing as saying it is too dense for anything. The gradations rendered vary from about the same as P.O.P., 1 to 128, to 1 to 400, which is several tints more than any P.O.P.

Choice among Daylight Processes.

In dealing with these daylight processes my aim has been to find their extreme limits. Probably in actual practice these limits are seldom used to their full extent, but I hope I have made it clear that even with negatives which do not call for the full range of tones the paper is capable of giving, there is considerable choice in the character of the print. There is of course no control, except in the case of carbon, and the only way to change the character of the print is to use a different make of paper. How great the control is in this sense may be seen in the examples I have made. All are from the same negative—one having a range of from 1 to 40.

Contact Printing by Artificial Light.

Coming now to processes used with artificial light, such as bromide paper, we meet with new conditions, as the gradations of these papers vary according to the treatment they receive as regards exposure and development. My first experiments were made with a view to finding the range of tints obtainable when development is pushed to its full extent. The range of gradation attributed to bromide papers by even recent writers is as low as 1 to 16, and it was a surprise to me when my first experiment yielded gradation far exceeding that. Fearing that after all my screens were at fault, I tried a new tack, and made graduated exposures direct to the light by means of a dark slide. Leaving a strip unexposed, exposures of 1, 2, 4, 16, 32, 48, and 64 seconds were given to successive strips of the same sheet, and on development the result was as follows: all these gradations are clearly rendered as far as 48 seconds, and even the difference between 48 and 64 is distinguishable, although possibly not to a useful extent. As it is evident from the strength of the 1-second strip that $\frac{1}{2}$ second would have given a useful tint, the paper is capable of printing from a negative having a gradation 1 to at least 96 without loss of detail in either lights or shadows, and with care it would go as far as 1 to 128. This is one of the latest papers placed on the market, and no doubt embodies the latest improvements in manufacture, but there are others which show quite as great a range. On the other hand there are papers giving a much shorter scale, and these are suitable for thinner negatives.

The Different Conditions in Enlarging.

It must be noted that I am dealing only with contact printing. When these papers are used for enlarging, the optical conditions are such that the negative is practically intensified, its half-tones and high lights becoming much more opaque in comparison with the shadows than when it is used in contact with the paper, and the greater the enlargement the greater the intensification. It seems to me that ignorance or neglect of this peculiarity is largely to blame for the gloomy aspect of our exhibitions these last few years since enlarging became the fashion. It is hopeless to expect that a negative of the proper contrast for P.O.P. will yield a good enlargement on bromide paper, for in the attempt to get detail in the lights the shadows will be overdone, and the result will be one of these pro-

ductions seemingly taken "twixt the gloaming and the mirk," which are only too familiar.

Time has not permitted me to experiment with the enlarging value of negatives, but I do not think the gradation should exceed 1 to about 16 (contact value). Such a negative would not be useful for printing-out, but it could be used in contact with gaslight papers, also some bromide papers with proper treatment in exposure and development.

Bromide Papers Contact-Printed.

Returning to contact printing, I may first compare bromide papers in a general way with P.O.P. and the other processes already dealt with. We are accustomed to call bromide prints black and white, but when compared with P.O.P. the black appears but a grey, and as a matter of fact the scale of gradation is not so steep as one would expect. The matt surface which most of these papers possess no doubt produces greyness to some extent, partly by permitting scattering of light, but also by virtue of the starch which I understand is introduced into the emulsion for the purpose of creating a dull surface, and which no doubt dilutes the black of the silver. Further than this, however, it can be seen from the example of glossy bromide that the silver itself is rather grey as compared with P.O.P. or black carbon.

The Range of Gradation-Ranges.

In testing these papers I have used as a normal developer two grains of amidol in each ounce of 5 per cent. sodium sulphite, with two drops of 10 per cent. potass bromide to ensure absence of fog. This developer is sufficiently concentrated to give the deepest black the paper is capable of producing, and the amount of bromide is too small to affect the gradation.

Under these conditions when development is carried to the point at which all further action ceases, the majority of the papers I have tried give seventeen tints, equalling a range of gradation in the negative of 1 to 128; one gives a very short range, fourteen tints, equalling 1 to 48 (that is one of the older brands); another gives fifteen tints, equalling 1 to 64; and another sixteen tints, equalling 1 to 96.

How Contrast Falls Off.

Thus it appears that most of them are quite capable of dealing with negatives of normal contrast, such as are suited for P.O.P. It has to be noted, however, that bromide paper is subject to rapid falling off in contrast towards the ends of the scale even to a greater extent than P.O.P., and it is doubtful if some of the tints at the ends would be distinguishable from each other if scattered about as in a print.

The falling off in contrast is due to a different cause from those described in speaking of P.O.P. It must be remembered that bromide paper, like bromide plates, has periods of under, correct, and over-exposure. In the high lights the conditions are those of under-exposure producing rapid falling off in contrast; in the middle tones, which form the really useful part of the scale, there is the period of correct exposure, characterised by regular increases of opacity; in the shadows the period of over-exposure appears with its characteristic falling off in contrast so that the last few tones are hardly distinguishable. Modification of the developer, leading to incomplete development, alters the scale considerably. A weakened, that is to say a diluted, developer lengthens the scale, provided, of course, development is not continued too long, for ultimately even a dilute developer would give the same reduction as a strong one. By dilute I mean double to three times the quantity of water, and under these circumstances I find the scale lengthened to eighteen tints, equalling a negative of 1 to 160. Great dilution—ten to twelve times the water—leads to a condition which Winthrop

Somerville describes as incomplete reduction of the silver. Possibly the image then consists partly of Carey Lea's photo-bromide. However that may be, the range of gradation is very great, as may be seen in Nos. 8 and 9. The colour, however, is very bad—a sort of whitish-brown. By reducing it to haloid and redeveloping with a strong developer, the colour is improved to grey, but the scale remains very flat.

Alterations in Gradation.

The very remarkable influence of chromic acid or a bichromate on gradation calls for notice. In this country it was first described by Mr. John Sterry, but I believe the discovery is claimed by the Italian Professor Namias. Exposure is given sufficient for the highest light, and by treatment with very dilute chromic acid or bichromate solution previous to development the over-exposure of the shadows is corrected. I have made examples of long exposures behind my screen, one developed normally, the other treated with 1/1,000 chromic acid for two minutes. The first, of course, shows the normal number of tints for the paper, followed by long tracts of uniform black; the second shows gradation throughout, indicating that it could print from a negative of gradation reaching to thousands—far beyond the possible gradation of any ordinary plate. In preparing these examples I have continued the action of the chromic acid too long, thus losing one or two tints in the lights, but with proper adjustment that would not happen.

Excess of bromide in the developer shortens the scale considerably, but as in the case of plates it must be present from the beginning. Example Nos. 7 and 15 show that, even with amidol, two grains per ounce of bromide shortens the scale two or three tints, thus enabling a thinner negative to be used. With a harder working developer, such as hydrokinone, of course the shortening would be greater still, but it must be remembered that there is a limit to the permissible quantity of bromide, as the colour of the image becomes disagreeable when over-restrained. The composition of some developers used for bromide papers rather puzzles me. The idea seems to be to add alkali to make it strong, and then bromide to make it weak. A developer such as amidol, which will work cleanly with little or no bromide, seems more rational, and avoids any shortening of the scale.

Exposure and Gradation.

The time of exposure influences the character of the gradation. Long exposure flattens the print by fully exposing the lights and giving full detail, while it over-exposes the shadows, causing them to decrease in contrast. Short exposure allows full contrast in the shadows, but loses detail in the lights. The distance of the light or strength of the light has also an influence. Powerful illumination reduces the effect of under-exposure in the high lights and increases the over-exposure in the shadows, while weak illumination has the opposite effect. Two samples will describe this better than words. They had equivalent exposures at 2 and 6 feet from the light, and while the number of tints is equal, the difference in character is quite clear.

"Gaslight" Papers.

Lastly come the gaslight papers which have become so popular in recent years. As originally introduced these papers had an extremely short and steep range of gradation requiring thin negatives and necessitating great care in exposure to avoid exaggerated contrast. Such papers are still in the market, and have their uses, but other varieties with a longer scale have been introduced, suitable for negatives of moderate gradation. Amongst the recent introductions I find one which equals in this respect some of the older bromide papers. The difference in character of the various makes of these papers is enor-

mous, and the photographer who does much printing on this medium would do well to have several different brands at his disposal to suit different styles of negative.

Amongst the brands I have tested there are papers giving gradations 1 to 8, 1 to 16, 1 to 25, and one of recent introduction, 1 to 64, which equals a slow bromide. These are the gradations of negatives most suitable for the brands of paper, but that is not to say that negatives of longer scale cannot be printed on them. They can be dealt with by giving full exposure and using a somewhat diluted developer, but as it is necessary to use the whole scale of tones in order to bring out detail in the lights, the print will be too harsh in contrast. Longer exposure which would bring out the detail at an earlier stage would tend to block up the shadows, while greater dilution of the developer, although it would give a softer result, would injure the colour. On the other hand, a negative within the proper capacity of the paper will give a soft or a brilliant print at will according to the duration of development and the amount of exposure while retaining the pure greys and blacks which are characteristic of the process. Thus, in one example, my 1 to 40 negative is printed on a 1 to 8 paper, with the result that the print is undesirably "brilliant." A print showing the result of over-development in giving dense and inky shadows is very easy to achieve by the use of a rapid developer. Bromide cannot be used to slow development, as it spoils the colour, nor can dilution be resorted to unless a warmer tone is desired. Prolonged exposure followed by very dilute and restrained development gives warm colours owing to incomplete reduction of the silver, probably with formation of photo-chloride.

Development with excess of bromide and carbonate of ammonia to obtain red tones shortens the scale, but the colour contrast is small, tending to give a flat print.

The Negative and the Printing Process.

A few words as to the means of suiting negatives to processes must conclude my paper. We have been told by Messrs. Hurter and Driffield that to obtain equal degrees of contrast all plates must be developed for an equal time at an equal temperature, but the temperature is just the difficulty, as few of us have facilities for regulating this factor. Mr. Watkins by his factorial system of development overcomes the temperature difficulty, provided exposure is reasonably correct, but in the case of varying exposures factorial and time development give different results. That, of course, need not matter to users of the factorial method, as its author supplies the means of ensuring correct exposure.

I do not think, however, that these methods of development by rule will ever appeal to the great majority of those who use photography as a pastime. There is an interest and fascination about "working up" a negative during development which will always appeal to most of them, whether they really control the result or not—they will continue to believe that they do.

Correct Exposure v. Development.

Personally I have long ceased to believe in the efficacy of "tentative development," believing that the character of the negative is governed by the exposure given to the plate and the time allowed for development. I do not overlook the effect of restrainers or of dilution, but I contend that the necessity for either must be known before the developer is applied to the plate.

The learner in photography would do well to spend less time in the dark room practising the art of "tinkering the developer," and more time at the fireside studying the factors that govern exposure. Having acquired the art of exposing correctly, he may "tinker" as he likes, and he will probably get a good negative just as he would have done had he developed straight away.

The great point is to so expose that the contrast required by the printing process in view will be secured without having an unduly dense or thin negative.

The Latitude of Modern Rapid Plates.

Uniformity of working conditions will greatly aid in attaining the art of stopping development at the proper stage. There seems to be little need for using different kinds of plate nowadays, as plates of great rapidity have now as much "latitude" as any one need desire. As a matter of fact, amongst the plates I tested for range of gradation, that one which gave the greatest range and therefore the greatest latitude in exposure was also one of the most rapid in the market. Therefore it is better to find a plate that pleases you and use no other. Knowing its characteristics, you will then know when it is "dense" enough. There is no need to try every developer you hear of. That sort of work you may do as an experiment, but when you want negatives use one formula which you have found to suit your plate.

Then as to temperature, although it is admittedly difficult to regulate this factor, extremes can usually be, and should be, avoided, as the influence on results is great.

The dark-room lamp is another factor which should be regular, as

with a varying amount of light judgment of density is apt to be faulty.

Stain as a Disturbing Factor in Negative Making.

Another very important factor is pyro-stain or developer stain of any kind. I do not refer to general stain, affecting the shadows—careful worker will have that to contend with; but I refer to the graduated organic image deposited along with the silver, and in something like the same ratio. This must have a very disturbing influence on the printing value of the negative, as may be seen in examples I have made. They are plates exposed in graduated strips and developed in pyro-soda without sulphite. The silver having been dissolved out, it is possible to obtain quite a respectable print from the pyro-image. The extent to which this stain exists depends entirely on the amount of sulphite present in the developer, and as the sulphite in a stock solution is constantly decreasing by oxidation, the amount of stain will increase with the age of the solution. I am quite aware that many workers consider this stain desirable, but it is hardly under control, and I think that when uniform negatives are aimed at it would be better to depend on silver alone for density, and to use a freshly prepared developer, or one of non-staining character.

WILLIAM GOODWIN.

THE COLOURATION OF GLASS BY NATURAL SOLAR AND OTHER RADIATIONS.

[A Paper read before the Royal Society.]

It is well known that many samples of colourless glass containing manganese slowly assume a violet tint when exposed to sunlight. This effect is frequently seen in plate-glass windows having a southern aspect; watched from year to year they assume a more and more pronounced amethystine hue. The introduction of manganese into glass is to neutralise the colour caused by the presence of iron. Iron gives the glass a greenish tint, and the addition of manganese binoxide performs the double object of oxidising the green protosalt of iron to the persalt, and also of imparting a purple shade which neutralises the green-yellow tint of the silicate of peroxide of iron.

Violet Discolouration of Glass.

In 1903, I received from two separate correspondents specimens of glass coloured an intense purple. I quote the following sentences from the covering letters:—

Mr. A. Ernest Williams writes:—

"While residing at Uyuni in Bolivia last year, at an altitude of nearly 4,000 metres, my attention was called to the fact that all transparent white glass when thrown out on the 'Pampa' in a short time assumes a violet hue, which becomes more marked with time. I was told that all specimens were thus affected, and that when taken to sea level at Antofagasta they lost their colour. This latter statement I hardly believe, as I have had some pieces with me now on low level for nearly a year, and they have not lost the colour.

"I now notice that all transparent white glass thrown on rubbish heaps, even at low level, assumes this violet colour, though only to a slight degree, and I am curious to know the cause, being more interested since reading that radium so affects glass.

"I may mention that Uyuni is situated on the great central plain of Bolivia, which plain has evidently formed the bed of an inland sea or lake, for I have found quantities of minute shells there. Not far off to the S. and S.W. are borax fields, and still further west, nitrate. To the N.E. are the mountains of Pulacayo and Cuzco (not the great Cuzco), and electrical disturbances are of almost daily occurrence. I can fully confirm Sir Martin Conway's description

of the battles between the mountains, where lateral discharges are plainly visible. I am sending you by post a small specimen of the glass."

About the same time I received some specimens of purple coloured glass from Mr. Thomas Wilson, from Iquique, Chile. In a subsequent letter answering some inquiries, he sent a further quantity of the coloured glass, saying:—

"You will notice a great variety in the depth or degree of tint in the different pieces, which may be attributable to the varied length of the exposure of each to the action of the sun's rays. It seems to me that some of the pieces have lost somewhat of their depth of colour since I picked them up, but this may be an impression only. The two pieces forming together the bottom of a broken tumbler, and which have a deeper tint than any of the rest, were found about twenty paces apart in an old Oficina that had been uninhabited for twenty-seven years. It is impossible to give any idea of the length of exposure of the remaining pieces to the sun's rays, as I have obtained them from all parts of the Pampa over an extent of nearly 100 miles. The samples I send you were originally white glass, and although an abundance of glass of various colours are to be found, yet I send you none, as it would not be easy to say what their original colours had been previous to exposure."

The Action of Light of Short Wave-Length.

The pieces of glass referred to above are of all depths of tint, from deep violet, almost black in thick pieces, to pale amethyst. Analysis shows the glass to contain manganese. Heating the glass in a covered crucible to its softening point, discharges the colour, leaving the glass white and transparent.

The colouration is not superficial. On immersing a piece of a coloured glass in a liquid of about the same refractive index as itself, the colour is seen to have penetrated throughout the mass.

At first sight the explanation of this phenomenon would seem to be that it is produced by the action of light, the intense radiation occasioning a re-arrangement of the oxygen molecules in the glass,

the ferric salt becoming ferrous, and the manganous salt changing to a manganic compound.* The change of colour might then be expected to be noticed in any part of the world where broken glass is thrown about and the sun's rays are very intense. In the Transvaal, where both these conditions are well fulfilled, I have neither heard of nor noticed any such colouration, and it would be interesting to hear if travellers in other tropical countries have observed any such change of colour of glass.

Probably height above sea level has much to do with the phenomenon. At a height of 4,000 metres nearly half the atmosphere is beneath one's feet, and that which remains will allow rays of shorter wave-length to pass through than the atmosphere at sea level will transmit.

An Alternative Explanation.

For this reason it is not necessary to invoke another mode of explanation that might possibly suggest itself. It now has been well established that many natural bodies, water from great depths, some samples of earth and rock, air from underground sources, together with some minerals, are more or less radio-active. Radium, acting for a few days, even though quartz, will produce as intense a colouration in a piece of this glass as exposure to the sun on the Pampas has taken years to effect. It is hardly conceivable that there can be a special radio-activity of the soil in certain parts of Chile and Bolivia sufficiently powerful to produce the effect.

A piece of the coloured glass, bleached by heat, was put close to a quartz tube in which about 15 m.grams. of pure radium bromide was sealed up. In the course of a few hours a faint amethystine tint could be distinguished on the glass, and in a week the tint was equal to the deep colour of the unbleached specimen. A duplicate piece of the same glass which had been bleached by heat, kept away from radium, has remained colourless for seven weeks.

A piece of the deepest purple coloured glass was put on a sensitive photographic film, and kept in the dark in contact with it for thirty-four days. No trace of action could be detected on developing.

The purple glass which had been bleached by heat and then coloured purple again by radium, was put in close contact with a sensitive film for twenty-four hours. On developing, no trace of action could be seen.

Darkening by Radium.

The darkening effect produced by radium on bodies exposed to its emanations is very general. Quartz, mica, glass of all kinds, and the

diamond may be specially mentioned. In a paper recently read before the Royal Society "On the Action of Radium Emanations on Diamond" (Roy. Soc. Proc., June, 1904, vol. lxxiv., p. 47; and "Chemical News," 1904, vol. xc., p. 1), I showed that the β -rays (electrons, and γ -rays not only effected a superficial darkening, converting the surface of the diamond into graphite, but the body colour of the stone was changed from pale yellowish brown to bluish-green; and I suggested the explanation that the action might be chemical, the ferric state of the iron being reduced to the ferrous state, and the colour thereby changing from yellow to blue-green.

Photographic Experiments.

In the year 1855, I tried a series of experiments with a spectrum camera furnished with two quartz prisms and a quartz lens, with the object of ascertaining if the atmosphere exerted any absorptive action on the more refrangible rays of light. Photographs of the solar spectrum were found to reveal lines of higher and higher refrangibility the nearer they were taken to midday; and, arguing from this, I concluded that the "noon-day spectrum at midsummer ought to contain more and higher rays than are possessed by the corresponding spectra at any other time of the year." The examination of the photographed spectra was continued through the summer, photographs being taken at noon whenever the sun was clear, and I found that "as the light came less obliquely through the atmosphere, new rays began to be apparent; until at midsummer, when the sun was on the meridian, I succeeded in obtaining evidence of the existence of rays which the most prolonged exposure failed to detect at any other time."

I may perhaps be pardoned for quoting from my paper on the subject the following passage, written fifty years ago ("Journal of the Photographic Society of London," vol. ii., p. 293):—

"Some curious speculations arise from these facts. Should we be able, by working under a vertical sun, and with every advantage of cloudless sky, etc., to increase still more the length of our spectrum? Can we attain the limit of solar refrangible rays in this direction? Or is it not more likely that there are emanating from the sun torrents of rays which never approach the earth—rays which, beating against the upper stratum of the atmosphere, are themselves destroyed, but whose vibrative energy is transmitted to us with increased wave-length and lowered refrangibility, in the form of heat or light?"

Sunlight and radium both produce similar effects in these respects. Their modes of action are known to be in the main very different; but it has been clearly shown that, in general, variation of time being disregarded, what radium is capable of doing in the way of inducing chemical change, ionising gases, producing phosphorescence, and impressing a photographic plate, sunlight will also effect.

WILLIAM CROOKES, D.Sc., F.R.S.

* In this connection it may be of interest to recall the fact that in the early days of photographic research the ultra-violet rays of the spectrum were called the "oxidising rays."

A LECTURE on Plant Photography.—In a lecture by Mrs. Dukin-Beld H. Scott at the Athenæum, Richmond, on Monday evening last, on "The Movements of Plants," the many fascinating subjects in the plant world possible to the cinematograph were discussed. If photographs of a germinating seed were taken by the cinematograph at regular intervals during many days until the seed had germinated and sent up its seed leaves, the photographs could be thrown on the screen and spectators could see the earth raised up by the swelling seed, the seed-coat thrown off, the seed leaves emerge, straighten themselves out, and then the first leaves burst forth. The lecturer's first experiments were made with a film cinematograph, but there were defects, as the celluloid film would not stand the damp of the greenhouse. More successful were her experiments with the kammatograph, in which the photographs are taken on a glass disc instead of a film. The disc, 12 inches in diameter, was suspended in a metal ring; it was coated with a sensitive emulsion, just like any

ordinary photographic plate, from which it only differs in size, and was capable of taking 350 photographs. When ready for use, the disc was put into the machine, which was light-proof, and by means of a handle at the side could be rotated, so that every part of the plate was exposed before the small oblong opening in front of the lens and the photographs appeared in a spiral on the disc. In many stages of the process a photograph taken once every quarter of an hour was found sufficient. The practical difficulties in this kind of photography were explained by the lecturer, who showed on the screen some very beautiful examples of her work with the *sparmannia africana*, the weather plant, and the sensitive plant (*mimosa sensitiva*). Mrs. Scott apologised for some imperfections in the photographs, but after three years' work she had only eight successful plates. Her hope was that in course of time the machine might be made automatic, so that the photographs could be taken at night as well as by day.

PRINTING PROOFS IN BROMIDE.

WHEN only one print has to be made from each of several negatives, much time and paper may be wasted, even by the experienced printer, through errors in exposure, although the density of the negatives may be fairly alike; and, of course, still more will be lost when there are great differences in the densities of the plates. Mr. Harold Baker, writing in "Photographic Scraps," says:—

"No doubt waste may be prevented by cutting a sheet of paper into strips and making a trial exposure, but this is a 'counsel of perfection' to which few will attain, except, perhaps, when working large sizes. Another objection is that such a method takes more time."

A Preventative of Waste.

A good plan is to have two dishes of developer, one normal, of say a mixture of hydroquinone and metol, and the other containing a developer of metol only. When about to print, each negative should be carefully examined for density, not forgetting colour also, as a slight yellow stain has far more light-stopping power by artificial light than by daylight. If the negative is hard, or dense, or yellow, the exposure must be long, and development should be begun in the dish containing metol developer only.

If the image should flash up very quickly or show signs of being too flat, the print should at once be removed from the metol and be placed, without washing, in the dish of mixed developer, with a good rocking to wash out any metol developer remaining in the print. Beautiful vigorous prints with good half-tones may be secured in this way.

Negatives of Different Densities.

If the next negative has only a little more than the average density, the exposed paper should be placed in the mixed developer first, and be removed to the metol when the stage is reached at which development appears to cease. This stage will vary with different negatives and different exposures.

With some, the print may have to remain in the mixed developer until development is almost complete, being transferred to the metol to bring up the delicate tones; with others the print may need removal to the metol soon after development has begun.

It may sometimes be necessary to return the print to the dish of mixed developer before it is quite finished, if it shows signs of becoming too flat when in the metol.

No doubt all this appears troublesome, but it is not really so; and the method will often give excellent results from negatives which will not yield good prints in any other way.

Prints of Bad Colour.

I have been troubled during very cold weather by getting dirty green prints, and for a time was at a loss to account for this, until I remembered that such failures always follow on the presence of an excess of restrainer in the developer, and that cold has a powerfully retardive effect on chemical action, so that we are always recommended to use more restrainer in hot weather.

I at once reduced the amount of bromide in the developer from six drams to four, and have since had no more green prints.

Warm Developer.

I have tried, in extremely cold weather, the effect of slightly warming the developer, but if the warming is sufficient to be perceptible to the fingers, the prints are covered with patches and streaks of tiny white spots, due to small air-bells clinging to the paper.

A friend once showed me such a print which he was going to send back to the maker as bad paper, but I at once said, "You used warm developer," and he admitted that he had.

Obtaining the Best Prints.

I believe many bromide prints suffer from over-exposure and too short development. I do not think that a print should be so exposed, that at a given second it must be snatched from the developer, lest it be too dark.

In my opinion, the best prints are those which have been so exposed that they may remain in the developer some ten or twenty seconds after development appears complete, without any further apparent change taking place from the longer time.

The blacks are richer with more shadow detail, and the delicate tones are clear and full of modelling.

On the other hand, a print that has to be snatched out is apt to show rusty blacks and clogged shadows, while the delicate tones are flat and muddy.

The experience of other workers may lead them to a different conclusion, but my views are founded on my experience of printing portraits where great delicacy in the tones is essential.

I am not yet decided whether the same holds good when developing enlargements.

FOREIGN NOTES AND NEWS.

The Development of P.O.P.

THE development of collodio and gelatine chloride papers has been known for many years, but there has always been wanting a process which would give any desired tone by development alone and without the necessity of subsequent toning and fixing. Now in the "Revue de Photographie," Herr Schweitzer suggests the following method for obtaining various tones, these being also, to some extent, dependent on the exposure of the paper. If the paper is exposed till only the deep shadows are printed faintly, weak contrasts and greenish, black, or bluish tones are obtained. If the shadows are printed out, brown or purplish hues are the result; whereas if the image is fully printed out, reddish tones are obtained. The solutions are:—

A.
Saturated solution potassium bichromate.

B.
Pyrogallol 1.5 g.
Water 1,000 ccs.

		C.
Citric acid	20 g.	
Water	100 ccs.	
For use, mix as follows:—		
Greenish tones.		
Solution A	3 drops.	
Water	25 ccs.	
Increase of A produces greener tones.		
Blue-black tones.		
Solution A	1.2 drops.	
Solution C	5 drops.	
Water	25 ccs.	
Brownish-red Tones.		
Solution A	1 drop.	
Solution C	1 cc.	
Water	25 ccs.	
Plum-green Tones.		
Solution A	3 drops.	
Solution C	8 drops.	
Water	25 ccs.	
Cherry-red Tones.		
Solution A	1 drop.	
Solution C	3 ccs.	
Water	25 ccs.	

The prints should be immersed without washing in the desired bath for from 5 to 10 seconds, only then immersed in the pyrogallol solution, and when completely developed immersed in a 10 per cent. solution of sodium sulphite till the colour of the bichromate is discharged, and then fixed and washed.

In a recent number of the "Papier Zeitung," Dr. Lux gives the following formulæ for preparing the well-known ferro-prussiate paper, which do not differ from existing formulæ, except that he gives the exact quantity of sensitiser for a given area. For a very hard, smooth-surfaced, wood-pulp paper the following is recommended:—

Green ammonio-citrate of iron...	1,000 g.
Water	2,000 ccs.
Potassium ferriyanide	333 g.
Water	1,000 ccs.
Dextrine	100 g.
Water	1,000 ccs.
Potassium bichromate	1 g.
Water	10 ccs.

The dextrine is used to obtain sufficient sensitising solution on the surface, and the bichromate makes it insoluble. The above quantity of solution is the correct quantity for from 500 to 600 sq. cm. For very soft paper, with plenty of linen, the sensitiser should be:—

Green ammonio-citrate	1,000 g.
Water	2,000 ccs.
Potassium ferriyanide	333 g.
Water	6,000 ccs.

Papers prepared with these solutions will keep for a month; if 10 g. of oxalic acid be added a more sensitive surface is obtained, but the papers do not keep so long.

Photo-Mechanical Notes.

THE EXHIBITION OF PROCESS-ENGRAVING AT SOUTH KENSINGTON.

II.

ANOTHER careful survey of the exhibition convinces us that the really interesting part of the show lies in the historical section. The modern work is of almost uniform excellence, an excellence apparently produced by the same or similar methods. Thus in photogravure every firm's work would seem to be produced by the Talbot Klic method, and with the exception of the fine machine-printed plates shown by The Rembrandt Photogravure Company, which will bear comparison with many of the hand-printed proofs shown, and the rather flat intaglio half-tones shown as Meisengravure, there are no novelties in the photogravure work. It is remarkable that more work is not turned out machine printed. We believe this is perfectly feasible as we have been shown such proofs from ordinary photogravure plates without any mechanical grain that would be difficult to distinguish from hand-proved plates, and this ought to make small editions of small plates considerably more popular.

The English photogravure work will certainly bear comparison with the foreign both for size and quality; indeed, we fancy that the coloured photogravure of Her late Majesty Queen Victoria by the Art Photogravure Company is the largest picture in the exhibition. There are a large number of coloured photogravures shown, most of them being produced by the process explained by Mr. Herbst some years ago at the R. P. S., which consists of a single photogravure plate rather heavily coated being inked up in different colours by means of little sponges or leather dabbers, and then the whole being printed at the operation. Some exceedingly dainty work of this character shown by Messrs. Manzi, Joyant et Cie. But there are shown

also, some printed from separate plates, notably one from Messrs. Chauvet et Cie., of Paris, which shows a coloured photogravure in four printings and the single impressions in the four colours which build up the final proof. For small work one would think that this was an economical way of producing coloured photogravures for which there should be some demand, as something superior to coloured half-tones or collotypes.

Similarly in photo-lithography the historical section is the most interesting, for here we see beautiful results by all sorts of methods, the most striking being the grain work shown. All lithographers and photo-lithographic experimenters ought to see this; it might deter some of them from patenting or offering as valuable secrets obsolete processes. The novelty here is the application of the cross line screen to photo-lithography, as in Clamp and Wilbert's three colour, the Algraphy exhibit and several others, or in the large work shown by the State Printing Office of Vienna or in simplest form by the Meisenbach poster of the "Cherry Girl," a form of gigantography apparently similar to the posters produced by one or two firms of lithographers, with which we have been familiar for some time. The most remarkable photo-lithography is the work of the Polygraphisches Institute, printing from colour-selected negatives on to a bitumen-covered stone or zinc, the nature of the bitumen solution causing it to reticulate after exposure and development. Some fine flower studies are shown, and also some portraits together with the originals. A similar process is that of Messrs. Bruce and Co. We miss the fine work of Unie, in Prague, which is also a reticulating bitumen process.

There is not so much collotype work as one would have expected. Messrs. Wertherman have the principal show on the English side, with many good-sized plates, some in monochrome and some coloured. There is much coloured collotype work from abroad, in three and more colours, and collotype in combination with lithography; the Vienna State Printing Press sending a magnificent proof forty inches in width from a painting of a country lane in autumn, a collotype transferred to stone supplemented by colour printings from lithographic stones, and attention should also be paid to the magnificent facsimiles of old illuminated manuscripts by this method shown by the Berlin State Printing Office.

With regard to the remaining processes, there is not much to say, there is hardly anything connected with half-tone in the historical section, and while perhaps the largest number of exhibits are three and four-colour half-tones, there is little that is new to be seen. The English display is quite excellent, though but few firms are showing; Messrs. André and Sleigh, Hentschel Colourtype and Swain, being the most prominent. The Polytechnic show some three colours as well as "irradiation" studies; the L.C.C. School of Photo-Engraving have a conspicuous exhibit which endeavours to give some idea of the operations involved not only in three colour, but in collotype and photogravure also, showing the materials used, as well as several specimens of work executed at the school.

There are some fine four colours from Dr. Albert, and Angerer and Göschl, and a good show from Messrs. Malvaux, of Belgium, and others too numerous to mention. The American exhibit, which one would have expected to be particularly fine, does not amount to very much except for the very nice proofs of difficult subjects sent by Mr. Ives.

We understand that the Exhibition remains open for some months.

Varnish in Printing Inks.

An important point in connection with three-colour printing is the vehicle in which the colour is distributed. A powder colour is always much lighter than one mixed with a vehicle, and the higher the refractive index of the varnish or vehicle the deeper the colour, till when the refractive index is the same as that of the powder the

maximum depth is obtained. This, as pointed out in the "Zeitschrift für Reproduktionstechnik," is well seen in the case of oil and water colours; because in the former case the vehicle is not entirely volatilised, but partly oxidised to a resin. Arguing from this, it is obvious that an ink will appear less saturated and less brilliant the less vehicle it contains, or the more this evaporates or is soaked up by the paper, and therefore absorbent, quickly-drying papers never give such brilliant results as hard-surfaced papers. Inks, too, which contain a lot of turpentine give less brilliant results than those which contain much varnish. In trichromatic printing, although the three inks may be absolutely equal in saturation and brilliancy, yet that first printed will always be less brilliant than the others because its vehicle is absorbed more by the paper, and that colour printed last must always be the most saturated and brilliant because it is practically printed on a varnish formed by the other inks.

The Schumacher Vignette Stop.

The accompanying illustration shows this new half-tone stop, which has been patented by Klimsch and Co., and is reproduced from an article by Herr Mente in the current number of the "Zeitschrift für Reproduktionstechnik," and to which reference was made in this column on p. 190. The chief advantages claimed are



the shortening of time of exposure and a more correct rendering of the scale of gradation, which is alterable by alteration of the screen distance.

A patent (No. 4,764) was applied for on March 7 "for improvements relating to the etching of printing plates," by W. G. Thorpe, 7, Southampton Buildings, Chancery Lane, London. (Date applied for under Patents Act, 1901, March 8, 1904, being date of application in United States.)

THE "Record" Exposure Note Book is the latest claimant for favour among photographers who conduct their operations on systematic lines. It has been designed by Mr. J. H. Baldock, F.C.S., secretary of the Photographic Section of the Croydon Natural History and Scientific Society, and well-known for his photographs in record work. The plan of the book is novel, and takes the form of a number of separate leaves held together in a neat cover. These leaves are perforated for detachment, and space is provided for data of stop, light, focal length of lens, compass point, date, time of day, exposure, and other facts likely to prove useful to all those who seriously go in for record and survey work in various counties, and who have felt at times the want of space in their exposure note book to record full particulars of their negatives. The leaves can be either taken out and tied up together, or pasted on to the envelopes containing the negatives, as they are very thin, but strong. The books, which are copyright, sell at 1s. each for 100 exposures. Loose leaves are 1s. per 100 for 200 exposures, and are obtainable from most dealers or direct from Mr. Baldock, 3, St. Leonard's Road, Croydon, Surrey.

Exhibitions.

CRIPPLEGATE.

THE sixth annual exhibition of the Cripplegate Photographic Society was opened at the Cripplegate Institute, Golden Lane, London, on Monday last. This City society, which is seemingly in an agreeably flourishing condition, is to be congratulated on its environment, and the excellent accommodation it has secured for the annual show.

Not only has the society admirable rooms for the use of its members; but the arrangements made in the central hall of the Institute for the exhibition are all that can be desired.

Sweet music is discoursed during the afternoons and evenings by the London Viennese Band; and the well-stocked stalls of Messrs. Houghtons, Ltd., Thos. Illingworth and Co., Burroughs Wellcome and Co., A. and M. Zimmermann, The Cresto Co., Keystone View Co., and Photo. Supplies, Ltd., come in for nearly as much attention as the pictures themselves.

Over 400 pictures are on view, and they include not only a great number of well-known works, but many new pictures are also to be seen. They are well and tastefully hung on screens around the walls of the room; and special praise may be accorded to the way in which the lighting arrangements at night have been installed. Not only are the frames well illuminated by a series of incandescent electric lights, but the lamps are shielded from the eyes of the visitors.

Each evening exhibitions of the prize lantern slides are given, and also demonstrations of carbon, platinotype, bromide, and ozotype printing. A loan collection of obsolete photographic apparatus is also a feature.

The awards, which take the form of plaques designed by Messrs. Burroughs, Wellcome, and Co., were made by Messrs. Reginald Craigie, A. Horsley Hinton, and James A. Sinclair:—

Class A—Champion Picture: Silver plaque, W. A. I. Hensler, "Reflections."

Class B—Portraiture and Figure Studies: Silver plaque, L. Dick, "Simple Simon"; bronze plaque, Graystone Bird, "Childhood Joy."

Class C—Landscape, etc.: Silver plaque, E. W. Taylor, "With the Breeze"; bronze plaque, J. B. Johnston, "Wanderers."

Class D—Architecture: Silver plaque, E. R. Ivatts, "Sunshine in the Old Street"; bronze plaque, J. S. Daniels, "Where the Mighty Sleep."

Class E—Lantern Slides: Silver plaque, Robert Burnie, "White Currants"; bronze plaque, H. Wormleighton, "N. Choir, Ely."

Class F—Any Subject: Bronze plaque, W. W. Palmer, "Evening Mists and Mountain Torrents."

MEMBERS' CLASSES.

Class G—Landscapes, etc.: Silver plaque, Bertram C. Wickison, "On the Surrey Hills"; bronze plaque, H. G. Stollard, "A Sussex Lane"; highly commended, G. H. King, "On the Rother." Class H—Any Subject not included in Class G: Silver plaque, J. E. Bowmaker, "To West Door, Lincoln"; bronze plaque, W. J. Hann, "A Boro' Fish Stall"; highly commended, E. W. Butler, "Chrysanthemums." Class J—Lantern Slides: Silver medal, G. H. King, "Country Road." Class K—Any Subject (for members who have not previously taken an award): Bronze medal, E. W. Butler, "Daffodils."

COVENTRY.

On Thursday evening, Mr. J. Bill opened, at the Municipal School of Art, in Ford Street, the annual exhibition of the Coventry Photographic Club. The following is a list of awards:—

For the best picture in the exhibition: Silver medal, "A bit of Old Coventry," H. D. Waters.

Class A (Landscape, Seascape, and River Scenery): Bronze medal, "Mentone," H. Rotherham; certificate of honour, "Winter Sunshine," W. Riley; honorary mention, "The High Tor, Matlock," E. H. Cooke; "Seasonable," W. H. McLaughlan.

Class B (Architectural Subjects): Bronze medal, "The Griffin," A. W. Hoare; certificate of honour, "Butcher Row," A. B. Clarke; hon. mention, "Flecked with Sunshine," W. Riley.

Class C (Portraiture and Genre Subjects): Bronze medal, "Five Stones," E. H. Cooke; certificate of honour, "Granny," J. I. Bates; hon. mention, "A Fisher Boy," F. E. Pierson.

Class D (Lantern Slides, sets of four): Bronze medal, W. Riley; certificate of honour, A. Seymour; hon. mention, H. J. Goodwin.

Class E (Passe Partouts): Prize, "A Woodland Vista," A. W. Hoare; certificate of merit, "Poppies," H. J. Goodwin.

Class F (Postcards): Prize, E. H. Cooke.

The judge was Mr. W. T. Greatbatch, F.R.P.S.

EARL'S COURT.

A photographic and picture postcard exhibition is now being held in the spacious Prince's Hall at Earl's Court, and will remain open until the 30th inst. Postcards are far more numerous than photographic apparatus, but among the latter will be found the stalls of Penrose and Co., who demonstrate the Sinop process, Barclay and Sons, Ltd., Photolinol, Ltd., and Metotype Co., Carl Zeiss, and the Quincey Photographic Development Company. Interesting professional work is shown by Ellis and Walery, Stereoscopic Company, Sturats, of Brompton Road, C. Vandyk, W. S. Campbell, W. D. Downey, P. Lankester and Co., Aerograph Company, and J. Ellsworth Gross, of Chicago, who exhibits some excellent specimens of photographs taken for advertisements, a branch of work more popular in America than in England. Among the photographic postcard dealers are E. Bamforth, whose representative, Mr. J. E. Rushworth, shows some very fine examples of illustrated songs, etc., from life models; Wrench and Co., and Raphael Tuck and Sons, who have nearly fifty thousand different designs. The Photochrom Company, Wharton and Co., Carl Hentschel, Ltd., John Swain, and W. J. Bruce and Co. also have very attractive exhibits. A series of chromolithograph cards, reproduced from pictures in the world's galleries, are displayed by Messrs. Minch and Stocks.

FORTHCOMING EXHIBITIONS.

March 16-30.—International Photographic Exhibition, Earl's Court. The Organising Managers, 119-125, Finsbury Pavement, London, E.C.

March 27-April 1.—Leicester and Leicestershire Photographic Society. Entries close on March 20, 1905. Secretary, R. Warden Harvey, Oriental Cafe, Market Place, Leicester.

March 30-April 3.—Chiswick Camera Club. H. Gentry, 39, Fairfax Road, Chiswick.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Montane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 4-6.—Wallington Camera Club. Hon. Secretary, J. W. Orbett, Nithsdale, Onslow Gardens, Wallington.

April 5-8.—Nottingham Camera Club. Hon. Secretary, S. W. B. Lines, 102, Woodborough Road, Nottingham.

April 7-15.—Photographic Trade Exhibition, Portman Rooms, Baker Street, London, W. Manager Pictorial Section, W. Selfe, 70, Dragon Road, Hackney, London, N.E.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

April 24-29.—Redcar and Coatham Literary Institute Photographic Society. Secretary, W. Hildrith, 42, Newcomen Street, Redcar, Yorks.

April 27-29.—Southend-on-Sea Photographic Society. Hon. Sec., J. Archer, 24, Ashburnham Road, Southend-on-Sea.

April 28-29.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen Ashcroft, Bushey Hall Road, Watford.

May 1-31.—International Exhibition of Photographic Pictures Postcards, concurrently with the 10th Salon. M. le Secrétaire Général du Photo Club de Paris, 44, Rue des Mathurins, Paris.

May 9-10.—Ballarat Camera Club. Hon. Secretary, G. Montgomery, 201, Sturt Street, Ballarat.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

FORTHCOMING COMPETITIONS.

March 31.—Ilford. £750 in cash prizes for negatives on Ilford plates. Ilford, Limited, Ilford, E.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

THE DUBLIN CONVENTION.

THE preliminary announcement and programme of the Twentieth Annual Photographic Convention, to be held at Dublin in July next, have been published, and the arrangements portend a very successful meeting. This is the second occasion on which Dublin has been chosen as the venue of the convention, and, given fine weather, there is no reason to doubt that the gathering will prove as enjoyable and useful as that in 1894, when Sir Howard Grubb was president. The president on the present occasion is Professor John Joly, F.R.S., D.Sc., and the following is the programme of arrangements:—

Monday, July 10 (Morning and Afternoon).—Conducted parties to places of interest in and around the city (Phoenix Park, Guinness' Brewery, Killiney Hill, etc.). 7.30.—Official reception by the president at the Royal Dublin Society's Buildings, Kildare Street. 8.—Presidential address in the new Lecture Theatre, after which there will be a conversazione in the Museum Buildings adjoining.

Tuesday, July 11.—Excursion to the Vale of Glendalough and the Seven Churches. There will be no meeting in the evening.

Wednesday, July 12.—Morning at 10.—Annual general meeting. At 11.—Meeting of the New Council. Afternoon.—Sir Howard and Lady Grubb will give a garden party and reception at the Zoological Gardens. Evening at 7.—Annual dinner and smoking concert at the Gresham Hotel.

Thursday, July 13.—Excursion to Bray (the Brighton of Ireland) and the Dargle, one of the most romantic and charming glens in the county of Wicklow. Evening at 8.30.—At Trinity College, an illustrated lecture by Dr. E. MacDowell Cosgrave, on "Old Dublin."

Friday, July 14.—Excursion to Drogheda, Monasterboice (with its far-famed Celtic crosses) and Mellifont Abbey, the earliest Cistercian Abbey founded in Ireland. Evening at 8.30.—At Trinity College, a paper or demonstration.

Saturday, July 15.—Excursion to the Hill of Howth, its rocks and demesne.

General Arrangements.

Place of Meeting.—By the courtesy of the Board of Trinity College, the ordinary meetings during the week will be held in the Engineering School of that historic building, and by kind permission of the Royal Dublin Society and the Museum authorities, the reception and conversazione will take place in the new Lecture Theatre of the society and the magnificent Museum Buildings adjoining.

Trade Exhibition.—The Trade Exhibition of apparatus, pictures, etc., will be in Leinster Hall, Molesworth Street, about three minutes from Trinity College.

Excursions.—It is anticipated that in July, cheap excursions to Ireland will be running from all parts of the kingdom; and return tickets at single fares will be issued by all the Irish railway companies to members during their visit to Ireland.

Accommodation, etc.—For further particulars of excursions, hotels, private apartments, dark rooms, dealers, etc., etc., see the official illustrated handbook, which will be issued to members as soon as possible.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between March 6 and March 11:—

FOLDING CAMERA. No. 4,831. "An improved folding photographic camera." Emile Pipon, 5, John Dalton Street, Manchester.

CAMERAS.—No. 4,874. "Improvements in photographic cameras." J. Ebenezer Bousfield, 4, South Street, Finsbury, London, for La Société du Photochrome, France.

MERCURY LAMPS.—No. 4,867. "Improvements in lamps known as electric vapour lamps, or mercury vapour arc lamps, or hermetically enclosed arc lamps." Charles Orme Bastian and George Calvert, Birkbeck Bank Chambers, Chancery Lane, London.

LENSES.—No. 4,868. "Means of reducing the amount of light passing through a lens without decreasing its rapidity for photographic purposes." William Rice, Birkbeck Bank Chambers, Chancery Lane, London.

X RAYS.—No. 4,939. "An adjustable diaphragm for X-ray photography and other mechanical appliances." Henry Burgess, 50, Crowther Road, South Norwood, London.

FLASH POWDERS.—No. 4,964. "New flashlight powders." H. E. Newton, 6, Bream's Buildings, Chancery Lane, London (Farbenfabriken vorm. F. Bayer and Co., Germany).

CALCULATORS.—No. 5,109. "Improvements in calculating slide-rules for opticians, photographers, and the like." Alfred Salomon, 32, John William Street, Huddersfield.

BOLTON Amateur Photographic Society.—In connection with this Society we are desired to announce that a change of secretaries has taken place, and that the present secretary is Mr. John Wild, of 9, Infirmary Street, Bolton, to whom all future communications should be addressed.

A FORGED ORDER.—At the Birmingham Assizes, on Monday last, George Burlace, 21, painter, was indicted for forging and uttering an order for the delivery of a folding pocket kodak. On behalf of Messrs. Gibson, Gooch Street, he had obtained goods from Messrs. Hurman. On January 23 he appeared at Messrs. Hurman's with a forged order purporting to come from Messrs. Gibson. He received the goods, and subsequently pawned them, Prisoner was found guilty.

RUSTIC SIMPLICITY.—It is hard to believe that the most unsophisticated countryman would stand for five minutes before a dummy camera, with no slide or plates, under the impression that he was having his photograph taken, and pay 1s. 6d. for a promise that the photographs would be sent in a fortnight at most. But so many people were thus defrauded by two Ipswich men named Kerby that at Needham Market Petty Sessions they were summarily sentenced to a month's hard labour. A list of eighty-six victims was produced in court, and £9 18s. was their aggregate loss. The camera, said a witness, was "an egg without a yolk."

New Apparatus, &c.

"Cooke" Series II. and Series IV. Lenses. Made by Taylor, Taylor and Hobson, Stoughton Street Works, Leicester.

These two new series of Cooke lenses are designed, as we have already mentioned, for high-speed photography, portraiture, and for the many occasions where critical definition at a large aperture over a considerable angle is required. The Series II. are designed to work at F/4.5, and the Series IV. at F/5.6. In construction, both series resemble the well-known Cooke lens, each consisting of three single glasses, a distinctive type, to which the makers ascribe rapidly over and above that of complex lens systems of the same nominal aperture. The image in each case on the focussing screen is beautifully sharp and brilliant; but, in order to obtain authoritative and delicate tests of the flatness of field and its anastigmatic correction, we append determinations made by the Department of Technical Optics of the Northampton Institute. As a standard of correction of these aberrations, Mr. S. D. Chalmers, the director of the department, adopts the following:—"The corrections are considered sufficient when (1) the astigmatic difference and (2) the departure of the image from the plane of the plate does not exceed 1mm. for each 100mm. focal length." Perhaps the English reader will grasp the degree of correction which this represents if we convert it into British measures:—1mm. in 100mm. is the same thing as 1-20th of an inch for a 5-in. lens. We can now state the results as measured:—

Cooke Lens. Series II. F/4.5. Eight inches focal length.

Semi-angular Field.	Correction of astigmatism and curvature of field at full aperture, F/4.5.	
Degrees.	Astigmatism.	Curvature
0	0.0	0.0
5	0.2	—0.1
10	1.0	—0.2
15	1.7	—0.4
20	.2	1.7

"Note.—The lens is excellently corrected up to 21 deg., covering a length of plate of 6 in. for a distant object. It falls off a little up to 6½ in., and then falls off very rapidly. For nearer objects the plate well covered would be slightly greater."

Perhaps the reader will not realise at once the practical meaning of these figures. Therefore we may point out that the greatest deviation of the field of the lens from the flat plate with which it should coincide is 1.7mm., or 1-16 of an inch, and this at the extreme edge of the plate. This flatness of field, it need hardly be said, is very satisfactory indeed in conjunction with the correction of astigmatism, which does not exceed the figure for curvature. We are not guilty of exaggeration in describing such an anastigmatic field as that of a lens of highly perfected manufacture. Messrs. Taylor, Taylor, and Hobson's special claim for these lenses is fine definition over a useful angle, and that we can say they have accomplished in the most successful manner.

The Northampton results with the Series IV. lens (8 in. focal length) are as follows:—

Semi-angular Field.	Astigmatism.	Curvature.
Degrees.	mm.	mm.
0	0	0
5	.2	.1
10	.8	.1
15	1.0	.0
20	.4	— .8
22	2.4	— 2.3

"The lens is excellently corrected up to 20 deg., covering a length of plate of 6 in. The definition is very good up to this point, falls off slightly up to a plate-length of 6½ in., the plate specified, but does not cover the corners of this plate at all satisfactorily."

We have thought it well to state frankly these measurements in order to give Messrs. Taylor, Taylor, and Hobson the opportunity to demonstrate the properties of the lens—which they do in a negative of a test chart representing the definition across the diagonal of the half-plate, and we must confess that the definition is excellent, almost up to the corner. Possibly the Northampton test outruns the delicacy of the test object method of testing; but whether that is so or not, we are confident that the flatness of field does not suffer a departure from truth great enough to be discovered in practice with cameras as commonly manufactured. In other words, we regard the two new lenses as possessing very strong claims upon the notice of photographers, and as making possible extremely fine work on every occasion when a large aperture is to be used.

Such a method of review as we have here adopted is, by its very nature, unfortunate, in that it states the errors and not the perfections of the lens, and unless the reader will study the figures as indications of the closeness with which the lens approaches the ideal in performance, he may be misled by them. Especially desirable is it in accepting such evidence of the quality of a lens, to have at hand data relating to the other instruments under comparison: for optical perfection is relative, not absolute, and the difference between lenses—often great, it is true—is nevertheless one of degree.

These new lenses, and all the other optical manufactures of Messrs. Taylor, Taylor, and Hobson, are described in the new catalogue issued this week, and containing the little treatise, "The Principles of a Lens's Action," to which we have several times referred those anxious to obtain a clear and concise statement of the factors which enter into the construction and use of a lens.

The Bi-metric Minimeter. Supplied by Parke, Davis, and Co., 111, Queen Victoria Street, London, E.C.

A most convenient measuring device for the dark-room is supplied under this formidable name. The tube is graduated into minims and tenths of a cubic centimetre, so that the relative value of the



two measures is seen at a glance. The liquid can be delivered rapidly by opening a valve in the bulb, or drop by drop, with the utmost precision, by closing the valve and pressing the bulb.

Photo P.O.P. Made by the Rotary Photographic Co., Ltd., 12, New Union Street, Moorfields, London, E.C.

The addition of a gelatine printing-out paper to the list of "Rotograph" manufactures is a step which the Rotary Company are fortunate in being able to take with the knowledge that the new material will not suffer, but will gain, from association with the arm's bromide and gaslight papers. The new "Roto" paper makes one special claim to a place among the many papers of the P.O.P. class—it can be worked without an alum bath, even in hot weather, by reason of the

hardness of its surface. Prints may thus be trimmed before toning, and will not tear or acquire frayed or damaged edges during toning and the after processes. In regard to this claim, we can say that we have soaked prints on the paper in water at 80 deg. F., and found the gelatine surface to remain hard and firm when rubbed with the finger. It was equally firm after five hours' soaking in the water, as it gradually cooled to 65 deg. F. This fact will prove the great immunity of the paper to warm solutions; and practically substantiates the makers' claims on its behalf. Further than this, we have made prints in the "separate" sulphocyanide bath without the use of alum at any stage in the process, and on soaking these prints at last in water from 70 deg. to 80 deg. Fahr. before squeezeing, they stripped off in the usual manner. These results are sufficient to show that the paper is able to withstand the ordinary differences in the temperature of solutions, and for this reason alone it is entitled to the consideration of photographers. For the rest, it is a P.O.P. of excellent printing quality, and tones well in the separate or combined bath.

A REVISED catalogue of the colour-measuring instruments made by the Tintometer Limited reaches us from the Colour Laboratories, Salisbury.

The annual report of the Sussex Archaeological Society contains the information that 330 prints had been received in connection with the photographic survey of the county. The majority of the prints are from old photographs.

THE Harmsworth Encyclopædia, now appearing in forty fortnightly parts at 7d. each, is a triumph of popular educational literature. "Everybody's book of reference" is the publisher's own description of it, and the first part is certainly an assurance that the possessor of the complete work will have at hand a fund of information on every conceivable subject.

PIONEER Work in Siberia.—A lecture of considerable interest was delivered in the Foresters' Hall, Dundee, last Tuesday, by Mr. S. Turner, under the auspices of the Dundee Branch of the Royal Scottish Geographical Society, entitled "Travelling, Exploration, and Climbing in the Siberian Mountains." Mr. Turner made a winter journey of 10,000 miles to the wild and silent district in which the great Altai range stands; and he is the first European who has ever entered upon such a dangerous exploring and climbing expedition. Mr. Turner's lecture was convincingly illustrated by a series of excellent photographs taken by himself.

An electrical exhibition is now open at 118 and 122 High Holborn, London, W.C., and will remain open until April 5. It is brought together under the auspices of the County of London Electric Supply Company, and though the greater number of the stall holders are firms catering for electrical mechanicians and others in the electrical world, there are several exhibits of interest to photographers. The charge for admission is only sixpence, so that anyone who is in the neighbourhood might well arrange to pay a visit to the show, which is unique in one way, namely, that it is held in temporary buildings erected underneath the large scaffoldings on which an army of bricklayers are at work on the new block for Messrs. Gamage. Messrs. Penrose, of 109, Farringdon Road, London, E.C., exhibit the Cooper Hewitt mercury-vapour lamp, with a number of electrical motors for driving small wood-working and other machinery. The Westminster Engineering Company, of Victoria Road, Willesden Junction, show enclosed arc lamps for which they claim special features in photographic portraiture and for photo-engraving. A novel form of incandescent lighting is the "Linolite," a filament lamp made in long narrow cylinders provided with aluminium reflectors. It should be particularly well suited to photographers' window and reception-room decoration, though it is not advanced as a studio light. Its exploiters are the Linolite Co., 25, Victoria Street, London, S.W.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
24.....	Aberdeen Photo. Association	Exhibition of Slides. Mr. Tennant.
24.....	Wimbledon and Dis. Cam. Club	<i>Pigment Stripping Film for Three Colour Photography.</i> Demonstrated. Mr. W. A. Sims.
24.....	Edinburgh Photographic Soc.	<i>A Large Aperture.</i> Illustrated. Mr. F. C. Wardall.
27.....	Wakefield Photo. Society	Annual Lantern Exhibition.
27.....	Motherwell Y.M.I. Cam. Club	<i>Woodlands.</i> Mr. Dan Dunlop.
27.....	Southampton Camera Club	<i>History of Painting.</i> Illustrated. Mr. W. R. Kay.
28.....	Royal Photographic Society	<i>Cameras and other Apparatus for Three Colour-Work (with models).</i> Mr. W. Gamble.
28.....	Border City Camera Club	<i>Trip to London.</i>
28.....	Perthshire Soc. of Nat. Science	<i>Exposure and Development.</i> Demonstrated.
28.....	Monklands Photo. Society	Members' Lantern Slide Competition.
28.....	Bristol Photographic Club	Exhibition of Lantern Slides. Mr. W. Aver Duncan.
28.....	Nelson Photographic Society	<i>Photo-Micrography.</i> Demonstrated. Dr. Bird.
28.....	Glasgow Southern Photo. Assn.	<i>Woodland Photography.</i> Mr. Dan Dunlop.
28.....	Devonport Camera Club	<i>Stripping Pigment Films (for Three and Single Colour Photography).</i> Demonstrated. Mr. W. A. Sims.
28.....	Birmingham Photo. Society	<i>Cloud Negatives and Printing.</i> Mr. H. W. Bennett, F.R.P.S.
29.....	G.E.R. Mechanics' Institution	Lantern Evening. Mr. A. Woolford.
29.....	Photographic Club	<i>Home Portraiture with Lantern.</i> Mrs. W. D. Welford.
29.....	Boro' Poly. Photo. Society	Second Social Evening.
29.....	North Middlesex Photo. Society	Technical Meeting.
29.....	Central Photographic Society	<i>How the Window Greiv.</i> Mr. E. W. Harvey Piper.
30.....	Shotts Camera Club	Exhibition Opens.
30.....	Gateshead Camera Club	Exhibition of Members' Lantern Slides.
30.....	L.C.C. Sch. of Pho.-Engraving	<i>Harmony and Contrast in Colour Mixing.</i> Mr. C. G. Zander.
30.....	Richmond Camera Club	Lantern Slides—A Series by Mr. O. G. Rejlander, lent by the Royal Photographic Society.
30.....	London and Prov. Photo. Assn.	<i>St. Louis.</i> Mr. E. P. Drage.
30.....	Liverpool Amateur Ph. Assn.	<i>Morocco.</i> Mr. Harry Mahler.
30.....	Glasgow Eastern A.P.A.	"A. P." Prize Slides.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

It has been arranged by the Committee to hold an informal dinner, at which they will be pleased to see any members who may choose to join the party, at the Villa-Villa Restaurant, 37-38, Gerrard Street, Shaftesbury Avenue, W., on Friday, March 31, at seven o'clock. Morning dress. The price of the dinner will be 2s. 6d. Members desiring to attend should communicate their intention to the Hon. Secretary, 51, Baker Street, W., not later than Tuesday the 28th inst.

ROTHERHAM PHOTOGRAPHIC SOCIETY.—At a meeting of this society, held in the St. George's Hall, Rotherham, on Wednesday evening of last week. Mr. J. W. Charlesworth, of Sheffield, gave an illustrated lecture on "Orthochromatic Photography." He explained how ordinary plates did not sufficiently distinguish the luminous value of blue sky from that of white clouds, and how the greens and reds of our landscapes received no adequate representation on the plate. He also showed how in photographing flowers a brilliant red or bright yellow will often show as a dark patch on the print, while a deep blue will be represented as nearly white. To illustrate this more fully, the lecturer had made special lantern slides composed of a group of iris, pinks, cornflowers, narcissus, one slide being made from a negative on an ordinary plate, another from one on an orthochromatic one, and still another on an ortho plate with an iso screen. The differences were so great as to leave no doubt that an iso-screened chromatic plate was much superior to an ordinary, where colour luminosity was essential. The lecturer strongly urged the absolute necessity of using an iso screen when employing orthochromatic plates, or the results would be disappointing. His slides fully justified these remarks, and many of the sunlight effects which

he showed were obtained by this process. He claimed also that distance and atmosphere were not lost when using the screen. In order to effectively display the numerous comparison slides made by the lecturer, two lanterns, side by side, were brought into use.

CAMBRIDGE PHOTOGRAPHIC CLUB.—A lecture on "Process Work" was given before the members of this club on Monday of last week by Mr. William Gamble. The lecturer explained that "process" was a generic term for all kinds of processes produced by photographic methods. The processes of reproducing pen and ink line drawings, maps, prints, etc., by the line zincographic method; the half-tone process for reproducing photographs, wash drawings, and natural objects; the photogravure process for reproducing paintings and other works of art; the collotype process for reproducing photographs without offensive mechanical grain; the "ink photo" and other processes of photo lithography, and the three-colour process, were all fully described and illustrated by means of lantern slides and by demonstration with plates, tools and specimens. Mr. Gamble concluded by stating we had not reached finality in these processes, and he mentioned that he had seen a machine which would engrave blocks by mechanical means in about two minutes, and what was more wonderful two of these machines might be operated by the telegraph hundreds or perhaps thousands of miles apart, one machine reproducing the work of the other, and thus it became possible to telegraph pictures. Further there were now in use in American newspaper offices etching machines which etched out half-tone plates in one minute, indeed practically equivalent to putting in the photograph at one end, and getting out a finished block at the other. With increasing facilities the tendency would be to use more and more illustrations in our newspapers and books, and when the public became surfeited with the monotony of black and white, the three-colour process would step in to give more truly the realism of nature. In the end there would be less and less need to resort to verbal descriptions. History would accordingly repeat itself, and once more the world would resort to pictorial expression, the earliest of all means of recording thought, and the most universally understandable. There would be no need for Volapuk and Esperanto so far as printed communication is concerned if nations inter-communicated by means of pictures.

GLASGOW EASTERN AMATEUR PHOTOGRAPHIC ASSOCIATION.—The annual general meeting of this association was held on Thursday, of last week, when the reports of the secretary and treasurer were given. These were highly satisfactory. The election of office-bearers for the ensuing year resulted as follows:—A. D. Inglis, hon. president; W. S. Crockett, president; John Brough and John Gillespie, vice-presidents; James Bicker, treasurer; M. Crosbie, lanternist; T. B. Kirkhope and Alex. Taylor, hon. secretaries; Council—Messrs. White, Kennedy, Black, McAllister, Robin, and Gibson. A series of practical demonstrations for beginners has been arranged for Monday evenings, commencing on 27th, and continuing till May 8. This is quite apart from the ordinary meetings of the club, which are held on Thursday evenings.

SOUTHAMPTON CAMERA CLUB.—The members of this club met on Monday evening, the 20th, for club slide competition, the subjects being "Portraiture or Figure Studies." The winner proved to be Mr. W. R. Kay, with two very excellent portrait slides; second place being taken by Mr. C. Daw. On Wednesday, the 15th inst., the club held their second annual conversazione in the Ogle Hall, the invitation being from the Committee to the members. About 150 of the members and their friends braved the extremely inclement weather, and a most enjoyable three hours was spent. A capital musical programme and exhibition of first-class slides had been prepared, and over the tea and coffee cups the social intercourse was of the heartiest description.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

THE FELLOWSHIPS COMMITTEE OF THE R.P.S.

To the Editors.

Gentlemen,—I see that my name appears on the Fellowship Admissions Committee, Pictorial Section, in the list issued by the "Journal of the Royal Photographic Society." Permit me to say that this is an error, as I declined the honour of serving on the above Committee.—Yours faithfully, CHARLES F. GRINDROD.

THE SHOP AND HOUSE DUTY ACTS.

To the Editors.

Gentlemen,—I shall feel obliged if you can find space for the following matter, which seems a little unfair to photographers situated such as I am myself.

I am both a professional photographer and also a dealer, but I have not a shop front. Instead, I have a showcase in the front garden and also expose goods for sale in my premises, but these latter goods (not those in the garden showcase) do not happen to be visible from the road. I am therefore denied the benefit of the lower rating as a shop, and am charged instead the higher rate as a private house, although the premises I lease solely for the sale of photographs and materials, and do not live on the premises. I believe if I stuck one or two frames for sale in my front windows I might come within the Act, but I pride myself on the appearance of the place I suppose I must be prepared to suffer for my pride.

All I wish to point out is the absurdity of such an Act, which allows one man with a shop front the lower rate, and denies it to another who is doing a similar trade but has not the peculiar shape of front which comes within the Act.—I am, Gentlemen, yours faithfully, E. J. SANDER.

The Manor Studio, 4, Manor Road,
Stoke Newington, London, N.
March 20, 1905.

MR. STUART A. ORD MACKENZIE, of Midgham Lodge, Reading, writes:—Can you give me any information as to what has become of a portrait photographer by the name of Beethoven, whose business I believe was in Regent Street? I am anxious to get hold of a negative which he took about eight years ago, and possibly you or some of your readers may be able to help me.

MESSRS. P. LANKESTER AND CO., of 21, Grove Hill Road, Tunbridge Wells, write us that they will be pleased to send admission tickets for the Earl's Court Picture Postcard Photographic Exhibition to all bromide printers likely to be interested in the "Grabber" automatic bromide printing machine, which they have on view there. The machine is for printing bromides in large quantities, and is capable of printing 6,000 postcards per hour. The exact amount exposed is automatically wound off, and the light, which is also automatically worked, can be regulated to suit any density of negatives.

"THE PHOTOGRAPHIC PRESS" has appeared, under the editorship of Mr. Thomas Bedding, as a supplement to the "Optician," and will be issued separately at the price of one half-penny. Our latest contemporary nominates its circle of readers as "the amateur and the dealer," and it is suggested by the promoters that their policy will be towards establishing "The Photographic Press" in favour with the high-school miss and the sixth-form boy. Precisely how the bill of literary fare can be made acceptable to these young persons as well as to the photographic dealer it is difficult to foresee, but *labor omnia vincit*.

Answers to Correspondents.

- * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

W. D. Moss, 24, Geddly Hill, Cirencester. Photograph of Deer in Bushey Park.
R. W. Sharp, 48, Quarry Street, Hamilton. Photograph of Masonic Temple, Cadzow Street, Hamilton.
R. G. Arnold, Stafford Street, Market Drayton, Salop. Three Photographs of F. Neilson. Photograph of Lord Audley's Cross, near Market Drayton.
J. R. Browning, 11, Bedford Circus, Exeter. Two Photographs of the New Eze Bridge.

"OWEN," "C. C.," and others.—In our next.

S. P.—We think you take a somewhat uncharitable view of the matter, and want of time may be some excuse.

DRAPE.—It is customary to have the bodice removed, and there is, as a rule, no difficulty in effecting this, particularly if a specimen print be shown. Surely your receptionist can be entrusted with the matter.

H. S. (Brandon).—Possibly it may be worth provisional protection, and you might then offer it to the makers of amateurs' supplies. You will find names and addresses in the "Almanac."

W. K. MOLESLEY.—The lens is evidently a very bad one, having spherical aberration and chromatism. We should say it is not worth while to attempt doctoring it.

"TOM HEATH."—The article has now appeared in full in "The Chemical News" for March 17. We do not undertake to answer electrical queries, but no doubt you could get a 5-volt current from your ordinary supply through a choking coil.

COPYRIGHT.—Kindly say if a printer and publisher can legally copy one of my original photos and sell in postcard form without asking my permission.—POSTCARD, BURY.

Certainly not. Turn back to the numerous replies to copyright queries in this column.

BURNISHER, ETC.—1. Is there any danger of the moisture attendant on the use of a steam-heated roller burnisher corroding the metal or otherwise proving troublesome? 2. Will the light from a ruby window falling on an enlarging easel affect the exposure of an enlargement?—PRACTICAL.

1. No, there is no chance of this, nor is it otherwise troublesome. 2. Certainly not, provided, of course, that the ruby glass or material is safe.

STUDIO.—As shown in the sketch there is too much top light, but this can be remedied by blinds to draw down. It would have been better if the side and top lights commenced another foot or so from the end; however, curtains will compensate for that. We should not re-paint the interior until you see the effect you get when the curtains and blinds are fitted. The studio is small, but we presume you do not require it for professional purposes.

PICTURE POSTCARDS.—1. You have one of two courses before you—either to send in a statement of account for goods supplied, and back it up with a County Court summons, or to send them a

solicitor's letter. In the former case it would be as well to give them, say, seven days in which to return prints or pay, and as you could take out the summons at your town at the cost of one shilling, it would probably fetch them at once. 2. You can obtain a gas governor, which would control the supply of gas; you might also use magnesium ribbon.

TROOPER.—If the light is too strong with the white blinds when the sun is shining we should recommend you to supplement them by rather light green ones on the roof, and by curtains of a similar colour on the sides. For the blinds union is as good as anything, and for the sides what is known as "art serge" would be best. We should advise you to try the effect of the curtains at the sides only first, as they will possibly get over the trouble, but much will depend upon the height of the side lights.

A POINT OF ETHICS.—Will you kindly inform me if it would be considered a fraud to sell a bromide, pasted on to a canvas, painted over in oils, as a canvas painting, and to what extent should I be liable?—**PUZZLED.**

Undoubtedly, if the painted bromide was sold as an oil painting, without it being stated that it had a photographic basis, which would be with an implied contract that it was an oil painting in the ordinary sense of the word, you would be obtaining money by fraud, and liable to prosecution.

CANADA.—Can you give me any information about Canada? Is there any demand for assistants? What are the rates of wages and chances of commencing a photography business in a small way?—**C. S. S.**

All we can say is that the general prospects in Canada are extremely bright, and that the next five years will see numbers of towns coming into existence in the Fertile Belt. There should be good opportunities for photographers who can rough it and can handle the business from first to last.

RUSTY BURNISHER.—I have a Globe burnisher, and the bright roller requires cleaning. Should be glad if you would kindly inform me the best way to do this, and what to use.—**G. H.**

The rust, unless too deeply in, may be removed by a tolerably fine-grade emery cloth, and finally polished with the finest flour emery cloth, or with flour emery and oil. The work must be done longitudinally, and evenly from end to end of the roller. If the rust is deeply in, and cannot be removed in this way, the roller should be sent to an engineer to do the needful.

BLACK SPOTS IN ENLARGEMENTS.—What is the acid used for removing black spots out of bromide enlargements, and in what manner is it applied?—**J. A. KELL.**

We are not aware of any acid being used. The usual process is to use:—Iodine, 20 gr.; potassium iodide, 30 gr.; potassium cyanide, 20 gr.; water, 1 oz. This is used with a fine camel's hair brush, and it is sometimes thickened with dextrine or glycerine. It is essential to dissolve the iodide first, then add the iodine, and then the cyanide, and enough of this should be used to form a colourless solution.

CHARGES.—Will you tell me a fair price for five whole-plate negatives and one platinum print from each of interior and exterior views of a house five miles away?—**JUSTICE.**

There are no uniform charges for photographs. Some photographers' prices are several times those of others, and we have not seen the pictures in question. Charge your ordinary prices, whatever they may be, for the work, and if not paid you can sue in the County Court, and you will no doubt recover the amount. You say that the pictures were taken under the directions of the client—that relieves you of the responsibility

as to the selection of views, and if the photographs are good we do not see that there can be any substantial defence.

RETOUCHING.—Please give me your opinion of my work.—**CYMO.**

The specimens are very fair—soft and reasonable in the working, and the likeness is generally well preserved. The touch is rather too stippled, and therefore slightly mechanical. Do not lift your pencil so much, but blend more and save time. All retouchers requesting criticism should state how long each negative took to work. This makes a considerable difference in the opinion passed, for commercially it means great deal to the retoucher as well as to the employer. Your treatment of the man is defective about the nose. The shape has been altered, and the high-lighting is insufficient to bring it forward as the most prominent feature of the face. The balance in the eyes is also weak; either increase the high light over the one pupil or reduce with the knife the strong lighting over the other. For preference increase the lighting. Attend more to the formation of the features and you should make a natural and effective retoucher; but avoid being too mechanical in the touch. See reply to "Limerick."

THEATRICAL WORK.—Would you give me the best and cheapest way of taking a photograph on the stage at a theatre? What is in your estimation, the best means of lighting? Would magnesia do, and how could it be managed? Or is there no some kind of powder that can be placed in different positions and set fire to? What are the best positions? Also, would a 10 x 8 lens, rapid rectilinear, do, and camera in dress circle above pit, right opposite the stage? And, if so, what exposure for a rapid plate?—**AMATEUR.**

All the usual stage lights should be kept going, and if an action or movement is to be represented, then magnesium flash light must be used, but if merely poses are to be taken, then it would be sufficient to use magnesium candles, which burn for a certain time. A rectilinear lens would answer, but should be used at as large an aperture as possible. The position of the camera is a matter of experiment. It may happen that the position named would be suitable, but the position should be chosen at which the group on the stage is of sufficient size on the plate. The flashlight or magnesium should be placed as nearly as possible in the same positions as the ordinary stage lights, but care must be taken not to include the light in the field of view, and they must be all fired at once. It is impossible to give the exact exposure, but for flashlight about 2 oz. of powder should be used, divided into three portions.

NOTICE.

Several replies are held over for insertion next week.

* * NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

The exhibition held in the Walker Art Gallery, Liverpool, in March and April of last year, not only presented an example of successful organisation that will be followed by photographic societies elsewhere, the publicity given the show in the city on the Mersey have done much to advance the claims of photography to a high position among the graphic arts in one of the art-loving centres of the kingdom. The organisation under the control of the Liverpool Photographic Association, the Manchester Amateur Photographic Society, and Leeds Camera Club, and this year Leeds is the venue for the show. From the particulars to hand, we gather of the endeavour of the Executive is, that the exhibition at the City Art Gallery, Leeds, from July 4 to August 12 is to add to the reputation of the "northern" competition, and thus permanently ensure the continuity of a class annual photographic exhibition alternating between the three northern cities, Liverpool, Manchester, Leeds, and doubtless a healthy rivalry will do much to keep this spirit alive. Further to our comments in last year's "Ex Cathedra" on loan collections of pictorial photographs, we note that a special feature of the exhibition will be the inclusion of the St. Louis Collection of pictorial photography, which, with the consent of various exhibitors, has been shipped *en bloc* to Leeds, will be hung in one of the galleries of the exhibition, decorations, etc., on similar lines to those which were exhibited at St. Louis. Particulars and information for intending exhibitors will be found on another page.

The International Congress of Photography.

We believe we are alone in announcing the seventeenth session of the International Congress of Photography, which will be held this year at Liège from July 19 to 25. In selecting Belgium as its rendezvous, the Congress Committee believes that it consults the convenience of those accustomed to attend the meetings, since Liège has its great exhibition open during the summer. The Association Belge de Photographie is making itself responsible for the organisation of the Congress, and the secretary, Ch. Puttemans, Palais du Midi, Brussels, will answer inquiries and enter into relations with photographers anxious to take part in the Congress. Papers to be read should be in the hands of M. Puttemans by June 15 at the latest. Aside from the technical and scientific labours to which the Congress will apply itself, excursions are arranged in the picturesque country around Liège, and a collection of pictorial photography will also be brought together in one of the halls of the exhibition. M. Puttemans desires us to make known the fact that British visitors will be accorded a hearty welcome to Belgium.

"Development Factor." The paper read by Messrs. Fergusson and Howard last month before the Royal Photographic Society, which is reprinted on another page, makes use repeatedly of an expression—"development factor"—which has been used by Mr. Watkins to express an entirely different thing. The Watkins developer factor is a multiple—the number of times the period required for the first appearance of the image must be repeated for complete development. "Development factor," as used by writers on sensitometry, such as Hurter and Driffield, Mees and Sheppard, and others, is a measure of the steepness of gradation given by a plate. Writings on time development would gain in clearness if two distinct terms could be generally adopted for these very different quantities.

Wetting the Plate Before Development.

A practical point cropped up in the discussion of Messrs. Fergusson and Howard's paper, which may be noted even by those who do not practise the time methods of development. The custom of applying the developer to the unwetted plate is an almost universal one we suppose, and photographers are confirmed in it from fear of the pinholes which not infrequently attend the preliminary soaking of the plate in water. For the sake of regularity the authors found it best to soak the plates in water first, and Mr. Howard explained that they were not troubled with pinhole markings if they permitted water from the tap to have quite violent access to the surface of the plate.

The 1905 Photographic Convention.

Last week we published the programme of arrangements for the forthcoming Photographic Convention at Dublin. We would draw the attention of intending members to the fact that the annual subscription is 5s., and the privileges of membership include invitations to the official receptions and garden party, admission to meetings, etc., and special rates for excursions. Mr. F. A. Bridge, East Lodge, Dalston Lane, London, N.E., the hon. general secretary, will be pleased to forward full particulars, or applications for membership can be made to the hon. local secretary, Mr. R. Benson, 3, Orwell Park, Rathgar, Dublin. So far as the visitors are concerned, there should be no question as to the success of the outing to the Sister Isle if the previous Dublin meeting in 1894 is taken as a criterion, and even lacking the stimulating influence of pleasant weather, we have reason to believe the welcome that will be extended to the members of the Convention by the warm-hearted sons of Erin forming the Photographic Society of Ireland and the reception and local committees, will amply compensate for any untoward demonstrations on the part of Jupiter Pluvius.

Picnics or Progress.

That the annual Photographic Conventions have come to be regarded in the light of pleasurable excursions, rather than a means of bringing forth much that is new or instructive in the way of photographic progress is something to be deplored. The occasion is the only one that presents itself during the year for bringing together for a week a body of photographers, both professional and amateur, from all parts of the kingdom, and yet we see from the Dublin programme that, with the exceptions of the presidential address and an illustrated lecture on "Old Dublin," no lectures or demonstrations are announced. It may be urged that members are too tired to attend evening meetings after a long day's excursion. The obvious remedy is to curtail the outings and increase the general interest of the lectures. The time has surely now arrived when the accumulated funds of the association can be applied to the chief purpose for which the Convention was originally called into being, especially on an occasion like the present when the claims of photography are recognised not only by the Royal Dublin Society to the extent of placing the New Lecture Theatre and Museum Buildings at the disposal of the Convention, but by the authorities of Trinity College itself, who will provide accommodation for the meetings during the week in the Engineering School of that historic building.

Discoloured Lenses.

In an "Ex Cathedra" note last week we alluded to the discolouration of the glasses of which some of the older photographic lenses were constructed. Since then we have seen a very marked example of that defect. It was a whole-plate portrait lens of the Petzval type of French make. It seemed to be a copy of a Voigtlander instrument, and was, probably, made some forty years or more ago. We say that it appeared to be a copy of a Voigtlander lens because the mounting was similar, and the aperture and focal length were, as nearly as possible, the same as that of Voigtlander's make at that period. The instrument was said to be slow, but otherwise very good, and so indeed it was. On taking it apart the cause of the slowness was at once manifest. When the flint lens of the posterior combination was laid on a piece of white paper it was seen to have a marked yellow colour; and when the anterior combination was similarly dealt with the discolouration was still more pronounced. A closer examination showed that not only had the flint

element changed, but that the balsam cement had also become very yellow. No wonder, then, that the lens was slow in action.

Coloured Lenses.

The action of such a discoloured lens described in the above paragraph would be to act to some extent as a yellow screen, which might be advantageous with a colour-sensitive plate, but with an ordinary plate it can have no beneficial effect. The use of coloured glass for lens work has been repeatedly suggested, more particularly, however, the use of violet or blue glass which, it was contended, would shorten the exposure, as has also the use of purpose-stained balsam, and this was patented in 1892 by Mr. Burchett. The disadvantage of these devices is, of course, that one must always use the screen, whether it is required or not. Many years ago Sir William Abney also suggested coating one of the lens surfaces with stained collodion for the same purpose, but the usual method of using separate screens is to be preferred.

The "Times" on Photographic Industries.

In the financial and commercial supplement of the "Times" of Monday last appears an appreciation of photography's place among the industries of the country. The organ of Printing House Square is chiefly retrospective but it sees in the diversity of materials which are employed in photography a safeguard from the evils which have overtaken other industries. In paying tribute to the superiority of British-made articles, it concludes, as to the photographic trade, that "its general sound and healthy state seems to justify a sanguine view of its immediate future." In tracing the development of photographic industrial undertakings, the "Times" is at the dilemma which every would-be statistician of photography finds himself in—a dilemma caused by the absence of figures. The Board of Trade returns photographic apparatus among other goods and classes materials with chemicals, so that isolated and unofficial figures—straws show how the wind of progress has become a chronic gas—are all there is to quote. Thus, for example, it is stated in indication of the great proportions assumed by the business of those who wait upon the amateur photographer, that Kodak, Ltd., develops on an average 8,000 negatives per day during the summer months, that the sales of Velox total more than £30,000 per annum, and that Messrs. Griffin dispose of 150,000 "cartridges" per annum.

Substantial Damages for a Broken Negative.

As reported in another column, a photographer has, in the Leeds County Court on Friday last, recovered £25 for a broken negative, shattered in transit on the railway. The matter is important to photographers, inasmuch as a County Court Judge has assessed the value of a negative at £25. None too much, no doubt, as it was the portrait of Lord Dudley, Lord Lieutenant of Ireland, and it was stated that the Dudley family had already given orders for some sixty guineas' worth of copies from it. In some former cases we have in our minds, which have come before the County Courts, judges have taken very different views of the value of negatives, assessing them at little beyond the cost of the plates and the chemicals and the packing case. In this instance the Judge took quite a different view of the matter. Photographers frequently have to forward by rail valuable negatives, which, often get broken in transit, and they have failed to recover from the company anything like their fair value.

Carriers' Responsibilities.

It may not be generally known that railway companies are protected by the Carriers Act, which limits the sum to be recovered in case of damage to £10. But if the sender, at the time of the booking of the parcel declares the value of it, and its contents, as being more than that sum, and pays the extra carriage upon it, the carriers become responsible for that amount in case of damage. Of course, the owner would have to prove in case of accident that the contents were of the actual value declared, and not a fictitious one. When the carrier, railway or other, accepts a parcel duly marked "fragile," and its contents are declared, it is assumed that he sees that it is properly packed for the journey, and if not he can refuse to accept it. But if it is accepted, he then takes the responsibility. When parcels are sent through the post the sum that can be claimed is limited to £2 unless the parcel is registered and fees paid according to the value. All parcels containing such things as negatives and the like should be marked "Fragile—With Care," the mere word "fragile" not being sufficient, according to the P.O. rules. When a parcel is received, whether by rail or post, and it is suspected that the contents have been damaged, it should be opened in the presence of the one who delivers it; or if, say, broken glass be heard when the parcel is shaken, the best way is to refuse acceptance altogether, when it will be returned to the sender, who will best settle the matter with the authorities. When a parcel is received by rail, the receiver should always satisfy himself that it has not sustained damage in transit before he signs for it, as signing for it implies that it is received in good condition, and there will then be a difficulty in recovering damages for injury.

* * *

Cloud Negatives: A Seasonable Hint.

The present is one of the best times during the whole year to obtain a stock of cloud negatives for printing into landscape pictures. During April, before and after a shower, there are usually very fine cloud effects. Many photographers may hold as a residue from last season a stock of plates that they would not care to trust to in the field; here, then, is an opportunity for turning them to a profitable account, instead of throwing them away. If the plates have become slightly deteriorated at the edges, or slightly impaired in other respects, it is of little moment for our present purpose; they will, except in extreme cases, answer very well for cloud negatives, a good stock of which will always be of service, and the more varied they are the better. In taking cloud negatives, a very common mistake is made in pointing the camera too much towards the zenith, so that when the negatives are obtained they do not, by reason of the lighting, harmonise with the landscape for which they are used. The case is, of course, different if the negatives are required only as cloud pictures to be used by themselves; but when they are to be used in conjunction with landscapes the camera should be directed more towards the horizon, so that the clouds occupy very much the same position on the plate as they would do if they were included in the landscape negative. The top of a house, or high building, is an admirable place from which to secure cloud negatives. Of course, the summit of a hill in the country would be still better.

* * *

Situations Vacant.

The disparity of numbers between the advertisements in our columns of operators and assistants requiring situations and photographers who have engagements to offer is to be seen at a glance,

and it might be supposed that professional photography is in such extreme straits that the business generally is unable to employ all those that it has educated. We are assured that, bad as times have been, and are, this is by no means the case. It may not be easy for an assistant, thoroughly well up to his work, to suit himself precisely as to locality, salary, and other matters; but there are plenty of vacancies at this, the commencement of the season, open to assistants thoroughly well up to their work. The assistants complain that masters want too much either in ability or terms of engagement. The masters, or those of them who are also masters of their business, complain principally that those who apply to them for situations are insufficiently equipped in knowledge for the posts they desire to occupy.

* * *

Assistants' Certificates.

The certificate scheme of the Professional Photographers' Association which was designed to obviate a well-recognised difficulty—that of presenting in the one case, and determining in the other, an applicant's capabilities at almost a glance, has not been received with the enthusiasm it deserves. We believe that although the applications for particulars have been many, applications for certificates have been comparatively few. The difficulty seems to be that the fees charged are considered too high. They are £2 for first grade, £1 for second grade, and 10s. for third grade. It seems, however, not to have been realised by most of those who apply for the particulars that the requirements of the examiners are such that any assistant who can pass the examinations is in a position to demand a salary sufficient to pay the charge without it being a tax. The idea seems to be that an operator who manages a small branch business, or who manages a medium-class ordinary provincial business in the absence of the principal, cannot in his own interests apply for less than a first-grade certificate, but that is an entirely erroneous idea. The first-grade certificate is intended to apply to men capable of such work as perhaps only a hundred or so studios turn out. The second-grade certificate would not be too easy to attain by those who, in the absence of means of comparison, consider themselves first-rate operators, and the third-grade would indicate a man who had received a thorough grounding in professional work. Men who have these capabilities, as a rule, receive reasonable remuneration for their services, and are capable of paying the fees; but, unfortunately, a very large proportion of those who ought to be skilled workmen, perhaps through no fault of their own, have never received the tuition or practice that would enable them to perform their work satisfactorily under any other circumstances than those they are accustomed to. The certificate scheme aims at discriminating between the skilled worker who can adapt himself to circumstances from his soundness of knowledge and the mere hanger-on to photography.

* * *

Employers and Assistants.

A point that seems not at present to be sufficiently valued by employers is the waste of time the certificate will avoid. Of personal character the certificate takes no cognisance: that will always have to be a matter of personal inquiry. But with regard to photographic matters, it will be evidence at the least that an independent body selected from the élite of the profession have satisfied themselves that the holder can substantiate his claim as far as it goes. While we are upon this point, we may refer to another in the same category. Many assistants do not realise the amount of trouble which an employer must take in making selection among a number of applicants. One incident which is often

brought before us as a grievance by assistants is that employers do not notify applicants of their non-success when a stamped and addressed envelope is supplied for that purpose. We would remind those who feel moved to speak in uncomplimentary terms of the conduct which they appear to accept as a personal affront that in many instances an individual reply to a number of applicants would tax a photographer with an amount of work incommensurate with the circumstances.

* * *

The Camera Club Company, Limited.

The report of the directors of the Camera Club for the year 1904 is not likely to be received by the shareholders with any special show of exuberance. The loss for the year amounts to £345 14s. 4d. The directors make the cryptic statement in extenuation that: "This is probably owing to the depression in trade," yet the members' subscriptions still total no less than £1,695 2s., and the receipts from provisions, wines, cigars, billiards, etc., amount to £1,612 6s. 10d. "There is something rotten in the State of Denmark." Can it be that a long course of lectures on everything under the sun but photography is having its effect on the well-being of London's Camera Club? Time was when the Journal of the Club recorded lectures that afforded a fund of pleasurable instruction to the members who worshipped at the shrine of Helios and paid their annual subscription; but now, alas! no special inducements are offered these praiseworthy individuals—who should constitute the backbone of the Club—beyond a late dinner, a comfortable arm-chair, and the use of the dark rooms and studio. The significant falling off in the amount of subscriptions recorded in the report tells its own tale.

DARK VIGNETTES.

A SHORT time ago we had something to say on the present status of the vignette, and on the circumstances in which the photographer can employ this form of photograph to advantage. Pursuing the subject, it may be well to refer to the type of vignette known as "Egyptian," in which the portrait melts into a dark surround. This style of graded print has had a great vogue in America, and if we wished to condemn it utterly we had only to draw attention to some atrocious effects which have been produced by this method. But there are signs of a revival of these black vignettes since the American vignetting devices have found their way on to our markets. Described briefly, they consist primarily of a card held in front of the lens which, being out of focus when photographed, merges into the body of the sitter, and thus forms a very delicately-graded vignette of any colour that the card selected happens to be. Of course, these cards usually match the grounds, thus a light grey card is used on a light grey background, a black into a black ground, and so on. The vignettters are further provided with methods of adjustment, mostly so that one can see the effect on the ground glass, but the mechanical devices merely differ in detail, and with them we have nothing to do.

The old method, which, however, suffered from the defect of not being easily adjustable and of only making a black grounding, was a cardboard mask that fitted in the bellows of the camera. Another way, though not very satisfactory, was to cover up part of the negative in the frame with cardboard, and to shade in the rest. Printing must be very deep—with most papers until bronzing results.

We think these vignettes are not subject to the same

restrictions as the more usual descriptions, and, though not liking them for the male sex, the same observations with regard to ladies' and children's costumes does not hold, though we think "dark vignettes" unsuitable for very young children. The background should match in tone the vignette card, as before mentioned; for a genuine Egyptian, the darker the ground the better, though it may be slightly graded on the shadow side, to relieve the face.

Very beautiful and striking effects are obtained by shading off a white dress, or the "drape," to black. Many Americans make very striking pictures in this way, but we think that the public will soon turn to the lighter and daintier type of portraiture, and disown the dark, though striking and artistic effects. Therefore, since it is the professional's duty not only to supply but to forestall demand, we draw attention to the matter.

SHORT VERSUS LONG WASHING.

At the period when albumen paper was practically the only one employed for prints it was thought necessary to give a very prolonged washing to ensure the removal of the last traces of hypo. It was very customary to leave the prints in water all night, and, in some instances, they were left soaking from the Saturday night till the Monday morning. This Journal, many years ago, was the first to point out that this long washing, or soaking, was detrimental to the quality of the prints, that it did not conduce to their permanency, but, on the contrary, it really impaired their permanency. We also showed that the quicker the hyposulphite and the hyposulphite of silver could be eliminated from the prints the better it was for their stability as well as for their brilliancy. Messrs. Haddon and Grundy, it will be remembered, produced analytical figures supporting the practice of short washing. They showed from experiments on Ilford printing-out paper that, after fixing, the whole of the silver is removed by thorough washing for ten minutes, and they pointed out that prolonged washing is prejudicial, as it dissolves out a part of the alum used in hardening the emulsion film.

Since then, during the last few years, a reaction seems to have set in, and short washing has become the order of the day. But it may be well to inquire if the conditions under which the short wash is often given are really sufficient to ensure the entire removal of the hypo salts? In the instructions issued with some of the gelatine papers a weaker fixing bath is given than that which used to be employed with albumen paper, while the time of immersion in it is also shorter; then follows, "wash for an hour." Now there is no question that the hypo can be as effectually removed in an hour, or even half that time, as it can be with many hours' soaking, if the work be properly done. But in many cases it is not; the prints are simply left soaking in a dish with the water changed four or five times during the time, and in the end they contain a certain proportion of hypo, with the result that after a time the prints show a change, and sometimes the cause is attributed to the gelatine paper. We alluded just now to the fact that stronger fixing baths, and longer immersion in them, were employed with albumen papers than are now used with gelatine, while it may be noted that the film is thinner and less absorbent in the former than it is in the latter. With the strong bath, and the long time in it, the conversion of the complex hypo salts of silver, insoluble in water, into the soluble salts was ensured in the print. But is this

always the case with weaker baths and shorter immersions often given with gelatine papers? Unless it is, no amount of washing will remove them, for they are practically insoluble in water. It is to the presence of these insoluble salts that the yellowing of so many gelatine prints may be attributed. The more completely a print is fixed, the more easily are the hypo salts removed from the paper, and the shorter washing it requires. As a matter of fact, as was proved years ago, the mere trace of hyposulphite

of soda, *pure and simple*, had very little injurious action on a print. It is the insoluble salts of silver that work the mischief.

These remarks, penned in the first instance with gelatino-chloride paper in mind, are still more applicable to collodion paper, the porous film of which renders the removal of the hyposulphite a more rapid operation. In this case also, of course, complete fixation is an equally important part of the process.

FLASHLIGHT POWDERS.

An extremely useful monograph has just appeared from the pen of M. Albert Londe,* from which we extract the following notes, prefacing the same by the remark that it deals with flashlight powders, which are obtainable commercially in France.

Several formulæ for making flash powders are given, and also the timely warning that, unless accustomed to chemical manipulations, the operator had better leave these severely alone, as they are extremely liable to explode—advice which we would also strongly impress upon our readers.

As regards the magnesium itself, it is pointed out that the finer the state of division the better it must be theoretically, but as in this state it naturally presents a greater surface to the air it is more liable to be oxidised. It should have a silvery grey metallic appearance, free from any signs of white which shows that it has oxidised more or less. It should also be quite free from lumps, which show the presence of damp.

Caution is given about keeping a stock of flash powders, and the dangers of sending by post or rail, and of attempting to powder the various ingredients. We would again add to this, and say that they should not be mixed by the operator at all.

Methods of Firing.

A flash powder to be satisfactory must fire at once, and this depends to some extent on the composition of the same and the method of firing. This may be by one match half buried in the powder and lit by a second; but there is danger of one getting burnt, unless the second match be held at the end of a stick or taper-holder. Special arrangements are obtainable commercially for safely firing by means of a match which is automatically struck at the desired moment.

Another method is by using a small piece of guncotton or pyroxyline, and lighting this by the aid of a match at the end of a cane. This is very satisfactory if the pyroxyline is pulled out into a loose line or tuft, and the powder sprinkled over it. There is another method in which the powder is tied up in a little bag of touch-paper, and fired by means of a tuft of guncotton. The most satisfactory is by firing it by means of electricity, and this is especially useful when two or more charges have to be simultaneously fired. A spark may be caused by a coil or a current may be passed through a thin platinum wire, which, rendered incandescent, is sufficient to fire the powder. It is, however, but rarely that these will be used by the average worker, because a convenient source of electricity is not always to hand.

Each method has, of course, its advantages and disadvantages, and personally our experience is that the guncotton and a long taper are the most satisfactory, even when two or more lots have to be simultaneously fired at different places, provided assistants can be obtained, and it is very easy to drill them into firing at a given signal, using the taper as a band-master's bâton.

Duration of the Flash.

According to M. Londe, it is somewhat generally assumed that the duration of a flash is very short, varying from 1-50th to 1-80th, or even 1-125th of a second. To prove the actual duration he used the well-known method of a revolving plate, and the light reflected from a mirror attached to one arm of a tuning-fork, the whole being electrically controlled, and on development the sinusoidal curve on the plate was measured and the duration of the flash calculated. Eleven powders were tested, one gramme of each being fired, and the longest exposure was found to be 1-5th of a second and the shortest 1-30th. We may as well call attention here to the fact that the totality of the flash has absolutely no relation to the efficiency of the same, but this will be referred to later.

The duration of the flash is dependent on various factors; but, calling the unknown ingredients of a flash-powder X, the following little table is instructive:—

		Duration of Flash.
1. X	100	0.07 sec.
Magnesium	150	0.07 sec.
2. X	100	0.10 sec.
Magnesium	175	0.10 sec.
3. X	100	0.11 sec.
Magnesium	225	0.11 sec.
4. X	100	much above 0.12 sec.
Magnesium	250	much above 0.12 sec.

Another instructive experiment was the firing of a freshly made powder and one that was old:—

	Duration.	Delay.
Fresh powder	0.03 sec. ...	None.
Old powder	0.15 sec. ...	0.06 sec.

The term "delay" means the interval between the application of the fire and the flash.

The weight of the charge must obviously play no mean part in the duration of the flash, and the following table shows it:—

	Duration.
1 gramme	0.03 sec.
2 grammes	0.05 sec.
3 grammes	0.07 sec.

The particular manner in which the charge is laid also plays a part; thus:—

	Duration.
1 gramme in a heap	0.2 sec.
1 gramme spread out	0.4 sec.

The method of firing affects the duration:—

	Duration.
Electric	0.14 sec.
Percussion cap	0.144 sec.
Match	0.188 sec.
Touch-paper	0.280 sec.

* "La Photographie à l'éclair Magnésique." Published by Panthiers-Villars, 65, Quai des Grands Augustus, Paris. Price 4 fr.

The plate affects the figures obtained, as shown, as follows:—

	Duration.
Lumière violet label (ultra-rapid)	0.12 sec.
Lumière blue label (extra-rapid)	0.10 sec.
Lumière yellow label (ordinary)	0.09 sec.
Lumière red label	0.05 sec.

Further researches are promised by M. Londe on this point.

The Closing of the Eyes of the Sitter.

It is a well-known fact that many flashlight portraits show unnatural effects about the eyes, and in many cases they appear half-closed, in some completely closed, and in others abnormally large, the last case being of course due to the absence of other lights in the room; but the following table by M. Londe proves how short a flash should be not to show partial or complete closing of the eyes:—

	Commencement of closing.	Finish of closing.
A powder	0.08	0.12
B powder	0.09	0.12
C powder	0.08	0.12
D powder	0.09	0.11
E powder	0.09	0.11
F powder	0.08	0.10
G powder	0.08	0.11

These results were obtained by the aid of the author's well-known chronophotographic camera, which practically consists of twelve lenses in three rows of four each, electrically opened for 1-200th of a second, with an interval of 1-100th of a second between each exposure. The ultimate result is that any powder that burns longer than about 1-12th of a second will not give a natural appearance to the eyes.

The form and nature of the flame and the "delay" and spluttering of the various powders are also of interest, and is specially instructive in the half-tone given; but it is useless to

give details without the illustration. Another table shows that some mixtures merely fuse, others explode, and yet again others fire silently. One of the most instructive illustrations is on the formation of the products of combustion. These may form such opaque clouds as to appear absolutely black to the plate, thus considerably reducing the actinic power of the light, and the author comes to the conclusion that all powders containing aluminium are particularly prone to the formation of these opaque clouds.

By the aid of his photochronograph the author studies the actinic power of the different powders, at every stage of the flash, and deduces the efficiency of the same. The first lens is opened at the moment of firing the flash, the second 1-100 sec. after the first, the third 2-100 sec. after the first, and so on, and the last 12-100 sec. after, so that the flash is thus analysed at different stages, and we extract the following table of the various actinic powers of one powder in increasing weights:—

Powder X.	No. of Lens.						
	1.	2.	3.	4.	5.	6.	7.
Figures measuring Relative Actinism.							
1 gramme ...	35000	30000	4000	—	—	—	—
3 grammes ...	80000	70000	35000	16000	4000	—	—
5 grammes ...	150000	135000	95000	48000	20000	10000	4000

Whilst these researches have all been made with commercial powders, the composition of which is unknown, they are certainly instructive, and point the way to similar researches with powders of known composition, which the author says he has not had the time to undertake, but that he may do so in the future. He has, however, done sufficient to prove, contrary to the statements of some, that a flash-powder made with aluminium is five times less actinic than one with magnesium.

ADVERTISING AND THE PROFESSIONAL PHOTOGRAPHER.

II.

LAST week I dealt on the newspaper advertisement as a signpost, and now I must particularise in cases which may be taken as representing the conditions commonly found in provincial towns. Bearing this in mind, let us see whether we can construct

Some Advertisements.

"A GOOD LIKENESS"

is the old-fashioned name
for a good portrait.

OUR PORTRAITS

are "good likenesses"—the
kind that your children's
children will treasure in the
years to come. The speci-
mens on show in our
window will convince you!

HYPO & PYRO,
16, High Street,
BLANKTOWN.

Two doors from G.P.O.

The "signpost" function is fulfilled—the information as to the proximity to the post office does that. The old-fashioned, indeed almost quaint, words of the heading attract attention, while the blank space serves as a relief to the mass of closely

printed matter of which the remainder of the page will probably consist, and thereby gives the advertisement greater prominence; and, finally, it has threefold weight, in that it not only appeals to possible sitters, but also to their children and grandchildren, who, if they do not already possess their relative's photograph, are thus more likely to remind them of it. Somewhat in the same style is

NEXT TUESDAY IS ST. VALENTINE'S DAY.

The old custom of sending
valentines has died out, but
we are sure that

A GOOD PORTRAIT

will always be received with
pleasure by your friends. We
have all the most fashionable
processes and the latest styles
in mounts.

Southtown cars pass our Studio.

PLATES & PAPERS,
London Road,
BROADVILLE.

The heading in this case attracts young people—the class to whom the fashionable processes and the latest mounts would most appeal, while the signpost function is again introduced. Early every week there is something which will serve as a leading; the idea is to make the advertisement read so that people recognise it as being that of the one studio, and yet not to be so familiar with it that they pass it without notice—which is what happens if the contents are not frequently changed. Not only the days of the calendar, but also local happenings can be turned to purpose. For example

ARE YOU INVITED TO THE MAYORAL BALL?

If so we shall be happy to be favoured with an appointment for a sitting to be given on your way to the Town Hall.

OUR STUDIOS

are fitted with a similar electric light to those in the studios in which the debutantes are photographed on their way to Their Majesties' Drawing Rooms. A letter making an appointment will have our immediate attention.

BLACK & WHITE,
The Square,
ROCKSANDS.

Perhaps not one of the sittings thus indicated will be given, but the chances are that very many people will be impressed by the fact that the advertisers are familiar with the modus operandi of the Court photographers, and when they do want to be photographed in evening or fancy costumes they will remember the advertisement. As for the three months before Christmas, every week should have a different advertisement, but all bearing on the season. Start with

THE MAILS FOR NEW ZEALAND

to reach there for Xmas will be made up at the end of this month, and those for Australia a week later. What better greeting can you send your friends "down under" than

A PORTRAIT OF YOURSELF,

and where can you have a better one taken than at the Studios of

A. CAMERA,
Chapel Street,
CHURCHTON?

Opposite Railway Station.

The unusual heading is certain to attract attention, and whether the reader has relatives abroad or not, his curiosity is aroused, only to be revived again later by

THE MOST ACCEPTABLE CHRISTMAS CARD

is one that bears the sender's photograph, especially if the latter be a good one.

THE SMITHJONES PORTRAITS

are known throughout the county for their excellence, and when mounted on any of the artistic Christmas Card mounts, a selection of which I am now showing in my windows, they constitute a Greeting which is treasured by the recipient long after the ordinary card is forgotten. There are only seven weeks to Christmas—so no time should be lost.

SMITHJONES STUDIO,
RIVERBROOK.

Then should follow the idea of giving enlargements as Christmas gifts, and, finally, two weeks before Christmas, the announcement that there is still time to have a sitting for the photographs to be delivered in time for Christmas. It would not call for very much time—not half as much time as is spent by some in grumbling at the bad state of trade—to draw up a different advertisement for every week in the year.

News Items.

A photographer should see that his name appears from time to time in the news columns of his local paper. For instance, in the mention of the photographing of a wedding party, the teams prior to a big football match, or the flashlight photograph at a dinner, it is very seldom that one sees the name of the photographer given. If there should be any happening of general interest, such as a railway collision or an explosion, of which the photographer has been fortunate enough to get some good negatives, it ought to be managed that the local newspaper's report of the occurrence should include some such notice as: "We understand that Mr. Hypo took some most interesting photographs of the effects, two of which appear in this week's 'Graphic.'" It is not much, it is true, but it serves to keep the name before the public, and, after all, there are some critics who are unkind enough to say that Miss Marie Corelli is the biggest advertiser of the day, and they are not referring to the advertising of her books which the publishers give her, either!

The Usual Thing.

Granted that this style of advertising is a departure from the "usual thing"; but when respect for the conventional is found to pay so badly that it is barely possible to make ends meet, let alone make any provision for the future, it is high time to depart from the beaten track, and as long as no breach of good taste is committed, there can be no valid objection raised. Anyway, it is ever so much better than the objectionable touting for free sittings which is unfortunately so prevalent in some districts. If anyone dislikes such advertisements, he does not feel it incumbent upon himself to write expressing his feelings; but we think that if the truth were known some very much more unpleasant replies have been received to the offers of free sittings than that of the clergyman recently reported in the "B.J.": "Is thy servant a hen that he should do this thing?"

What to Avoid.

It will be noticed that in not one of the suggested forms of advertisement is any mention made of prices, the reason being that we think it would lead to further price-cutting, of all the forms of competition in professional photography, the most objectionable. It is a game of "beggar-my-neighbour," for which the public is not in the least grateful. Photographs are not a necessity, and when people are buying luxuries they do not consider the question of prices as they do when necessities are required. Neither should there be any mention of one's competitors: even if one does not go as far as the unfortunate man who set up the sign: "Stop here, do not go elsewhere to be cheated," the impression created is likely to be other than one intends. People do not mind being told that one can do this, that, or the other, but they do resent one usurping their right to draw comparisons between the advertiser and his competitors. Yes, in advertising photographs it is decidedly good policy not to advertise how cheaply one can work; rather should arguments be advanced as to the wisdom of paying a moderate price for a high-class photograph.

Window Display.

A few photographers whose studios are on the upper floors of buildings in the main streets of our large towns, are limited to a small showcase at the door giving access to their stairway, but the great majority of photographers have, we take it, a shop, or other large window, available for the display of specimens. These windows afford opportunities for advertising which are only too frequently wasted by their proprietors, a fact which can be demonstrated by observing the number of passers-by who stop to examine the contents of the window as compared with those of the neighbouring businesses. This is not to be wondered at when one sees that the greater part of such displays consists almost entirely of closely packed cabinets, with here and there an enlargement, the subject of which is so unattractive as to lead one to think that for some reason the order is one which has been left on the photographer's hands, and rather than waste it he has put it in his window. This should not be so. If there be any one thing more than another that the public likes to-day, it is a picture, ample proof of which is afforded by the numerous weeklies and monthlies, the pages of which are more than half illustrations. This taste is one that should be

Gratified by the Photographer.

If his everyday orders are not such that they yield material of pictorial interest, he should look about him and he will soon find subjects which, if not of sufficient interest as to

make copies worth selling, will still cause passers-by to stop at his window. Despite Kipling's lament "the muddled east" still ranks high in the public estimation, and in nineteen towns out of twenty, a snapshot of the local club's first goal (with matches starting at 2.30 the light is frequently good enough for the exposure) in the Saturday afternoon's match, will give a bromide print, which, if shown on the same evening or the Monday morning will, to a very large number of people, make the window containing it the most attractive in the street. Is there a talk of town improvements? In the town hall or free library there are almost sure to be some engravings of the town in times past, and a request in the right quarters will generally bring the permission to photograph them. Thus with a view of the existing conditions, there is the material for two pictures, "The Past" and "The Present," and if the scheme be carried out, a photograph of the architect's plan will give a third, "The Future." There may be a flood or heavy snowfall: as quickly as possible have views of the town in its unusual aspect on show. In short, make the window of the town what the illustrated papers are to the country at large—a mirror of passing events. As a change, a part of the window may be turned into

A Picture Gallery.

at but a slight cost, by means of two or three of the Autotype Company's excellent reproductions in carbon of celebrated paintings, inexpensively framed in stained oak. In Essex and Suffolk towns the works of Constable and Gainsborough in Norfolk old Crome, in any of the cathedral cities Raphael and Botticelli may be indicated as especially suitable, while elsewhere the reproductions of any of the better-known paintings in the national collections will generally be found to prove of interest. Apropos of this subject, it may be mentioned that we do not see why these reproductions should not be sold by more photographers than are at present doing so; the same remark applies to photographs of celebrities, even in the bromide postcard form, now that it has so largely taken the place of the silver cabinets. The trade in both these lines is chiefly done by the stationers, but it seems to us to fit in more appropriately with the photographer's business. Whether there is much profit or not attached is beside the present question, but they would undoubtedly add to the attractiveness of the average photographer's window.

I must leave to the third and concluding article of this series some notes on other modes of advertising—viz., on railway stations, in local publications, and by post.

W. J. CASEY.

THE WEEK IN HISTORY.

A Step Forward in Collodion Emulsion.

THE correction of the fogging propensities of a collodion emulsion by addition of an acid has been the study of workers in that process so long that it is probably beyond the recollection of many exactly when it came into practice. It was one of the many valuable contributions to photographic technics which Carey Lea, of Philadelphia, published in *THE BRITISH JOURNAL OF PHOTOGRAPHY*, and appeared in the issue of April 1, 1870. The acid which Carey Lea recommended was aqua-regia in the proportion of about 1 to 2 drops per ounce of collodion. "The effect of the acidifying," he writes, "is very marked. The excess of nitrate of silver, which before could not be brought into actual solution without fogging, has no longer any such tendency. This I have tested critically

by dissolving the whole of the nitrate of silver beforehand, and then keeping the materials for a day, or even two days, in contact with frequent shaking. Even with this treatment, the negative comes out perfectly clear and bright, without the use of bromide in its development."

Big Emulsion Work.

It may be as well to mention here that at this time there was no washed emulsion. The plate was coated with the haloids in it; they were then washed out of the film after the collodion had set. Then an organifer was applied. Washed collodion-bromide emulsion process was not introduced until some four years later, when the late Mr. W. B. Bolton published it. At this time the worker had to make his own emulsion as well as coat his own plates with it. Still, the process was in much

favour with amateurs, some of whom were very enthusiastic. I remember seeing in the photographic section of the Victorian Exhibition (1897) at the Crystal Palace some three or four views in North Wales, taken direct in the field on plates of his own preparation, 24 in. by 18 in., by Mr. Osmond R. Green. They were prepared as above. Most who saw these pictures surmised they were enlargements, for there was no intimation in the catalogue that they were direct pictures. The lens used for these pictures, I am told, was a single landscape one of some seven inches in diameter, and nearly three feet focus. I imagine that there are few amateurs now who would care to take such an apparatus about with them, although they can get the plates ready prepared.

Niépce and Daguerre.

The overtures from Daguerre to the solitary Nicéphore Niépce were proceeding during the year 1827, and, as is seen from the correspondence between Niépce and his friend Lemaitre, the engraver, there was great reluctance on Niépce's part to share the knowledge he had so hardly acquired. His distrust of Daguerre peeps out in a letter to his friend, written almost exactly seventy-eight years ago. "I forgot to tell you," he writes on April 3, 1827, "in my last letter that M. Daguerre has written to me, sending me a little drawing in sepia, and finished by his process . . . but it is difficult to say how much is the result of the process only."

HISTORICUS.

CONTROL OF THE DEVELOPMENT FACTOR AT VARIOUS TEMPERATURES.

[A Paper read before the Royal Photographic Society.]

THE chief difficulty in the practice of photography has always been to decide how long to continue development in order to obtain such contrast between the different tones of the negative as shall give the desired result in the final print.

The old plan of judging by sight in front of the red lamp, though giving very good results in the hands of experienced men, was apt to fail in cases of unusual variation either in exposure or in the temperature, etc., of the developer, and is inadvisable when using the modern isochromatic plates.

"Development Factor," i.e., Contrast.

Hurter and Driffield were the first to assign an exact meaning and numerical value to the steepness of gradation between the different tones of a negative, which they expressed by the name of "Development Factor" and represented by the Greek letter gamma (γ) this being on their diagrams the tangent of the angle between the line of correct exposure and the base line representing the inertia of the plate. Hurter and Driffield determined it graphically on their charts, but it can also be calculated arithmetically by multiplying the mean regular highest differences of the successive densities measured in the photometer by the figures 3.3, and this arithmetical method we have found to be a very useful check on the accuracy of the graphical determination.

The values of γ which are used in this paper have been obtained by taking the mean between the graphic value and that obtained arithmetically.

The Subject and the Development Factor.

Hurter and Driffield also point out that while a development factor (γ) of 1.0 represents a negative true to nature it may be necessary, in order to obtain the desired quality of print, either to continue development for a longer time till a higher factor is reached, or so to shorten the period as to obtain a lower one. They suggest a $\gamma = 1.3$ for landscape, $\gamma = 1.0$ for interiors, and $\gamma = 0.8$ for portraits.

Development by Time of Appearance.

Later on, the researches of Watkins led to the well-known system of developing the plate for a certain multiple of the time of the first appearance of the image in order to obtain a definite development factor (γ), such multiple depending on the value, and in some cases the dilution of the developer, and it is only due to Mr. Watkins to say that his method when used according to his directions has within certain limits given excellent results and proved to be most valuable in photographic work.

One of the drawbacks inherent to the Watkins system is the difficulty of noting the exact time of first time appearance of the image, and unless the Watkins factor is a low one any error in estimating the time of appearance is so much magnified as to vitiate the result

obtained. Our own experiments showed us that considerable errors were easily made in determining the time of appearance, especially when using slow working developers, and it was not possible with certainty to develop so as to obtain the given γ that was desired. Moreover, though Mr. Watkins claims that his system compensates for variations of temperature in the developer within limits, we have found in practice that temperatures ranging from 15.5 deg. C. to 5 deg. C. do require an alteration in the Watkins factor.

The Effect of Temperature.

The later researches of Driffield and the valuable work of Mees and Sheppard have indicated the relation of the development factor (γ), to the time of development and suggest methods of control. We may mention that for some time after we commenced the experiments on which this paper is based we were unaware of the work which Messrs. Mees and Sheppard were doing in regard to development factors. They, however, as well as Driffield, work at a standard temperature, and have not as yet, so far as we know, published anything dealing directly with variations in the development factor (γ), due to the temperature of the developer.

Now in practical work it is very difficult to insure that the dark room, water supply, and developer, shall always be at the same standard temperature; and working at Arosa, Switzerland (6,000 ft. high), where the outside temperature often falls below -20 deg. C., we found it impossible.

We therefore made experiments with a view of determining how the development factor (γ) was affected by conjoint variations of time and temperature, in order to construct such a curve or table as would enable us, on a given plate and with a given developer, to obtain the desired development factor when working at any specified temperature between 7 deg. C. and 17 deg. C.

The Method of Working.

The plates were exposed in a modification of the Hurter and Driffield exposing machine, the wheel being so enclosed as to shield the plate from all light except that coming from the standard candle.

The exposed plates were then cut up into strips and washed in water for a definite time, so as to ensure the equal absorption of the developer; and different strips from the same plate were then developed for varying times in a considerable quantity of the same developer at the temperature selected; they were then without washing fixed in an acid fixing bath, washed, dried, and the densities measured in the photometer.

In order to maintain a constant temperature during the course of each experiment, a large water bath, cubical in shape, containing about twelve litres of water, was constructed, and inside this was a deep developing dish made of thin tin plate so placed that it was

at least 5 cm. from the walls of the water bath, and by means of projecting pieces of tin the dish could be kept in motion while immersed in the water bath and covered in from stray light. Provision was also made in the water bath for a vessel of thin glass to contain the mixed developer before use, and for the large wood-shielded thermometer which also acted as a stirrer.

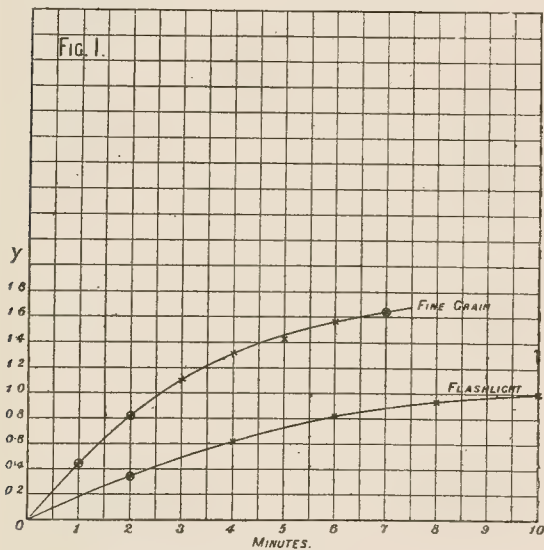
Preliminary experiments with a delicate thermometer showed that the variation of temperature in the contents of the developing dish during the continuance of an experiment was generally so small as to be negligible, and in the most extreme case amounted to less than 0.5 C.

The developer used in all our experiments was the one which we found most suitable in our usual work, and contained in 1,000 parts, 4 parts of pyro, 40 parts of crystallised sodium carbonate, 20 parts of sodium sulphite, 0.5 parts of potassium bromide, and 1 part of potassium metabisulphite used as a preservative for the pyro solution.

We may mention that the presence of bromide in such quantity as we used has no influence on the development factor, it merely at a low factor lowers the speed of the plate, but it is useful in minimising the liability to fog during prolonged development, and so renders more easy the measurement of the densities in the photometer.

"Development Factor" and Development.

It has long been known that the development factor (γ) increases with the time of development, at first rapidly, and then more slowly as the plate nears its limit of development (γ_{∞}). This rise is usually more rapid in the case of a slow plate than in a fast one, as may be well seen in Fig 1, which shows diagrammatically the course of development of an Imperial fine grain slow plate and of an



Imperial flashlight plate, both developed at a temperature of 10.5 C. for the number of minutes shown on the base line of the diagram. The points marked \times being those directly observed, those marked \circ being calculated by the formula of Mees and Sheppard,* $\gamma_t = \gamma_{\infty} (1 - e^{-kt})$.

Temperature of developer within the range of our experiments, while having no influence on the inertia and speed of the plate, has a considerable effect on the development factor. In any given time

the higher the temperature of development, the higher the development factor (γ) obtained, the increase being fairly regular until the plate begins to near its limit of development, as will be seen from the observations recorded on Diagram Fig. 2.

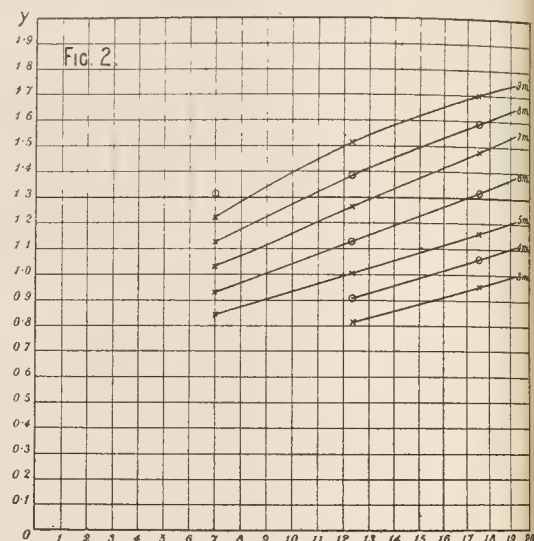


Fig. 2.

The Application of Results in Practical Work.

It is evident that it is possible for any given plate and developer, so to adjust the time of development to the temperature of the developer as to obtain an equal development factor (γ) at various temperatures of development, and the following experiments and the calculations therefrom show how this may be done, using as an example "Kodoid" plates (batch No. 654), and the developer mentioned above.

Three plates, A, B, and C, were exposed in the H. and D. exposing machine to a maximum exposure of 80 C.M.S.

Plate A was cut into four strips, A₁, A₂, A₃ and A₄, and these were developed at a temperature of 17.5 deg. C. for 3, 5, 7, and 9 minutes respectively, the densities measured in the photometer and the development factor (γ) obtained in each case was:—

A ₁	A ₂	A ₃	A ₄
$\gamma = 0.95$	1.16	1.48	1.7

Plate B was similarly treated, except that in this case the development took place at 12.3 deg. C., and development factors obtained were:—

B ₁	B ₂	B ₃	B ₄
$\gamma = 0.815$	1.00	1.265	1.515

Plate C was cut into five strips, which were developed at 7 deg. C. for 5, 6, 7, 8, and 9 minutes respectively. The development factors obtained were:—

C ₁	C ₂	C ₃	C ₄	C ₅
$\gamma = 0.845$	0.95	1.035	1.125	1.22

The results obtained in these experiments are shown together in the following table:—

DEVELOPMENT FACTORS OF "KODOID'S."

Developed for		Minutes.						
		3	4	5	6	7	8	9
at	17.5 deg. C.	0.95	—	1.10	—	1.48	—	1.7
	12.3 deg. C.	0.815	—	1.00	—	1.266	—	1.515
	7.0 deg. C.	—	—	0.845	0.98	1.035	1.125	1.22

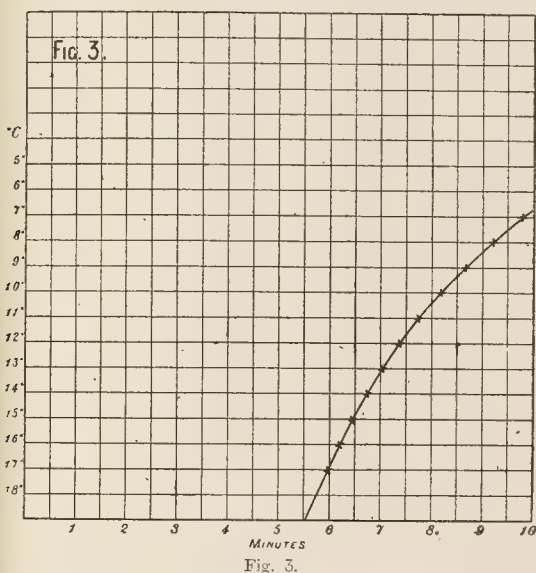
* "Photo Journal," July, 1903; November, 1904.

They were then plotted on squared paper, the development factors as ordinates, against the temperatures as abscissæ, as in Diagram Fig. 2.

A Chart of Development Times for Given "Factors."

On joining by an even curve the points representing similar times, a series of time lines is obtained, and as the increase is due to increase of time, and, within the limits of our experiments, appears to be regular, the intermediate time points for 4, 6, and 8 minutes are marked on the vertical lines representing temperatures of 12.3 deg. C. and 17.5 deg. C. midway between the lines already drawn. These points, together with the corresponding ones on the line of 7 deg. C., are also connected by even curves.

This being done, the times necessary at each degree to produce a development factor γ of 1.3 may be measured off. The squares shown in the diagram were in the original diagram further divided



into ten, horizontally and vertically, and correct measurement was rendered more easy. Thus, for example, on the line of 10 deg. C. the time lines which cut the horizontal representing $\gamma = 1.3$ are 12.25 divisions of the squared paper apart, and the $\gamma = 1.3$ line is 2.25 divisions above the 8-minutes line then

$$\frac{2.25}{12.25} \times 60 = 11$$

is the number of seconds to be added to the 8 minutes represented by the lower line in order to arrive at the time of development at 10 deg. C. necessary to produce a development factor of 1.3; that is 8 minutes 11 seconds.

In this way the following numbers have been obtained at

	min.	sec.		min.	sec.
7 deg. C. ...	9	50	13 deg. C. ...	7	4
8 deg. C. ...	9	12	14 deg. C. ...	6	44
9 deg. C. ...	8	39	15 deg. C. ...	6	29
10 deg. C. ...	8	11	16 deg. C. ...	6	14
11 deg. C. ...	7	47	17 deg. C. ...	6	0
12 deg. C. ...	7	25			

For the purpose of detecting and eliminating errors of experiment, these times were then plotted on squared paper as abscissæ against the temperatures as ordinates, and a curve drawn evenly between the points as in Fig. 3.

It will be seen that in this case the points lie on a fairly regular curve, showing the absence of any considerable errors of experiment.

From such a curve the time of development at any temperature between 7 deg. C. and 17 deg. C. necessary to produce a development factor of 1.3 may be read off; and it is evident that in a similar manner curves suitable for other development factors may easily be calculated.

In Landscape Work.

Several films of the same batch were exposed on difficult landscape subjects of great range of tones, comprising snow-fields, buildings, and dark masses of fir trees. The temperature of the dark room having been ascertained, a supply of water was raised to the same temperature, and with this the film was washed and the developer compounded, the stock solutions being already at the temperature of the room in which they were kept. In this way the films, the dishes, and the developer were all at the same temperature, i.e., the temperature of the dark room and there was no variation of temperature during development.

On many occasions they were developed at various temperatures for the times indicated by the chart, and the results produced proved far superior to those developed by us on any other plan.

It has been suggested to us that the constants of plates, and more especially of films, alter so rapidly from time to time as to render such a system as we propose uncertain, but we found in practice that after an interval of six months, during which no photography was done it was possible to take up work again with the same batch of films and developing according to our table to get results of the same quality as before, showing that the constants of these films do not alter sufficiently within six months to materially affect the results. It is our hope that the makers of plates and films may be induced to issue with each batch of emulsion a table drawn up on the lines we have indicated for use with the particular developer they recommend, so as to enable photographers to develop with certainty at any temperature to a factor of 0.8, 1.0, or 1.3, as they may desire.

The slight expense involved in the preparation and issue of such a table would probably be more than compensated by the increased sale of plates accompanied by so sure a guide to their development.

W. B. FERGUSON, K.C., M.A., F.R.P.S.
B. F. HOWARD, A.M.I.E.E., F.R.P.S.

Tax on Photographs.—A correspondent to "The Express" writes that tourists at Pompeii, Naples, San Martino, and other Italian cities are practically prohibited from taking snapshots of historic places. Formerly a permit could be obtained for a nominal fee, but now the objects intended to be photographed have to be specified in writing, and a tax, varying from 5d. to 4s., is imposed for every negative.

THE Amateur Photographic Association of Victoria opened its annual exhibition on February 20 last in the Victorian Artists' Society's Galleries, Melbourne, and the catalogue and award list, kindly sent us by Mr. A. L. Henderson, who is touring in the Antipodes, show that our Australian cousins are as well to the front in the organisation and production of a successful exhibition as any society in the Old Country. The association is the oldest photographic society in Australasia, being founded in 1883, and boasts not only an extensive membership, but many first-class workers in its ranks. The catalogue of the exhibition is illustrated with many full-page half-tone reproductions of the pictures, and is a noteworthy production. In addition to the competitive classes, which appear to have been confined to exhibitors south of the equator, the loan collection of the Royal Photographic Society of Great Britain, to which the association is affiliated, formed an interesting display.

Photo-Mechanical Notes.

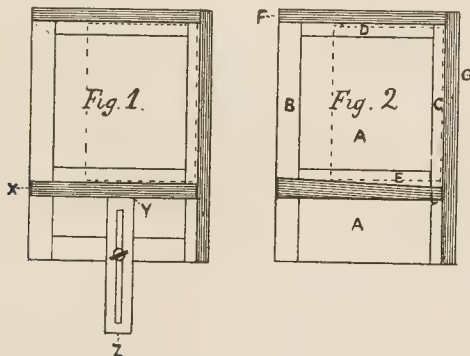
An Improved Glass-Cleaning Holder.

Most wet-plate operators are familiar with the vice used for holding the glass plate, when cleaning for wet-plate photography.

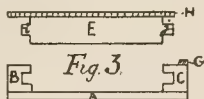
The form usually employed is shown in Fig. 1. There are, however, some objections to this style, viz., the projecting piece Z is not required, and is decidedly inconvenient; also, the plate when rubbed with a circular motion slips from one side to the other, unless very firmly clamped.

The writer has devised a holder, that has been in constant use for the last six months, which does away with these objections. Pressure from the thumb takes the place of the screw, and the plate is immediately clamped by one movement. The slanting piece, H, Fig. 2, securely locks the plate in the corner of the frame, thus preventing any movement of the glass.

One of these holders can easily be constructed from material generally found in a process workshop. The base-board A, Fig. 2, is made from some half inch wood, cut to the required size. Two strips of mounting wood, the length of the base-board and two and a-half inches wide, form the sides B C, Fig. 2.



These strips should have a couple of grooves routed or ploughed in one side of each (see section, Fig. 3, B C). Another piece of wood, three inches wide, is now required of the same thickness as the sides. When the necessary length is found, cut a tongue at each end to fit in the grooves described Fig. 3, i j.



Section of Holder, Showing Sliding Bar and Grooves.

Screw the side rails B C to the base-board A, parallel to each other. Cut another length of wood, two and a-half inches wide, D, to fit between B C at the top. Slide E (which should work easily) into its place. Make the rebate, that is to hold the glass, from some hard wood about one-eighth of an inch in thickness and one inch wide. Screw one of these pieces across the top of frame, Fig. 2, F (shaded portion), another length down the side G, the remaining piece cut one and a-half inches wide slanting down one side to one inch or less; screw into position as shown at H. The inside edges of rebate should be smoothed and slightly rounded.

The old form of holder can be altered without difficulty in the following manner:—Saw off X, Fig. 1. Take away the rebate

Y, and substitute a thin piece of wood shaped as previously described (see Fig. 2, H). The dotted lines in each diagram show the glass in position for cleaning. It is necessary to screw the holder down to the cleaning bench. W. J. SMITH.

THE OPTICAL CONVENTION.

In regard to this Convention, to be held, as we have already announced, at the Northampton Institute, Clerkenwell, E.C., from May 31 to June 3, we learn from the hon. secretary that offers to read papers should be sent to the Secretary of the Papers Sub-committee, Mr. S. D. Chalmers, Northampton Institute, E.C., who will be glad to submit them to the committee. During the Convention, an exhibition of optical and scientific instruments and appliances will be held in the great hall of the Northampton Institute. A large number of persons and firms have promised to send exhibits, among whom are Messrs. Ross, Ltd., Messrs. R. and J. Beck, Messrs. J. H. Dallmeyer, Ltd., Messrs. Newman and Guardia, Messrs. Aldis Bros., Messrs. W. Watson and Sons, and Messrs. B. J. Hall and Co.

In connection with the exhibition an illustrated catalogue of some 300 pages will be issued, which should make a most useful work of reference, and will, it is hoped, give very full information with regard to the British industries. The preparation of this is in the hands of an Exhibition and Catalogue Sub-committee, with Dr. Walmsley, Principal of the Northampton Institute as chairman. It is hoped that all those interested will apply for membership of the Convention, the subscription for which will be 6s. The hon. secretary, Mr. F. J. Selby, Elm Lodge, Teddington, will be glad to receive the names of those wishing to join the Convention. A guarantee fund has been opened, and the total of guarantees and contributions now amount to over £700. Promises of guarantees or donations should be sent to the hon. treasurer, Mr. E. B. Knobel, P.R.A.S., 32, Tavistock Square, W.C.

The programme of arrangements for the Convention is now beginning to assume a definite shape. The following reach us as we go to press:—

The Convention will be formally opened with an address from the President, Dr. R. T. Glazebrook, M.A., F.R.S., Director of the National Physical Laboratory, on the evening of Tuesday, May 30, and the gathering will extend over the four following days up to and including Saturday, June 3. The mornings will be devoted to papers and discussions, and in view of the interesting series of papers already announced, there is no doubt that this most important section of the proceedings will result in valuable contributions to optical science, and will fulfil the aims which those who have been active in promoting the Convention have set before them. In addition to the papers, demonstrations of apparatus of special interest will be given in the afternoons in the laboratories of the Department of Technical Optics of the Northampton Institute.

The exhibition of optical and scientific instruments will be held in the large hall of the Northampton Institute, and will be open daily to the public from 12 to 10 p.m., between May 31 and June 3 inclusive. The charge for admission will be 1s. during the day, and 6d. after 7 p.m.

The catalogue is now in active preparation. The arrangement made by the Exhibition and Catalogue Sub-committee that each section should be dealt with by an expert in the construction of the instruments represented in the section, together with an independent scientific member of the committee, will ensure that all classes of instruments shall be adequately dealt with and described. It is proposed to fix the sale price of the catalogue, which will be a volume of some 300 quarto pages, at 1s. 6d., while in large numbers of 100 and upwards the catalogues will be issued to firms at a cost of 1s.

each. The hon. secretary would be glad to hear at once from firms wishing to take a number of the catalogues for private distribution.

Arrangements for promoting the social interest of the gathering and for providing for the comfort and convenience of members attending from outside London, are now being considered by a Hospitality and Entertainments Sub-committee. In addition to the presidential address to be given on the Tuesday evening, which has already been mentioned, there will be an evening lecture by Professor Silvanus P. Thompson, D.Sc., F.R.S., on "The Polarisation of Light by Nicol Prisms and their Modern Varieties." On the third evening it is proposed to hold a conversazione, and for the Saturday afternoon a visit to the National Physical Laboratory at Teddington is proposed at the kind invitation of Dr. Glazebrook, the President of the Convention. Further particulars will be announced later, when the programme is more definitely settled. It will greatly help towards ensuring the social success of the Convention if intending members will send in their application at once. The subscription for membership is 5s. The hon. secretary, Mr. F. J. Selby, Elm Lodge, Teddington, Middlesex, will be glad to hear from those wishing to join the Convention.

The Local Societies' and Representatives' Sub-committee is dealing with the question of facilities for the attendance of visitors from a distance. The secretary of this committee is Mr. W. Rosenhain, B.A., 443, Gillott Road, Edgbaston, Birmingham. Mr. Rosenhain will be glad to give information in answer to inquiries, and will also be ready to receive applications for membership of the Convention.

Exhibitions.

PAISLEY.

LAST week the members of the Photographic Section of the Paisley Philosophical Institute opened their nineteenth annual exhibition in the Observatory Hall. The classes were not this year entirely restricted to members, one class being open to Associates of the Scottish Photographic Federation, and it received over fifty entries. The judges were Messrs. J. Craig Annan, William Goodwin, and Thomas W. Robertson.

The following is the list of awards:—

"Federation" Class.—Gold medal.—"A Picture Book," J. C. Robertson, Brechin. Silver medals.—"Of Highland Descent," A. Chapel Milne, Brechin; "A Foster Mother," Dr. Andrew Richmond, Paisley.

Members' Classes (Any size, any subject).—1, "Sweet Thoughtfulness," Sydney Crookes; 2, "Softly Falls the Silvery Light," R. W. Steel.

Instantaneous Class.—1, "In the City Garden," George Coghill; 2, "Harvesting," R. W. Steel.

Unframed Pictures.—1, "Woodland Study," Thomas Carlile; 2, "By Lone Loch Awe," George Murray.

Novice Class.—1, "Just Out," James Taylor; 2, "Figure Study," Hugh F. Hamilton; 3, "Beneath the Woods and Rocks Oftentimes for a Home," George Coghill.

Lantern Slides (Novice).—1, James A. Taylor; 2, James Lambie.

Lantern Slides.—1, R. W. Steel; 2, Thomas Carlile.

The exhibition remains open until April 8.

THE NORTHERN PHOTOGRAPHIC EXHIBITION.

THE Northern Photographic Exhibition will be held this year at the Leeds City Art Gallery from July 4 to August 12 next.

The judges will be Messrs. Reginald Craigie, Douglas English, B.A., F.R.P.S., Gilbert Foster, A. Horsley Hinton, and W. Edwin Tindall, R.B.A. Fifteen awards in the form of decorative bronze plaques, about 14 in. by 9 in., specially designed, will be at

the disposal of the judges in the following sections:—A.—Pictorial Photographs.—Eight plaques. B.—Scientific and Technical Photographs.—Two plaques. C.—Pictorial Lantern Slides (set of four).—Two plaques. D.—Scientific and Technical Lantern Slides (set of four).—One plaque. E.—Tri-Colour Lantern Slides (set of four).—One plaque. F.—Trade Exhibits (for the most attractive display).—One plaque. The adjudication of the trade exhibits will be by the ballot of the Executive Council and Exhibition Representatives combined.

The St. Louis collection of British Pictorial Photography, direct from the St. Louis Exhibition, will be one of the features of the show, while, with regard to the attendance of the public, it has been decided to add interest to the exhibition by awarding a picture value one guinea to the person whose visit registers 1,000 at the turnstile, and likewise for each succeeding 1,000th visitor. The picture to be selected by the winner from the walls of the exhibition. Scholars attending any of the public schools will have the privilege of attending the exhibition at a nominal admission of a penny each in parties of twelve or more. Lantern lectures on popular and photographic lines, and also chamber concerts, will be among the attractions. All exhibits (excepting lantern slides) must be delivered not later than Tuesday, June 20, 1905, addressed to F. G. Issott, Hon. Secretary, Northern Photographic Exhibition, City Art Gallery, Leeds. Lantern slides must be sent addressed to F. G. Issott, 62, Compton Road, Harehills, Leeds, who will furnish entry forms and full particulars on application.

[Owing to pressure of space the list of Forthcoming Exhibitions and Competitions is unavoidably left over this week.]

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between March 13 and 18, 1905:—

PLATE HOLDERS.—No. 5,198. "Improvements in photographic plate holders and the like." Walter Taylor, 20, Champion Park, Denmark Hill, London.

PLATE WASHER.—No. 5,430. "Photographic plate washer." Hector Ross Urquhart, 134, Florence Road, Wimbledon, Surrey.

PHOTO-LITHOGRAPHY.—No. 5,473. "Improvements in the production by photography of lithographic or other printing surfaces." Sir Joseph Causton and Sons, Ltd., and William George Meredith, 24, Southampton Buildings, Chancery Lane, London.

CINEMATOGRAPH MACHINES.—No. 5,676. "Improvements in and relating to cinematograph machines." Frederick William Butcher, 322, High Holborn.

CINEMATOGRAPH MACHINES.—No. 5,682. "Improvements in cinematograph projecting machines." Charles Urban, 48, Rupert Street, London.

NEGATIVE PLATES.—No. 5,780. "Improvements in and relating to negative plates for photographic printing." William Jay Little, 7, Southampton Buildings, Chancery Lane, London. (Date applied for under Patents Act, 1901, March 19, 1904, being date of application in United States.)

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

CELLULOID.—No. 5,280, 1904. "It is claimed that celluloid may be prepared without camphor by dissolving the pyroxyline in turpentine, certain ketones, etc., with methyl alcohol and ether." R. E. M. Ortmann, 37, Park Road, Forest Hill, London.

THREE-COLOUR PROJECTION.—No. 7,179, 1904. "Protection is claimed for a system of projecting the three positive colour records in which a set of mirrors are arranged outside the lens. The system of mirrors may consist of four single mirrors, in which case the central colour record is projected directly to the screen, or the two central mirrors may have reflecting surfaces on each side. The arrangement is suggested for cinematograph projection, and it is claimed that under favourable conditions the mirrors can be used for producing the original negatives as well as for projecting the resulting colour records on the screen. In any event means are provided not only for adjusting the angles of the reflectors as already mentioned, but also for varying their distances from one another and from the lens. The mirrors should be enclosed in a box with a suitable opening or with suitable openings, to allow the image or images to pass to the lens, and the box of mirrors may be so small as to be easily attached to the lens hood." W. N. Lascelles Davidson, 20, Middle Street, Brighton.

PRINTING BORDERS.—No. 9,515, 1904. "The patentee prepares, from glass, celluloid, or paper, (1) a border-negative and picture-mask, (2) a border-mask and picture-opening. The first consists of a marginal negative design through which the border is printed, and a central opaque portion to protect the paper from light. The second enables the border to be masked whilst the print is taken through the opening, which was opaque in the 'border-negative and picture-mask.' These two parts, 1 and 2, are joined together in register to form a kind of envelope. The sensitive photographic printing paper is placed in this envelope and held fixed in relation to the two sides while the border is printed from one side of the sensitive paper, preferably through the unsensitised side and the picture from the opposite side, either simultaneously or one after the other; or both picture and border may be printed in succession from the same side of the sensitive paper by reversing the latter so that the sensitive side comes in contact first with one side of the envelope or folder and then with the other side." P. A. Hillhouse, Whitworth, Bushby, Scotland.

TONING BROMIDES.—No. 10,898, 1904. "The claim is for a method of toning silver pictures by treating the picture first with a solution of a manganic salt, a ferricyanide and an acid, and then with an alkaline solution of a ferricyanide, and afterwards colouring in any suitable manner the manganese picture thus produced. The following is a specimen of the way the process is carried out:—Solutions: A.—3 c.c. of 10 per cent. potassium bromide solution, 2 c.c. of 10 per cent. citric acid solution, 3 c.c. of the manganic solution prescribed below. B.—20 c.c. of 2 per cent. potassium ferricyanide solution, 80 c.c. of water. The manganic solution to be added in solution A. is made from 150 grams of sodium tartrate, 25 grams of crystallised manganous sulphate, 100 c.c. of normal caustic soda solution, 100 c.c. of 4 per cent. potassium permanganate solution. Bromide prints are treated in a bath composed of equal parts of A. and B. until the silver has disappeared. It is washed for a short time and then brought into Bath II., whereupon it assumes a brown colour. Bath II.—90 c.c. of 2 per cent. potassium ferricyanide solution, 10 c.c. of normal caustic soda solution. The manganese picture thus produced is now again washed and may be coloured in the known manner by means of aniline hydrochloride, for instance." A. G. Bloxham, Birkbeck Bank Chambers, Southampton Buildings, London, for the Neue Photographische Gesellschaft, 27, Siemensstrasse, Steglitz, Berlin.

PRINTING FRAMES.—22,960, 1904. "1. A printing apparatus consisting of a curved wooden frame, carrying a curved piece of glass, a cover cloth fixed to one end of the frame, a roller mounted

on the opposite end of the frame adapted to receive the free end of the cover cloth in such a manner that the strain exerted on the cover cloth by the roller acts tangentially to the curved piece of glass." F. Nusch, 81, High Holborn, W.C., for the Brothers Pabst, 51, Ludwigsstrasse, Ludwigshafen, Germany.

VIEWING PHOTOGRAPHS SUCCESSIVELY.—No. 22,999, 1904. "Protection is claimed for an arrangement whereby a pile of photographs or transparencies, each member of which is placed horizontally, is brought one by one into a vertical position, i.e., at right angles to the axis of the lens. The pictures are disengaged one by one by a series of hooks and notches, and the method is shown as applied to a stereoscope." Charles Fougerat, 149, Avenue de Saxe, Lyons.

CAMERAS AND DARK SLIDES.—No. 27,909, 1904. "This invention relates to an improvement in cameras and plate-holders which has for its object to quickly and perfectly close the slot through which the light-shield slide of the camera or of the plate-holder is introduced and thus avoid any possibility of injury to the photographic plates or films by reason of light entering the camera or plate-holder through the slot." J. S. Wright, Duxbury, Plymouth, Mass., U.S.A.

"BARNET" Showcards.—Messrs. Elliott and Sons look after their advertising literature in no parsimonious fashion. Their policy in this direction is shown in their use of designs by well-known artists, but perhaps the dealer who reads these lines has most need to note the very ornate and attractive window and show cards now being issued to draw the notice of the customer to the many Barnet products. We are advising our dealer friend for his good when we urge him to obtain the parcel of cards which Messrs. Elliott will send on application.

SCIENCE Hot from the Press!—The "Globe" of last Friday announces that "MM. Gullstrand and Von Rohr have invented an achromatic lens known as the 'verant,' which is made by the well-known firm of Carl Zeiss, and gives the stereoscopic or 'solid' effect to an ordinary single photograph."

A NEW LIST.—The Teila Camera Company, of 110, Shaftesbury Avenue, London, W., send us their latest catalogue of up-to-date photographic apparatus, lenses, and sundries. The company has made it their business to supply every make of apparatus at lowest cash prices, or on a system of weekly or monthly payments. They also give advice on apparatus, either personally or by post, and have for a number of years made a specialty of exchanging old cameras for new, or making an allowance on old ones in part payment for new. A large stock of second-hand apparatus is on hand, and they are prepared to lend on hire any class of camera or apparatus appearing in their second-hand list. Special terms are quoted to professional photographers, and the present list, which is very complete and well illustrated, contains practically everything likely to be required by the amateur or professional. It will be sent post free on application.

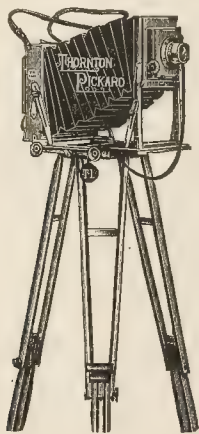
THE handsome list of microscopes and accessories made by the Bausch and Lomb Optical Co., reaches us from the British agents, Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C., who will send it to applicants on receipt of three-pence for postage.

ART Fails to Draw.—The report of the National Gallery for 1904, just issued as a Parliamentary paper, is the last of the series by Sir Edward J. Poynter, as his second term of directorship was prolonged only to December 31. The gallery does not seem to be holding its former position in popularity. The attendances have been declining both on free days and Sundays, and also on students' days. The attendance also at the Tate Gallery last year was 187,899, against 206,494 in 1903.

New Apparatus, &c.

"Special Ruby" Camera Outfit. Made by the Thornton-Pickard Manufacturing Company, Limited, Altrincham.

The Thornton-Pickard Company have placed upon the market a special form of their well-known "Ruby" camera at a price which secures a high-class instrument within the buying powers of those of moderate purse. £5 5s. will purchase the complete set in the half-size—camera, shutter, tripod, and lens—and, with due regard to the thorough and substantial manner in which the apparatus is made out, the price is one to which the Thornton-Pickard Company legitimately point as indicating an achievement in the production of reliable photographic cameras. Turning to the technical points of the outfit, the camera extends to 16 inches between lens, panel, and plate, and though built in the conical pattern, the front is 4½



inches in width, a dimension which permits of stereoscopic working done with a pair of lenses, but does not overtax the maker's powers in producing an instrument which folds to the slimmest proportions. There is great rise of front, sufficient to bring the lens on a level with the top of the plate. Although essentially a stand camera, the instrument can conveniently be fitted with a focussing scale for use in the hand, and the back racks close to the front for use with lenses of short focus. The tripod is attached by rotating turntable, which is firmly held in place, and is released by a set screw. A Beck rapid symmetrical lens, with diaphragm, completes the outfit, which, as we have said, costs £5 5s. with one double dark slide, and should certainly gratify prospective purchaser, as it has ourselves, after a careful inspection. A circular, descriptive of the apparatus, is issued by the Thornton-Pickard Company, and gives the prices for the other sizes from ½ plate to 18 by 24—in which the camera is made.

The price list of the Camera Construction Company, Eagle Works, 10, Ham Grove, Hackney, London, N.E., runs to more than twenty pages, but is worth possession by dealer, professional, or amateur photographer, since every article is actually manufactured by the company. The company's specialties include field and studio cameras, printing frames, and other accessories for photography and photo-etching.

A new pattern of Kodak is announced by the Kodak Company, and one which dealers may well have ready for early introduction to

their customers. The newcomer will permit of each picture being focussed on the ground glass without disturbing the roll of film. It will be made in 5 by 4 size, and will carry plates as well as roll films.

THE agency of the Smith Multifilm Plate, recently mentioned in this column, has been undertaken by Messrs. A. W. Penrose and Co., 109, Farringdon Road, London, E.C.

Commercial & Legal Intelligence

FALSE Pretences.—At the Birmingham Police Court last week, Oswald Arthur Fleming, photographer, was charged on remand with obtaining four packets of cabinet Velox papers and other articles, from Messrs. Needham, Ltd., Old Square, by false pretences. According to the evidence, the prisoner went to the shop of Messrs. Needham, and on the representation that he was in the employ of Mr. Charles Worcester, fine art publisher, of Bristol, he obtained the goods on credit. It transpired, however, that he was not employed at that time by Mr. Worcester, but some time previously he had been engaged as his traveller. He was sentenced to 14 days' imprisonment.

BANKRUPTCY.—At the Leeds County Court on Monday, before Mr. Registrar Marshall, William Elland, photographer, of 14, New Briggate, Leeds, and residing at 81, Hill Top Mount, Leeds, appeared for his public examination. The liabilities amounted to £536 2s. 4d., and the assets to £178 7s. The alleged causes of failure were "bad trade and three bad seasons." For twelve years the debtor was manager for a wholesale photographic dealer at Manchester, and afterwards became secretary and manager for Eddison and Co., Ltd., Leeds, in which he invested £500. In July, 1897, he purchased the branch business at New Briggate for £600, and he was obliged to spend a further £150 in new stock and apparatus. The examination was adjourned.

TWENTY-FIVE Pounds for a Damaged Negative.—At the Leeds County Court on Friday last an action was brought by Alexander Good, photographer, of 25, Camp Road, Leeds, against the Midland Railway to recover £100, the value of the negative of a photograph of Lord Dudley, Lord-Lieutenant of Ireland, which the plaintiff alleged was broken while in transit from Leeds to Messrs. Morgan and Kidd, of Richmond, Surrey, on October 7 last. The negative had been a source of considerable income to the plaintiff. In consequence of its breakage he had been unable to execute an order amounting to £156 10s. Judgment was given for the plaintiff, the Judge finding the value of the negative to be £25.

ANOTHER Copyright Case.—A copyright case of considerable interest and importance to photographers generally was decided last week at the Bangor County Court. Penalties under the Fine Arts Copyright Act, 1862, were claimed by Miss Charlotte Daw from Mr. John Wickens, photographer, of Bangor, for, as alleged, fraudulently affixing his name to two water-colour paintings executed by her, and afterwards selling them to the late Marquis of Anglesey. Miss Cox is a professional painter. In April, 1903, defendant asked her to execute two water-colour paintings of the theatre at Anglesey Castle. The paintings were finished, and handed over to Mr. Wickens, and subsequently plaintiff saw the two paintings among the effects to be sold at Anglesey Castle. She found they bore Mr. Wickens's name, which, in effect, announced to the world that he was the author of those paintings, which was not only a fraud upon her but upon the public. The pictures were bought by a dealer, from whom defendant afterwards bought them, and displayed them in his window. Defendant

repudiated any liability, alleging the pictures were produced under his direction, and issued from his studio, after he had "finished" them. Replying to her counsel, the plaintiff said defendant had paid her £12 for this and other work done by her for him. Other evidence having been given the Judge said that, in his opinion, the Act did not apply, and that if he were asked he would say he did not think Mr. Wickens had acted fraudulently. As far as he could see, plaintiff had sustained no damages at all, and he had no doubt the result of the action would be to enhance her business a great deal. The jury took fully an hour to consider their verdict, and, on returning to court, said that on the first count they found there was no fraudulent intent; and, on the second, that the plaintiff imposed no restrictions on the defendant. As to the third point, they thought it was not right of Mr. Wickens to place his name on Miss Cox's work. His Honour said the onus of proving a contract rested on the plaintiff. The verdict and judgment was, therefore, for the defendant, with costs.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
31	Greenock Camera Club	"Photography" and "A. P." Prize Slides.
31	Wakefield Photo. Society	<i>Enlarged Negatives.</i> Demonstrated.
31	Aberdeen Photo. Assn.	Mr. F. Rust.
31	Watford Photo. Society	Instruction Night.
31	Watford Camera Club	Printing Methods—Gum Bichromate.
31	West London Photo. Society	Mr. J. O. Grant.
31	Watford Camera Club	Lecture by Mr. C. O. Murray.
31	Watford Camera Club	Photographic Lecture by Mr. W. D. Welford, F.R.P.S.
April.	South London Photo. Society	Annual General Meeting.
3	Camera Club	<i>A Journey to South America.</i> Mr. F. Mearns-Duncan.
3	Southampton Camera Club	Lantern Slide Competition. Subject— <i>Flowers or Still Life.</i>
3	Bowes Pk. and Dis. Ph. Soc.	Carbon Printing. Mr. Henry W. Bennett, F.R.P.S.
4	Royal Photographic Society	<i>The Negative in Portraiture.</i> Demonstrated. Mr. A. G. Field.
4	Glasgow Southern Photo. Assn.	Photographic News Prize Slides.
4	Rotherham Photo. Society	<i>Mounts and Mounting.</i> Dr. Paterson.
4	Leeds Photographic Society	<i>Little Things and Pictorial Photography.</i> Mr. W. D. Welford, F.R.P.S.
5	Edinburgh Photo. Society	<i>Pin-hole Photography.</i> Illustrated. Mr. A. P. Noble.
5	G.E.R. Mechanics' Institution	Carbon Printing. Mr. H. W. Bennett, F.R.P.S.
5	Cricklewood Photo. Society	<i>What can be done with a Hand Camera.</i> Messrs. Goetz & Co.
5	Everton Camera Club	<i>Carbon, the Amateur's Process.</i> Demonstrated. Mr. W. D. Welford, F.R.P.S.
5	Boro' Poly. Photo. Society	Rummage Sale of Members' Apparatus, &c.
6	Richmond Camera Club	Lantern Evening. Members' Slides.
6	Hull Photographic Society	Annual General Meeting.
6	Leigh Photographic Society	Members' Slides and Exhibit of Apparatus.
6	Röntgen Society	Exhibition Evening.
6	Batley and Dis. Photo. Soc.	<i>Taste and Selection of Subject.</i> Mr. Percy Sheard.
6	Southport Photo. Society	Members' Lantern Slide Competition.
6	L.C.C. Sch. of Ph.-Engraving	<i>Etching and Engraving.</i> Mr. W. Staig.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held March 29, the President, Major-General Waterhouse, in the chair. Mr. Gerald Bishop (Marion and Co.) showed the "Sinnox" system of daylight changing of plates, and exhibited a new folding pocket camera possessing the features of small bulk and ease of opening and closing.

Mr. William Gamble then read a paper, "Cameras and other Apparatus for Three-colour Work," in the course of which he subjected to a lengthy review the forms of taking and viewing instruments employed in trichromatic processes of colour photography. In speaking of exposures, he instanced the repeating back as the simplest and also the slowest method of making the three exposures. Methods

of synchronising the change of the plate with that of the filter were not reached a very practical stage in application to repeating-back. In reference to cameras in which three exposures were made simultaneously by three separate lenses, he explained that the difference in view point was a fatal defect of such systems, affecting the perspective of the three images. The plan adopted by Captain Laegee Davidson, under the name of the "Auto-shift Baseboard," obviated this difficulty, and provided a central position of the lens at each exposure. The ideal system in three-colour negative making "one lens, one plate," and Mr. Gamble described the various steps towards this result made by Ives, Du Hauron, and Sanger Shephard. In passing, a good deal was said on colour processes, and more also in reference to illustrations, without which a detailed report is of little use. A late hour was reached before the technical details of the three-colour apparatus were exhausted.

THE annual dinner of the North Middlesex Society took place Saturday last, the 25th inst., at the Holborn Restaurant, Mr. Ch. Beadle, President, occupying the chair. The toast of the evening was that of "The North Middlesex Photographic Society," was in the hands of Mr. Furley Lewis, who congratulated the members upon their recent exhibition and upon the work which they were accomplishing. The toast of the photographic Press was proposed by Mr. G. E. Williams, and replied to by Mr. George E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY), Mr. A. Horsley Hinton ("THE Amateur Photographer"), and Mr. R. Child Bayley ("Photography"). The visitors, proposed by Mr. J. C. S. Mummery, was acknowledged by Mr. James A. Sinclair.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held Thursday, March 23. Mr. A. Mackie in the chair. The Secretary, Mr. R. J. Kindon, read a paper on "Pigment Papers," and demonstrated the use of commercial, ready-made gum-bichromate paper. The sensitising bath, he said, was made as follows:—Ammonium bichromate, $1\frac{1}{2}$ oz.; soda carbonate cryst. $\frac{1}{4}$ oz.; water 25 oz. One part of this stock solution was mixed with two parts methylated spirit to form the sensitiser, and, as was mentioned in the after-discussion, potassium bichromate must not be used in place of the ammonium salt, as it does not possess the required solubility in spirit. The paper dries in from five to ten minutes, and should be printed within 48 hours. An actinometer is used, there is no visible image, but Mr. Kindon said there was great latitude, and a golden rule was to over-expose rather than get too little, as over-printing could be corrected to a very great extent in development by use of longer time and treatment in a warm soda bath than usual before development. This soda bath consists of 6 parts soda bicarbonate in 100 parts of tepid water, and prints are immersed in it for five or ten minutes. Development, as Mr. Kindon demonstrated, was done either with a brush or by pouring a broth of sawdust repeatedly over the print. A brief washing in water completes the process, which was very successfully shown by the lecturer, and will no doubt prove a popular feature before other societies who can secure Mr. Kindon's services.

GLASGOW AND WEST OF SCOTLAND.—The usual monthly meeting of the Glasgow and West of Scotland Amateur Photographic Association was held in their rooms on Monday evening last. In the absence of Mr. Charles Kirk, his lecture was read by Mr. William Goodwin, on "Birds and Their Nests." For the photography of birds and their nests endless patience was required, and much time had to be given to the work. The results, however, amply rewarded the student for the time and labour devoted to the subject. Nests should be taken with the sun obscured, so that the markings on the eggs might be clearly shown. For the photography of the birds themselves the best plan was to place a heap of, say, brushwood about 15 ft. from the

est, and take the photograph with the camera all hidden in it, while the operator was some distance off. He found for this purpose an electric push and wire was better than tubing for the discharge of the shutter. For his exposures he found an ordinary half-plate lens gave the best results. With a telephoto lens, on the other hand, he had no success, as it seemed to give greater scope for movement. The student would find ample scope in natural history subjects like birds and their nests for scientific work. Mr. Colquhoun, who showed Mr. Kirk's slides, remarked how some were taken in difficult positions; one was shown in which the camera had to be tied to a tree 30 ft. from the ground to enable a nest to be photographed in an adjoining tree. To get another picture the subject was visited on five consecutive Saturdays before it was secured, while a considerable collection of eggs and seagulls of every description were secured during a visit to Ailsa Craig, which was shown to be full of bird life in all its stages.

JARROW AND DISTRICT CAMERA CLUB.—The annual meeting of this club was held last Tuesday in the club room, Ormonde Street, Jarrow. The Chairman, Mr. E. Penman, on behalf of the members, presented to Mr. J. A. Mitchell, who is leaving the town, a camera, in recognition of his services to the club during the two years it has been in existence. The Secretary, Mr. Walter Hanning, submitted the annual report, which showed that the income for the year had been £28 15s. 2d., and that there was a balance to the credit of the club. The membership was sixty-three, including eighteen ladies. The report was adopted. Mr. E. Penman was re-elected resident, and the vice-presidents elected were Mr. Rose, Dr. Jennings, Dr. McMurty, Mr. J. A. Mitchell, Mr. Henderson (Jarrow), Mr. Legge, Mr. W. E. Gibbon, and Mr. W. Hanning. Mr. Barrow has been elected secretary in place of Mr. Hanning, resigned, and Mr. Henderson, of Hebburn, was appointed treasurer.

SHROPSHIRE CAMERA CLUB.—An exhibition of pictures was formally opened on Tuesday evening in connection with the Shropshire Camera Club at the club room, Castle Street, Shrewsbury. The subjects were:—Landscape and Sea Views.—(1) Mr. J. Franklin; (2) Mr. W. D. Haydon; (3) Mr. H. M. Timpany; highly commended. Portraiture.—(1) Mrs. Haydon; (2) Mrs. Higginson; (3) Miss Parson-Smith; highly commended. Mr. W. D. Haydon. General Subjects.—(1) Mr. W. D. Haydon (pillars, Buildwas); (2) Mr. Dr. Moriarty; (3) Mr. F. R. Armytage. The judge was Mr. Edwards, of Hereford.

ULSTER AMATEUR PHOTOGRAPHIC SOCIETY.—A meeting of this society was held in the club rooms, The Museum, College Square North, last Monday evening. Dr. Cecil Shaw gave a lecture on his three-weeks' cruise to the Outer Hebrides in a 193-ton yawl. The lecture was illustrated by nearly 100 photographs, and included many excellent pictures taken in this delightful locality.

PHOTO ART CLUB, ABERDEEN.—The members of this club held their monthly meeting last week. An exhibition of slides of the Swiss Alps was the attraction of the evening. The following are the winners of the monthly competition for prints (architectural subject):—Mr. Clerihiw, Mr. Stephen, and Miss Dalgety. For slides: Mr. Bow, Mr. Clerihiw, and Mr. Dalgety.

THORNTON HEATH PHOTOGRAPHIC SOCIETY.—The recently-introduced method of "oil-colour printing" was demonstrated by Mr. R. McKenzie to the members of this society on Tuesday of last week. The process, which is hardly correctly indicated by the title, bears a strong resemblance to collotype, and is one of the many depending on the action of light on a bichromated colloid. In the hands of the lecturer a number of capital prints were obtained, closely re-

sembling carbon in appearance, but the chief merit of the process, in the eyes of many, and particularly those addicted to "gum," will lie in the fact that an almost unlimited amount of personal control can be exercised. The following is a brief outline of the process as given by Mr. McKenzie:—Any sort of paper is taken, whether rough, smooth, or tinted, provided it is of not too soft a texture. It is then coated with hot gelatine solution (1 oz. of gelatine to 5 to 8 oz. water) by means of a broad, flat brush, and hardened by immersion in formaline (40 per cent. solution to 20 oz. of water). The sensitising bath is bichromate potash, 1 in 20, the paper either being dipped or the solution brushed over the gelatinized surface. Printing is effected in the usual way, until all details except the highest lights are well out. The print is now washed in cold water to discharge the bichromate stain, soaked in warm water until the image appears distinctly in relief, and surface-dried. The state of things at this stage is that the high-lights, and in proportion the half-tones, having absorbed more water than the shadows, possess a higher relief. Any suitable oil-colour is then taken, mixed with poppy-oil, or megilp, and a little gently smeared over the surface in every direction. Mr. McKenzie used a finger-tip for the purpose. A roller squeegee is then rolled over the pigment, always in one direction, removing the paint first from the high lights and next from the half-tones, and so on, owing to their relative greater protrusion and resisting or repelling action to the oil-colour. Brushes can also be brought into requisition, and by their aid shadows may be strengthened or reduced, high-lights introduced, and defects touched out; in fact, there seems hardly any limit to the various modifications which might be made.

RICHMOND CAMERA CLUB.—At the weekly meeting of this club on Thursday of last week a demonstration in "Auto-pastel" was given by Mr. Oetzmann. This new process, introduced by the Autotype Company, was followed with much interest by the members present. The lecturer stated that the process was analogous to gum-bichromate, yet the principle was different, inasmuch as the pigment coating becomes insoluble after exposure, and development was effected in the hot-water bath by means of a flat camel-hair brush, with which the surface of the print is abraded and the latent image revealed. Mr. Oetzmann developed several prints, and showed the complete control over the process which the use of the brush gave the operator. He also explained the opportunity of local treatment and the special care which can be bestowed on particular portions of the picture. Further advantages claimed for Auto-pastel were that it was a permanent pigment printing process without transfer, with a range of colours through black, blue, green, and brown to red tones, the rapidity of the printing being about the same as ordinary carbon.

WATFORD CAMERA CLUB.—The weekly meeting of this club was held on Thursday of last week. The evening opened with the presentation of a gold plaque to Mr. W. Linley for the best exhibit in the members' classes at the last exhibition, given by the president, Lord Hyde. After the presentation a competition of "Views on the Grand Junction Canal" resulted in Mr. W. J. Edmonds, sen., being declared first, with Messrs. W. Bullock and A. W. Hodgins bracketed second.

BLAYDON AND DISTRICT CAMERA CLUB.—The members of this club held their annual exhibition on Tuesday night last, in the U.M. Free Church Schoolroom, Blaydon. The judges were Mr. Arthur Payne, F.R.P.S., of Gateshead, and Mr. C. Hughes, of Newcastle. The awards were as follows:—Photographs: Class 1—W. A. Bagnall, 1; J. W. Dodds, 2. Class 2—E. J. Patterson, 1; Edward Batey, 2. Lantern Slides—Wm. Steele, 1; Walter Tate, 2. There was also an exhibition of federation lantern-slides.

SOUTHAMPTON CAMERA CLUB.—Mr. W. R. Kay, one of the promi-

ment workers of this society, gave a lecture to the members on Monday last, which should have a good effect on the artistic preceptions of his hearers. His subject was "The History of Painting," and consisted of a review of the great masters of the art from Raphael to Romney. Being illustrated throughout by excellent lantern slides, example made as good impression as precept, and the influence of the lecture should become apparent later in the work of the members.

News and Notes.

PICTURES from the Barnet Competition.—Messrs. Elliott and Sons, Ltd., announce that a selection of the prize pictures entered in the £500 competition, which recently closed, will be on view at their stall in the trade exhibition at the Portman Rooms, Baker Street, opening on April 7.

NEGOTIATIONS are in progress for the amalgamation of those two well-known and old-established societies, the Society of Arts and the London Institution; and there is every probability that this amalgamation will very shortly be carried out. A scheme has been prepared by a joint committee, and it only remains to be submitted to the general body of the members, whose assent in all likelihood will be quickly given. The idea is that the London Institution should sell its house in Finsbury Circus, that the Society of Arts should leave John Street, Adelphi, and that the joint concern should build new premises in Kingsway or some other more westerly thoroughfare.

THE biograph pictures at the Empire Theatre, Leicester Square, London, are now a very strong feature of the programme. They are extremely up-to-date, as well as being good photographically. As an instance of this, an admirable film showing Earl Roberts presenting the Queen's shamrock to the Irish Guards on St. Patrick's Day was exhibited the same evening.

ONE of the few remaining links with the palmy days of wood engraving has been broken by the death, in his eighty-eighth year, of Mr. Edward Dalziel. In association with his late brother, George, he was for over half a century closely connected with the art of high-class illustration in this country, and has observed the gradual ousting of the engraver by photo-mechanical methods during that period. He was a contemporary of Tenniel and Keene, at the Clipstone Street Life School, and in the course of time many notable artists worked for the Brothers Dalziel, and drew on the wood blocks for the numerous books they undertook to illustrate, Leighton, Millais, Poynter, Burne-Jones, Whistler, Watts, Landseer, Holman Hunt, and Rossetti being among the number. Mr. E. Dalziel, who was one of the finest of wood engravers, gave early encouragement to many black and white artists who have since become famous.

THE Stereoscopic transmitter, made by Theodore Brown, of Salisbury, is now supplied at the reduced price of 7s. 6d. instead of 10s. 6d. as hitherto. The finish of the accessory qualifies it for attachment to a camera of the highest class and the reduced price should popularise this form of stereoscopic work.

DEATH of C. S. Abbott, President of the American Aristotype Co.—Charles S. Abbott, president of the American Aristotype Company, Jamestown, New York, and vice-president of the Eastman Kodak Company, died very suddenly at midnight Wednesday, March 1, while staying at Oak Lodge, his country residence 13 miles from Enfield, North Carolina. Death was caused by neuralgia of the heart. Mr. Abbott's name was probably better known in America than in England through his connection with the well-known Aristotype paper, which he brought into almost universal use in that country, and made extremely popular in this. His loss will be felt by all, both those connected with his company and the vast number of photographers to whom he was known throughout the photographic world.

Correspondence.

- ** Correspondents should never write on both sides of the paper, notice is taken of communications unless the names and addresses of the writers are given*
*** We do not undertake responsibility for the opinions expressed by correspondents.*

THE EDINBURGH PHOTOGRAPHIC CLUB AND THE SCOTTISH FEDERATION.

To the Editors.

Gentlemen,—As a notice has appeared in the photographic press to the effect that the Edinburgh Photographic Club has joined the Scottish Photographic Federation, and as the club is apt to be confused with this society. I think it well to point out that, while it consists of not more than forty members, all of whom are probable members of this society, it in no sense represents the latter. As announced in the Press, it resolved to join the Federation, but at a subsequent meeting it rescinded this resolution.—Yours faithfully

J. S. McCULLOCH,

Hon. Sec. Edinburgh Photographic Society.

3A, North St. David Street, Edinburgh.

March 22, 1905.

MERCURY-VAPOUR LAMPS.

To the Editors.

Gentlemen,—My attention has been drawn to a note in your issue of the 17th inst. re Mercury Vapour Lamps.

This note is surely written without a full consideration of the condition under which the modern types of mercury-vapour lamps are operated, but it should be sufficient for me to point out here that should the lamp break, the mercury vapour within it would immediately be subjected to atmospheric temperature and condensed, and insufficient vapour would escape to form so much as a healthy tonic.

During experiments I and my assistants have frequently been standing within a foot of lamps whilst they have been purposely burnt out with an excess of current, but, in spite of the presumably abnormally high temperature of the mercury at the moment the lamp broke for the very simple reason given above, never with the slightest effect.—I am, yours very truly,

C. ORME BASTIAN.

The Bastian Mercury Vapour Lamp, Ltd., Bartholomew Works, Kentish Town, N.W.

March 24, 1905.

Gentlemen,—We note in your issue of March 17 a very misleading paragraph, headed "Mercury Vapour Poisoning," in which it is stated that the breakage of a mercury-vapour lamp tube might be the cause of death to the operator by reason of the poisonous nature of the vapour contained in the tube.

We trust you will allow us the opportunity of publicly refuting this statement, inimicable both to our interests and those of the principle upon which the mercury-vapour lamp works.

The vapour which serves to conduct the current would, upon breakage of the tube, immediately condense into liquid mercury, the vacuum being destroyed, and it is therefore impossible, under any conditions, for harm to result from such a cause. Tubes have occasionally been broken by accident in the Cooper Hewitt laboratories and workshops, but, for the very simple reason given above, never with the slightest evil consequence to the operators.—Yours faithfully,

G. T. FAIRBROTHER.

The British Westinghouse Electric and Manufacturing Company, Ltd., Westinghouse Building, Norfolk Street, Strand, London, W.C.

March 25, 1905.

[Our note expressed an apprehension which we had heard put forward, and which we understand had some foundation in fact.

We are glad to publish the above assurances that nothing of the sort can take place in the modern constructions of lamp.—EDS., B.J.P.]

THE SHOP AND HOUSE DUTY ACTS.

To the Editors.

Gentlemen,—Mr. Sander in his letter to you states that he does not live on the premises he occupies as a professional photographer and dealer. Under those circumstances he is not liable to pay duty at all. The Acts apply only to inhabited houses. He should, therefore, refuse further payment and apply for the repayment of any sums he may have erroneously paid. If he will correspond with me I shall be happy to give him information.—Yours truly,

G. BROWN.

23, Tettenhall Road, Wolverhampton, March 27, 1905.

By the death of Edward Wuestner, a notable figure in the American photographic field has been removed. In 1882 he went to work with the St. Louis Dry Plate Co., and later started the Eagle Dry Plate Co., supported by the late G. Gennert. When the Eagle Company went out of business he started the Wuestner Dry Plate Co. Mr. Wuestner died March 9, aged 63.

THE "Compensator" Negative.—In the current number of "The Photogram" an ingenious method of controlling negatives of difficult subjects is the theme of an excellent editorial article. The method has been devised by Mr. Newton Gibson, whose interesting candle-light studies are well known, and, stated in his own words, is as follows:—"First expose a plate which gives clear glass for the shadows, with the glass side towards the lens, giving a very short exposure for the lights only. Develop, fix, and dry; then put back again into the dark slide, to the same place as before, with another (unexposed) plate, film sides together, and give a full exposure for the shadows. If the first negative be of the right density, the second will develop in perfect gradation, and with a good stereoscopic effect." The plan appears excellent, but is necessarily confined to subjects that show no movement. The illustrations accompanying the article amply demonstrate all that is claimed for the method of employing the "compensator" negative, which includes the prevention of halation without backing, the control of strong contrasts, skies truly rendered without colour screens or double printing, improvement of colour-rendering with ordinary plates, and control of gradation. Truly a comprehensive list of the ills that photographers are subject to. An additional method of employing the compensator for existing faulty negatives is also suggested by employing a film positive made by contact from the imperfect plate, and then used with it when making prints. Other ways of employing the compensator negative will doubtless suggest themselves, and, with this object in view, the Editors of "The Photogram" are offering prizes for the best work showing the application of the treatment.

The catalogue of the City Sale and Exchange, 90-94, Fleet Street, London, E.C., newly issued for the coming season, describes and prices an extraordinary variety of apparatus, representing the requirements of the photographer for every class of work. A number of these goods are the firm's own "Salex" specialties, and the list is certainly one in which the purchaser can pick and choose to his heart's content.

It is with regret that we have to record the death of Dr. Eugen English, of the Technical High School, Stuttgart, after a long illness. He was the author of a well-written text book, the "Compendium der Praktischen Photographie," and the founder of the "Zeitschrift für Wissenschaftliche Photographie," a monthly journal dealing exclusively with the higher technical and photochemical questions.

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- *.* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

- R. Wilkinson, The Studio, Hornsea, Yorkshire. Photograph of the Interior of the Parish Church, Hornsea.
- A. Walker, 65, The Octagon, Union Street, Plymouth. Photograph of Hutton Warton. Photograph, Head and Shoulders of Young Lady (Study). For Advertising Purposes. Photograph of Lady (Study Head. Conquassing Specimen).
- Wells & Co., Avenue Works, Avenue Road, Southgate, Middlesex. Photograph of a Dog and Two Cats with Blackboard as at School.
- L. Lerge, 12, Grainger Street, Newcastle-on-Tyne. Six Photographs of Miss A. M. Kees.
- Isaac Perloff, 188, Commercial Road, London, E. Three Photographs of Mischa Elman, the Wonderful Boy Violinist. Photograph of Shadwell Police Group.
- V. L. Swales, Port St. Mary, Isle-of-Man. Photograph of the Wreck of the Fishing Tugger "Harvest Home" and Schooner "William Bercy" with Lifeboat standing by, at Port St. Mary, Isle-of-Man. Photograph of the Wreck of the Schooner "William Bercy" with Lifeboat making Rescue, at Port St. Mary Isle-of-Man.
- E. Eccles, Broad Street, Bury, Lancashire. Photograph, Unveiling Statue of Soldier, Market Place, Bury.
- G. Tillett, Park Road Studio, Bingley, Yorkshire. Photograph of the River Aire at Bingley, Yorkshire.
- T. S. Robinson, 185 and 187, High Street, Homerton, London, N.E. Six Photographs of H. Bottomley.
- W. Mayor, 21, Viewforth, Leven, Fife, N.B. Photograph of the Rev. Dr. Durward, Rector of Seonnie Parish Church.
- E. W. Wiggall, 33, Alexandra Place, Sirhowy, Tredegar. Photograph of Major J. A. Shepard.

STEWART.—The Pictorial Stationery Company, Limited, 23, Moorfields, London, E.C. We think you have a clear claim for reproduction fees.

TONING BROMIDES.—I have been asked to do a dozen cabinets as specimen enclosed, a toned bromide. Will you give me the formula and how to work same to that colour? I have tried the uranium, and they go so awfully yellow and fade out.—(GEORGE.

Bleach the well-washed prints in solution of potass ferri-cyanide ($\frac{1}{2}$ ounce), ammonium bromide (300 grs.), water (20 ounces), and after well washing darken in a solution of pure sodium sulphide (30 grains in 10 ounces), finally washing thoroughly. You can obtain toning solutions ready made, and perhaps this is your wisest course. See this week's advertisement pages.

MRS. A. H. LUCAS. —Mica has been used before as a substitute for glass, but there are drawbacks to it, which we doubt whether you have overcome. Possibly you might obtain something for your patent by advertising it, but we cannot suggest any other way.

RETOUCHING AND SPOTTING.—(1) Please give me your opinion as to the commercial value of work on accompanying specimens of retouching and spotting as shown on the print in uniform. (2) The operating is my own, and in making application for situation I wish to know the remuneration I might reasonably expect for such work. I have had eighteen years' experience in all branches, but have not worked for an employer since 1896—hence the queries herein.—LIMERICK.

(1) There are two photographs in uniform. The c.d.v.

shows very good retouching as far as likeness and fine touch are concerned, and the attention to the eyes proves that you are skilled and experienced; but for our taste—the sitter being a man, and presumably weather-beaten—the effect is not broad enough, and therefore lacking in softness. In the cabinet oval—a very easy subject—the general result is good, but you have increased the width of the nose and rendered the eyes too beady. The gentleman with beard displays the best work, but the wrinkles on the forehead are too obtrusive and the touch is too pretty for a man of this age. Looser and softer working would have greatly increased the value. The chief object in art is to conceal art—aim always for breadth and effect. The tight, egg-shell stipple is admired by the majority, but deplored by the sensitive minority, and the minority are more often correct than not. Just a touch of additional knowledge and you would be a really artistic and first-class retoucher. (2) As retoucher only you should command about £2 per week, but as retoucher and operator combined, and with your long general experience, if of the same class of finish, you should be worth considerably more.

OPINION WANTED.—I am taking the liberty of sending you a few prints, to ask you what salary I might ask when applying for a situation. I have had eight years of P.O.P. printing and two years of carbon, besides mounting and assisting generally. Having worked for one firm all the time I do not know what salary is generally given.—P. O. P.

The specimens sent are good ordinary commercial work, such as is usually paid for at the rate of about 15s. to 18s. a week. We would suggest that you make yourself proficient in platino-type and collodio-chloride printing, also in retouching, then you could command a higher salary.

GUINNESS, GEORGE.—We cannot say. We believe there are no regular makers, but an advertisement will probably bring you into touch with parties disposed to sell.

COPYRIGHT QUERY.—We have recently had a picture sent us from the U.S.A. which is copyright there, but not in this country. (1) Can we copy it and copyright the copy? (2) If we do this can we prevent anyone else if they obtained a similar print from copyrighting it? (3) Can we prevent the importation of copies from the U.S.A. of the same subject? (4) Can we enter the name of the man who makes the copy as the artist, if we do not know the original artist's name?—U. S. A.

(1) As the United States is not a party to the Berne Convention you can legally copy the picture and make your copy copyright. (2) No, certainly not. (3) Decidedly not. (4) No.

MATT SURFACES.—Kindly tell me how many grains of silicate of soda I must put to six ounces of bromide emulsion to give it a dead matted surface for coating paper, or of sulphate of barium.—J. HARRIS.

We regret that we cannot state how to use the silicate of soda. Some time ago we made a lot of experiments on this point, and could never get a satisfactory grain with it. As a rule, for making matt paper, a matt baryta paper is used, and the quantity of the gelatine in the emulsion is reduced. If sulphate of barium is used it would be as well to form it in the emulsion, and if 30 grains of barium chloride were added to six ounces of emulsion and then 15 grains of ammonium sulphate, dissolved in a little water, added slowly with constant stirring, a very fine precipitate of barium sulphate will be formed; the emulsion must be washed after this, or this addition may be made before the emulsion is washed in the usual way. Rice starch is frequently used for the same purpose, and from 10 to 15 grains per ounce is quite enough.

LENS.—(1) Is there any difference between an anastigmat and an R.R. lens, and has the former any advantage over the latter for outdoor groups, etc.; and if so, will you kindly say in what way? (2) Also, what type of lens is really the best for enlarging?—UNCERTAIN.

The difference between an anastigmat and an R.R. is that the former is constructed of special glasses, which enable a very much flatter field to be obtained at a given aperture; in other words, the anastigmat will work at a larger aperture over a given sized plate than an R.R., and as this means, obviously, reduced exposure the anastigmat is to be preferred for all classes of work. (2) The anastigmat is the best type, as this has a specially flat field, and therefore does not require stopping down for sharpness, and as it is also better corrected for anastigmatism it really gives better definition.

J. T. HACKETT.—Stout canary paper, 36 by 21, is quoted by Marion and Co., Soho Square, at 5s. per quire.

STUDIO.—I should feel greatly obliged if you would give me your opinion on this studio, which I propose building (rough sketch enclosed). There is no choice as to light, which I am bound to get from the one direction, as you will see. We find from previous experience that we shall be bothered by the sun shining into the studio, more especially in the summer months, so would ask (1) Are the proportions of studio good? (2) Would you advise both sides of studio to be glazed? Boundary wall on one side is 4ft. 6in. high. (3) Would obscured glass be any advantage over clear glass, which would, of course, be covered with waxed paper in the summer?—CHAS. COOK.

(1) The proportions are good. (2) If both sides were glazed it would be of some advantage, as you could then use the, nearly, west side in the morning, and one, nearly, east side in the afternoon, thus greatly avoiding sun trouble. Instead of 18ft. of glass 16ft. will be sufficient. (3) No great advantage if the glass be obscured, when necessary, with waxed paper. We should advise you to get Bolas's book on "Studio Construction," published by Marion and Co.

COPYRIGHT.—Some time ago I purchased a business, including large number of copyright negatives. The solicitor's agreement distinctly states "negatives and the copyright attached thereto." Will it be necessary to re-copyright them, or does the original copyright stand good?—COMPLEX.

The copyrights hold good, assuming that they have been registered at Stationers' Hall.

NOTICE.

Several replies are held over for insertion next week.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

Glass in the Studio Roof. Now that the brighter weather has come again photographers are cutting down exposures or reverting to plates of ordinary speed. A little attention to the outside of the roof would in most cases result in a further halving of the exposure. The fogs with the deposition of soot during the winter reduce the amount of light admitted very considerably, and the cleaning of the glass is a matter which might well be seen to periodically, so that all the light available might be admitted. It may be argued that the grime acts as a diffuser, softening the brighter light, but it is always an advantage, we think, to have more light than is requisite, and to cut it down by means of diffusing screens in the studio. These screens may be modified or dispensed with on those dull days which come without warning at all parts of the year; but an outside coating of grime cannot be removed so readily. In the building of new studios attention should always be given to the means, both of cleaning and repairing the roof. We recently saw a glazier replacing a pane of glass in a studio roof, simply kneeling on a board placed across the sash-bars, with only two feet behind him a drop of 50 ft. to a cement yard. The position of this roof made it practically impossible to clean the glass either on top or sides, and very dangerous to replace broken panes.

British and Foreign Dry Plates. A tribute is paid to the sensitive photographic materials of British production by the "Times" in its financial and commercial supplement of Monday last. Discussing, as the article purports to do, the influence of Continental and other foreign trade on the photographic industries of Great

Britain, is a profitless task when there are no figures to show its extent—the only figures which the "Times" puts forward it quotes from our issue of February 24 last—and hence the chief argument is the very tenable one that the merits of the British dry plate are so patent in comparison with the German article that the very approximate figure of £300,000 for Germany's entire output of plates is probably quite large enough. It is a case of quality dominating the market. "It may be confidently asserted," says the "Times," "that in the highly important respect of speed or light-sensitiveness no German plate equals one or two well-known English plates which might be mentioned. Then as regards the orthochromatic or colour-corrected quality of plates, which has lately been so much in demand, and which represents so large an improvement that the orthochromatic plate promises to supplant entirely the ordinary or uncorrected plate, there seems little doubt that the superiority of several of English manufacture has been fully proved, especially if price also be taken into account."

Nitro-cellulose.

A paper was read on Monday last before the Society of Chemical Industry on "The Formation of Sulphuric Esters in the Nitration of Cellulose and their Influence on Stability." The authors, C. Napier Hake and R. J. Lewis, sought to establish the formation of sulphuric cellulose compounds when cotton is nitrated with a mixture of nitric and sulphuric acids. A number of experiments showed that sulphur was a constituent of the nitro-cellulose, but, as transpired in the discussion, the formation of such compounds was shown by Cross and Bevan in their paper of 1901, in which they also pointed out that an essential condition favourable to the retention of sulphur was a short duration of exposure to the mixed acids. The authors argued that the sulphuric ester was a cause of instability of the nitro-cellulose, but this argument was actively questioned in the subsequent discussion. The subject, though undertaken in the interest of explosive manufacture, bears on the preparation of nitro-celluloses for celluloid making, and the further papers promised by the authors may contain more definite data.

Measuring the "Hardness" of Gelatine. A method of making comparative measurements of the rigidity of gelatine jellies is described by a writer in the current issue of the "Oil and Colourman's Journal." The apparatus consists of a metal cylinder terminating below in a capillary glass tube containing mercury. The fluid jelly is poured into the cup, and, when it sets, distortion of the gelatine due to pressure is shown by the movement of the thread of mercury. The pressure is obtained by a

rubber bag filled with water, and the apparatus is so arranged that the "rigidity" of the gelatines can be expressed by a figure calculated from the pressure reading. The method may perhaps be worth notice with a view to testing samples of gelatine for emulsion making or photo-mechanical processes.

* * *

Fire Risks.

A volume just published as a translation from a German work possesses some interest for photographers and the photographic trade, inasmuch as its subject is the danger and prevention of fire and explosion. Written for the information of insurance officials and others similarly concerned in accidents of the above character, its aim—a natural one, no doubt—seems to be to magnify the opportunities for fire which certain industrial operations may offer. Thus the statement in reference to collodion, that "it is a source of danger in photographic studios," is calculated to create the impression that the collodion process is commonly employed by professional photographers. The reference can easily be misread to mean more than it actually states, and it is not difficult to imagine an insurance official endeavouring to make capital out of it. The list of substances which the insurance company is to put on its black-books is a very long one, for the author's zeal in his object leads him to see danger everywhere. We naturally turned to see what he has to say for celluloid as a spontaneously inflammable body in view of the recent reports from the Continent giving celluloid a bad character in this respect. However, we are glad to find that the author takes the same view of this matter as that expressed by ourselves some weeks ago in this column—viz., that the mistrust of celluloid is to be attributed to a product of defective manufacture and wrong composition. It is pointed out that badly washed, impure celluloid may be caused to detonate by very gentle heat such as the radiant heat of a stove or an electric incandescent lamp. Celluloid as used for photographic film must, by the very exigencies of the case, be the purest obtainable, and therefore the alarmist reports which occasionally gain notoriety may be held inapplicable to sensitive materials of which celluloid is the support.

* * *

Society Excursions.

The programmes of club outings that are now being sent to us every week point to a revival of outdoor activity amongst photographic societies in all parts of the kingdom, in spite of the frequent assertions made that "society excursions are a thing of the past." Doubtless, to the advanced worker, there is not much to be done in the way of serious picture making on these excursions, which more often than not resolve themselves into pleasure trips, the principal function of which is "high tea," but to the beginner much practical benefit may be derived, not only from observing the methods of the more experienced workers in the field, but also from a comparison of ideas with other beginners. It may be true that as soon as the amateur photographer becomes expert in his art, he strives to specialise and avoid the company of his fellows when in search of pictures, but fortunately there are many such experts who, in addition to having reached a high standard in individual work, have still, as members of societies, recollections of their own early struggles, and are not adverse to lending a helping hand to their less advanced companions. To such members the beginner naturally turns when on society excursions, and the success of the outing, from a photographic point of view, is usually in exact ratio to the endurance of these sacrificing individuals. The presence of one or more advanced workers in the company often does much to save a needless expenditure

of plates on the part of the novices, besides doing much to raise the tone of the annual exhibitions of members' work.

* * *

The Privileged Foreigner.

The pertinent question asked in the House of Commons last week by Sir George Bartley, who invited the Minister for War to state whether, "during the visit of the German Emperor and his staff to Gibraltar, only those parts of the fortress would be shown which are open to British subjects, and whether the same rules as to photographing the fortress or any parts of it would be upheld which were rigidly enforced on British subjects," met with the somewhat unsatisfying response from Mr. Arnold-Forster that "subject to the regulations, the responsibility rested with the general officer commanding, whose discretion it was not proposed to interfere with." Whether or not the officers of a country which is building a fleet which may be used against us were given facilities that are not granted to loyal subjects of the Crown has not transpired, but the fact remains, and has often been pointed out in the lay Press, that the officials in Government buildings and dockyards in this country are only too prone to permit foreigners who visit such institutions in an official capacity every opportunity of using the hand camera under circumstances that would result in the immediate expulsion of any enterprising Englishman who attempted to do the same thing.

* * *

An Unsuspected Fault in Focal Plane Shutters.

An unsuspected cause of faulty negatives produced with focal plane shutters of a certain type has recently been brought to our notice. The negatives in question showed an evenly graduated decrease of density or exposure from top to bottom, incompatible with the subject rendered—i.e., the foreground portion of a landscape received considerably less exposure than the nominal exposure warranted, and the sky portion considerably more. An inspection of the shutter, which was of the enclosed spindle type, revealed the fact that the width of the slit altered during the exposure. This was particularly apparent when the smallest slit was used, and could be easily observed while the blind was being wound up. Partial dissection of the working parts disclosed the cause of this defect. The pulley bands connecting the upper half of the blind with the lower were of a stouter substance than the blind material itself, and, while being wound up, accumulated on the ends of the spindle to a greater degree than the blind on the remainder of the roller, the result of this being that, as the shutter was wound up, the lower blind would be drawn nearer to the upper, thus decreasing the slit. Releasing the shutter reversed the action, resulting in increased exposure for the bottom of the plate—i.e., the sky portion. This fault may be an isolated case, but is worth placing on record, and, of course, it would not apply to shutters in which the width of slit is regulated by a cord, or chain, or to the double roller patterns, but it would be as well for all users of focal plane shutters to carefully test them, and ascertain, preferably with the smallest slit in operation, if the aperture remains constant throughout the exposure.

* * *

Replicas of Diffraction Gratings.

The advantages of the diffraction grating over prisms for spectroscopic work is pretty generally known, and the best are those ruled by Professor Rowland, of the John Hopkins University. Unfortunately, however, the cost of these is considerable, particularly those ruled on concave speculum metal. Some years back Mr. Thorp, of Manchester, was enabled to obtain casts in celluloid of a plane

grating, which are sufficiently satisfactory for general work, but for extreme accuracy they cannot be depended upon, as there is unequal contraction of the film, and disturbing influences set up by the difference in refractive index of the celluloid and the glass upon which they are mounted. Now we see that Mr. F. E. Ives recently read a paper before the Franklin Institute, U.S.A., in which he stated that he had made considerable improvements by making the casts in a harder and less elastic material than celluloid, and by putting them face down upon the glass and forcing them into optical contact therewith, so that the perfect plane of the diffracting surface is preserved, and by sealing them up under another plane glass with a balsam mixture having the same refractive index as the casting material, so that the perfect parallelism of the transmitted rays is insured, and at the same time the grating is protected from injury. There is a very slight but even shrinkage of the cast, but after measuring up a large number it was found that it never amounted to more than four or less than two in a thousand, and that by easily established conditions it could be kept very close to either of these figures. Under the conditions finally settled upon, the replicas come out uniformly about 15,050 lines to the inch, and with so little distortion that an expert spectroscopist, working with a large Hilger spectroscope, declared that he could discover no difference in definition between an original Rowland grating and one of these replicas.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION AND ITS WORK.

THE pleasant gathering of the Committee of the Professional Photographers' Association and other friends of the Association, which is briefly reported in another column, coincides almost to the day with the fourth anniversary of that important gathering which was organised by THE BRITISH JOURNAL OF PHOTOGRAPHY at Anderton's Hotel, Fleet Street, E.C., on March 28, 1901, and resulted in the formation of the Association. Since then much water has flowed under the bridges, and it is now opportune to review briefly the results of that movement to bring the members of the photographic profession together in co-operation for their common benefit.

The programme suggested at that meeting for such an institution to undertake was extremely ambitious and comprehensive. It included many items which would obviously require many years of hard work to carry out; it included some which could only be carried out if the Association should become actually representative of a large majority of the profession throughout the country, and even the least ambitious of the projects depended upon organising ability of the kind that up to then no attempted combination of photographers had shown signs of possessing. It was freely prophesied by many that the new Association would not survive its second year, and, possibly, the previous experiments in the same direction justified the prophecy. The Association has, however, not only survived its second, but is just entering upon its fifth year, and those most capable of judging what its prospects are—those upon whose shoulders the brunt of the labour has fallen—are as enthusiastic as at the commencement in their belief that by the co-operation of the fraternity substantial benefit is to be derived by their community.

In some directions the Association has not answered the expectations of some of its founders. It has not been able to dictate who shall and who shall not produce photographs for sale, or the price or a minimum price at which they shall be sold, and as no one among the many thousands who are equally interested in the matter has produced a

practical suggestion how it is to be done, it is reasonable to presume that it is not possible. The Committee made a valiant fight against manufacturers, newspaper proprietors, and others offering enlargements free, or at prices which might appear to be cheap to those to whom an enlargement is simply an enlargement, by the only means in their power—a strong and dignified protest against an unwarrantable form of competition. That movement, however, did not achieve all it aimed at; it was not expected that it would. The grocers, a body far greater in number and with powerful trade organisations all over the country, with local as well as general means of making their influence felt, have no less signally failed in restricting the sale of their principal commodity, tea. In one respect the Association's efforts generally succeeded. In many cases the absurdly false statement that the article offered was similar to that for which photographers charged two to three guineas was withdrawn in compliance with the protest.

With regard to the free-portrait swindles, the Association has issued a general invitation in our columns to submit cases of this form of fraud with a view to their initiating or supporting legal proceedings against the offenders. Many replies have been received from photographers in the provinces whose business and reputation suffered, but in the cases where there appeared a reasonable chance of conviction it has been found that not a single individual of those complaining has had the energy and perseverance to obtain *prima-facie* evidence of a specific case of fraud to enable the Association to proceed.

In another direction the Association has not yet fulfilled the hopes that were formed of it by some. It has not been able to deal with the evil of price-cutting among photographers themselves, which undoubtedly exists to a lamentable extent in some localities. But this should not be counted as a failure for which the Association, as it is, is to blame. In a business which is open to every one there is no legal method of coercion with regard to prices or in other matters, and there is no force, legal or otherwise, that the minority can exercise over the whole body. But if the majority of a profession are banded together to protect their mutual interests, if that majority cannot exactly coerce the minority, at least there are means of making it very unpleasant for a minority which refuses to play the game according to the ordinary rules of fair play.

Let us turn to the brighter side, the valuable work the Association has done and is doing. One of the bitter complaints made at the initiatory meeting was the exorbitant rates charged to professional photographers for fire insurance. In that direction the benefit of co-operation at once manifested itself. Arrangements were made whereby members could remove their existing policies to an office of first-class reputation at a premium 20 per cent. lower than that previously paid—a substantial relief, which in many cases must very much more than exceed the amount paid as subscription to the Association.

In photographic copyright matters the Association holds an unchallengeable claim to the gratitude of the whole photographic community. The present Copyright Act, intricate in its drafting, and further complicated by numerous decisions in the Courts, is something for most photographers to blunder over at every turn. The Committee of the Association, including as it does the holders of some of the most valuable photographic copyrights in the kingdom, who have had to fight for their rights, constitutes an authority on questions involving photographic copyright whose opinion is of extreme weight. This opinion is available to any member who chooses to ask for it. Moreover, the handbook issued to members contains a compendium of copyright law and a guide to dealing with

copyright matters so concise and comprehensible that it is difficult to believe that any one who refers to it can act wrongly in any ordinary dealings in which copyright is involved. Other matters of professional practice are equally well treated upon in the book, and there is the same right for members to receive the opinion and advice of the Committee upon any subject which can reasonably be included in the business side of photography. This privilege of membership is extensively made use of. Some hundreds of letters are received and answered during each year. Many of them, of course, contain simple questions which can be answered in a moment; but, on the other hand, legal points are often involved, which require mature consideration and possibly reference to the Honorary Solicitors. When a case arises in which expensive law proceedings seem the only way of settling a difficulty, the advantage of being able to take the opinion of a body of business men acquainted with the technicalities and practice of professional photography, having legal assistance, and in a position to view the matter impartially and broadmindedly, is an undoubted benefit. It is an established fact that in many instances the advice given has resulted in satisfactory settlement without recourse to law, and in others the information supplied has prevented the initiation of proceedings when the possibility of success has been remote, and useless expenditure when the likelihood of obtaining the amount of the claim and costs has been small. In another way connected with law the Association is doing extremely useful work. It is notorious that it is difficult to obtain a decision from a judge in a case which turns upon the value or quality of photographs. Rightly, a judge generally discerns that in these matters he is not a judge, and more frequently than not he adjures the parties to come to an agreement. In a case of the kind a few months back, the Judge of the Reading County Court, with the consent of the parties, appointed the Committee of the Association arbitrators, and several times recently in disputes between members and other parties, the offer of the Committee to arbitrate has been accepted, and the decisions given have satisfied both sides. The method of settling differences between photographers and their customers or dealers, trade printers or enlargers, etc., thus now open, is in itself an

invaluable institution, and the cost is a trifle compared with proceedings in the Courts.

The assistants' certificates scheme recently published has been one of the Committee's severest labours. As a present to the body of professional photographers, it should have been received with grateful enthusiasm. That it has not is characteristic of that terrible apathy to common interests which is the besetting sin of the profession. Our columns, from the earliest numbers, testify to the desire of both employers and assistants for that which is now provided. The comprehensiveness of the scheme must be acknowledged, and that the greatest credit is due to those who have performed the work is undoubted. To what extent it will be a success it is too early to forecast, but even if in the present form it is not universally acceptable, we have no doubt that in the revision which it is to receive after a year's trial, it will be amended wherever found necessary. The Committee have invited and are anxious to receive criticisms and comments.

The other fields of the Association's activity we must pass over or deal with very briefly. A watchful eye is being kept on the attempt now being made to alter the law of copyright. Photographers' interests are at stake, and at the proper time will be asserted. Much is being done to educate members as to the value of rights of reproduction and how to obtain reasonable fees, and information is collected and is available to members as to dealings with the press agencies. The provision of means for professional photographers to exhibit their work has not been neglected. Successful exhibitions were held last year during the Convention at Derby, and the year before at Perth.

It can hardly be disputed that the Association makes a good record for only four years of existence. That its membership has not reached thousands should be a cause of astonishment, but that the whole of the work is performed at an annual cost of about £140 reflects creditably upon the management. It may be some of the members have not been able to trace a direct return for their small outlay of 5s. per annum, but it is indisputable that collectively the members have each year received more than £140 worth of direct benefit, to say nothing of the good work done for the profession generally.

ADVERTISING AND THE PROFESSIONAL PHOTOGRAPHER.

III.

HAVING dealt in the two previous issues of the B.J. with the general basis of a photographer's advertising, and given some examples which may prove useful as suggestions for individual cases, I must draw these notes to a conclusion with a consideration of certain other features in the maintenance of dignified publicity.

Railway Station Advertising.

In some parts of the country the display of showcases on the railway stations is a form of advertising frequently seen, and, when well done, it is, without doubt, one likely to do good. Often, though, the effect is the reverse of good; a case is put in an exposed part of the station, so that for several hours daily it is open to the sun's rays, the consequence being that the velvet or other lining fades, the paint cracks, and the wood, if not well seasoned, warps to such an extent that damp gains access to the photographs. The cases, too, are generally crowded—a matter that has been already dealt with in connection with the studio itself. Even when no fault can be found as regards the case and its contents, the outlay is often largely wasted

on account of the station chosen being unsuitable. A certain photographer practising in a small town which we will call A., situated twenty miles from London, has a showcase on a station of a much larger town, B., ten miles nearer London. Now, the number of visitors from B. to A. is small; the residents of B., if they are not satisfied with the good photographers in their own town, will certainly not travel to A. when London, with countless other attractions, is within the same distance. Whereas, had the case been put on any station within, say, five miles of A., it would have done much more good; its argument would, in effect, have been, "Why travel to B., or still more distant London, when there is a good photographer at A.?"

Another form of advertising is that of taking space in the **Street Display Boards** now to be seen in many towns. These are large glass cases in which there are about a score of tradesmen's advertisements, highly coloured, and with a lavish use of gold leaf. At first sight these cases appear to serve much the same purpose as

those on the railway stations, until one considers that the latter are seen by passengers who are in many instances glad of anything to relieve the tedium of their waiting, when it is at once plain that there is a considerable difference in their values. These cases are indeed but hoardings on a smaller scale, and as such do not constitute good mediums.

Directories.

Many photographers, doubtless as a result of the eloquence of the canvassers employed, advertise in directories. There are directories and directories. In some towns and suburbs there are excellent little directories. Kelly's Buff Books may be cited as an instance, in which there is a great amount of local information, and this, added to their low price of one shilling or thereabouts, is sufficient to assure them sufficient local circulation to give them a certain value to the photographers in whose towns they are issued. On the other hand, there are the bulky directories, national in their scope and proportionately costly in price, which a moment's reasoning should convince the photographer are not worth, to him, the three or four shillings which he is asked to pay for the insertion of his name in bold type. This brings us to the important point that in

Giving Out Advertising.

the photographer should not allow the persuasions of the canvassers to carry much weight; he should invariably be guided solely by his own knowledge of local conditions. If there are three newspapers in one town, he will know from his own observation which has the largest circulation, and which, other things being equal, is therefore the most valuable. He will know, too, that the evening papers are frequently bought merely for the sporting news they contain, and that they are not taken into the household to the extent that are the morning and the weekly papers. In fact, he cannot exercise too much care in the choice of his mediums: fortunes have been made by advertising, and so also have they been lost, but it has always been because the money has been injudiciously laid out—the fault of the advertiser, not that of advertising.

Sending Circulars.

Many photographers who do not advertise in any other way are believers in the distribution of circulars, but unless in exceptional instances, where there may be local conditions not prevailing elsewhere, we do not consider circulars of much value. If distributed from door to door, they take their chance with the almost innumerable calendars and other matter issued by the patent medicine people and the highly-coloured circulars of the local draper announcing "gigantic clearance sales," the numbers thus distributed being now so great that many householders have come to regard them as an unmitigated nuisance. Not much better is the halfpenny postal wrapper, and by the time we reach the ordinary penny stamped envelope the cost of sending any number begins to be prohibitive. Instead of sending so many hundreds of circulars addressed at random, it were better to write letters with a definite object in view. If, for instance, the announcements of births in the local newspapers be filed, about two or three months later a letter might be sent suggesting that Mrs. So-and-so may possibly be requiring some photographs, and incidentally mentioning that "Our Mr. Hypo has devoted especial attention to the portraiture of children, one of the most difficult branches of photography, but one which at the hands of the skilled operator gives its most charming effects." The addresses of the secretaries of all the local organisations should be kept, that directly a show or meeting of any sort is announced a list of the exhibitors or people interested may be obtained and an appropriate letter sent. The manufacturers in the neighbourhood should be written to, pointing out that nowadays all printed catalogues are almost necessities, and that half-

tone blocks from direct photographs of the objects, afford superior illustrations to the woodcuts which they may possibly still be using. The same point may be used in a slightly modified form in approaching many shopkeepers.

The Appearance of the Studio.

The first "move" having been made in any of the ways already mentioned, and the object of bringing the sitter to the studio having been achieved, we turn to other considerations. The most important, perhaps, is that absolute cleanliness and orderliness be observed in both reception-room and studio—yet how often are both lacking, and generally the photographer who is least able to spend money on what he deems would be improvements, is the worst offender, and to remedy the most obvious defects would cost—nothing. It is the careful attention to the little things that leads to success. A lately deceased magnate in the world of West African mining finance told the writer how that when he first came to London it was as a photographer's assistant in search of a job in any capacity. He went to one of the leading West End studios. "No," said one of the partners, "we have no vacancy." The youth stepped to a window, and, moving a curtain slightly, remarked that it seemed a pity to allow the strong sunlight to pour in on the costly plush, on which it had been shining. The partner was so impressed by the careful observation which the remark denoted, that he there and then engaged the youth, whose successful after-career was marked by, and can largely be attributed to, the same attention to details. Every photographer can with a little care see that there is no room for fault to be found in this respect, but the question of taste in the appointments is a little more difficult. Not everyone can make his studios so attractive as to render them the rendezvous of fashion in his town as has the American photographer, Mr. J. C. Strauss, in St. Louis, but he should at least have his surroundings in what is generally recognised as being in good taste. Frequently, though, one sees a reception-room furnished with ugly furniture and the walls of many-coloured paper almost covered with all sorts and conditions of photographs, instead of a subdued self-coloured paper on which are displayed a few well-framed specimens of the very best photographs the proprietor has produced. The choice of

The Receptionist.

is another "move." A photographic humorist has written, "Show me a photographer's receptionist and I will show you his bank-book," and the remark contains much truth. An agreeable manner and the possession of a little tact will frequently mean that a sitting will yield an order double or treble that which it was originally the intention to have given, and thus it is that we contend that the engagement of a good receptionist comes within the definition of advertising, with which we started, "Every move that has for its ultimate aim the sale of anything."

The Photographer's Stationery.

is a means of advertising which is often misused, generally through trying to advertise too much and thus defeating its own ends. Many photographers seem to aim at the same effect on their stationery as do the dealers and manufacturers, forgetting that the latter necessarily appeal to varied interests, whereas the plain statement that the letter is sent from a certain studio should be sufficient for the photographer. Instead of which, one sees a lengthy list of processes in which prints and enlargements are made, and information that the latter may be obtained finished in oils, water colours, or monochrome—the last word reminding one of "that blessed word Mesopotamia," and probably conveying about as much meaning to most of the recipients. Sometimes there is a crude woodcut—very wooden at that, too—of a design which ill befits an "artist" in photography writing to his patron. Again, the use of one printed form for both letters and bills misleads some.

To use a sheet of note paper for a bill looks professional—doctors and solicitors both do it—but to use what is, by its cash columns, obviously a bill heading as a letter is bad form. Unless executed in very good style a design of any kind is much better avoided; the name of the photographer, with the single word "photographer" below it in the left-hand corner, and in the right hand, the address, if well printed, or better still, embossed, in a quiet colour on the best paper one can afford, will be quite sufficient.

In Conclusion.

Lastly, the work turned out is the last "move." It is the final advertisement and the most lasting. If it be not good, all

the other advertising will have been in vain. Badly washed prints will tell their own story within a few weeks, and so will cheap mounts when the chemical impurities therein shall have had time to work through the mountant. Such sophistries as sending out bromides as "platinos" may pass muster for a time, but in business, apart from any ethical or religious considerations, honesty is the best policy. The photographer who judiciously advertises to attract attention to his work, will find that if the latter be good he will keep on getting more to do. Only—he must keep to the one standard. The work must be good.

W. J. CASEY.

A PICTURE SCRAP-BOOK.

By an Occasional Correspondent.

A FEW years ago I picked up a copy of an American photographic magazine, and as the frontispiece I saw a copy of a photograph by Hollinger. It was a fine picture of a white-haired, handsome man, just the kind of sitter who makes a good subject, and one who had been fortunate in choosing a photographer who appreciated the possibilities in his subject, and made the most of them. But it was not merely as a successful piece of work that it interested me. I was sure I had seen the original, or his portrait, before, and I cudgelled my brains to remember where. The idea bothered me for days, when suddenly I had an inspiration. I rushed into Cook's, laid eight and fourpence on the counter, and asked for a two-dollar United States bill. On the back were two engraved portraits, one of them being Morse, the man famous in the early days of electrical research. He was a fine old man, with a wealth of snowy hair. At once I saw that I had found what I was searching for. Hollinger had got his idea from American paper money.

An Observation.

This Hollinger is an unusually successful American portraitist; a man who went from a small country town to New York and at once took a place in the metropolis somewhat similar to that now held by H. Walter Barnett in London. He became famous among American photographers as the man who obtained record prices, and as the man who did not pose his subjects. That advice of his, "Don't pose," was a rock of stumbling to his fellow workers, and many of them doubtless have not grasped it to this day. They thought he meant, "Let the sitter pose anyhow, and just fire away"; but when they tried that, they found the result to be disaster rather than record prices. Hollinger simply did not pose to any preconceived or stereotyped rules of the trade, and he strove after naturalness in his sitters as the first essential. His secret, of which he made no secret, was close study and observation. His finding inspiration from an old engraved portrait is typical of him. Week after week when he reached New York he would go to the leading art museum and study the pictures. Never an illustrated paper came his way but he absorbed some hint from its pages—if the hint were there. The modestest of showcases attracted his attention, and he was never tired of seeing even the most mediocre of work. He absorbed the good, rejected the bad, and got such a grasp of his subject that he chose the best pose as by instinct, and without conscious effort.

Keeping Ideas.

Every self-respecting man reads one or more papers, and sees a number of illustrated magazines. The trouble with ephemeral literature is its great profusion. To turn over four or five illustrated papers in the course of half-an-hour is simply to

pleasantly pass that time away. The pictures are lazily glanced at, and forgotten. If a man has the questionable habit of "keeping papers for binding," they are kept until the auspicious day in the lumber room. Moving day usually comes first, and the bundles of papers strike despair in the owner. "Carry all this dead weight away? No fear!" he cries; and he is secretly relieved at leaving them to worry the next tenant.

The proper place for ninety-five per cent. of current literature is the waste-paper basket. Papers are issued week by week for the needs of that week; not for posterity. But most magazines, if they are worth anything at all, contain some sketch or photograph which furnishes a hint or an idea. If so, cut it out and save it, while the rest of the paper goes to fire-lighting. Such a selected note may be of use at some future date. If left in the magazine, and the magazine in the lumber room, it will never be seen again.

How to File Cuttings.

The mere act of examining a picture which strikes the eye as one worth saving is in itself a help, for the picture receives a close inspection instead of a mere cursory glance. But the pictures are kept for future help and use. How may they best be filed so as to be at hand when required? There is no way to beat the old scrap-book idea. Keep a few envelopes for the different classes of pictures—men, women, children, groups, etc. At occasional intervals go through the envelopes, discard those pictures which on second inspection appear too commonplace, and mount the others in a book. Dozens of photographers have worried over the problem of how best to do justice to a bridal dress with its emphatic train. I know a photographer who has half a hundred such pictures; not only photographs, but also sketches and engravings. An hour spent with such a collection would be a privilege to many workers.

The Value of Engravings.

A common mistake made by the photographer in search of ideas is to confine his search to the photographic field. Photographs show a wider range of pose and arrangement to-day than ever they did, but there is still room for improvement, and much may be learnt in this direction by studying the work of pen or brush artists. Photography depends so much on its technical end that some photographers make this the leading part of their knowledge. The training of the artist brings him into closer touch with such questions as arrangement of line, or composition of a picture, and this phase of his work is emphasised when he comes to block out a composition which may take hours, or weeks, of unremitting care in its realisation. Nowhere is this more plainly seen than in the difficult problem of groups. With a group of fifty people the photographer is happy. One row sitting on the ground, one on chairs, one standing, and perhaps a fourth row standing out a form. But when it is a question of three or four people, the

photographer often has an anxious time, and not infrequently feels very dissatisfied with his results. A picture in which a very few persons are pleasingly grouped is well worth study by a photographer.

Old Masters.

From time to time we hear about old masters, and perhaps some people are a little tired of them. And too much reliance may be placed on them. The photographer may get a hint of attitude or a suggestion of arrangement as well from a sketch in a penny paper as from a guinea photogravure. But it is well always to study the best, without necessarily closely imitating it. When a picture has been hung on a wall for three hundred years, a photograph of it is scarcely the thing to be studied as a masterpiece of photography. A fashion of a dead black background has nothing to do with a guarantee of art. Old masters may be studied, however, from the vital viewpoint of likeness—a likeness that goes beneath mere skin-

texture and gives us the character of the man. It is impossible to look at many of the world's great paintings without reading the characters of the men portrayed—and, indirectly, of the artists.

Expression and Anatomy.

Among the thousand and one pictures in magazines we get hints of poses and drapery. "Pretty pictures" are popular, and the photographer who makes his feminine sitters look graceful and dainty will share the popularity. In looking at the old masters—most of which are representations of men—we find that the expression is more than the anatomy; that the man is revealed, not the mask. With our modern ideas of retouching we tend to destroy both mask and man. The keeping and study of a picture scrap-book is a very useful item in a photographic education; but the greatest factor of all—the study of the human face itself—must never be neglected. It should be an ineradicable habit.

THE WEEK IN HISTORY.

The Gum Bichromate Patent.

IN "The Week in History" for March 24 I referred to Pouncy and his invention of the gum process, for which process he took out a Provisional Specification on April 10, 1858. From the brief preamble to the technical description of his method it would seem as though Pouncy imagined the invention of a photographic image in pigment *via* bichromate and a colloid body like gum to be original with him. "Heretofore," he writes, "in producing photographic pictures on paper and other surfaces, the surface has usually been prepared with substances which, when acted upon by light in the process of producing the picture, are chemically acted on so as to produce, either immediately or when other substances are afterwards applied to the surface, the colouring matter or substance in which the picture is formed." But the credit of photographic printing in permanent pigments belongs to Poitevin if any one man is to be named for that distinction. Poitevin's work, which forms the basis, not only of pigment printing, but of the important colotype process, commenced in the late forties. In 1855 an English patent was granted to him which embodies the principle of colotype, and in the same year he produced crude pigment prints by the use of gum and albumen and a bichromate. Pouncy thus developed and perfected the idea of the French inventor.

Gum-Bichromate as a Trade Demonstration at the R.P.S. Forty-Seven Years Ago.

In 1858 Mr. Pouncy stirred the (then) Photographic Society of London to its depths with his gum-bichromate process. At a December meeting in that year he was introduced as about to read a paper, but that he did not do. The evening witnessed a spirited attack upon him by Mr. Malone, who complained of the Society being used for purposes of trade, and further poured forth the vials of his wrath on "carbon"—as Pouncy called his process—in comparison with silver. The point of his brilliant argument—which I recall now as delivered with great animation—was distinctly blunted by the fact that between two prints shown by Mr. Pouncy, one silver, and the other authenticated as "carbon," Mr. Malone was not able to distinguish. At

the subsequent meeting Mr. Pouncy made known the details which he had previously withheld, and there was once more peace upon the waters.

Whatever publicity the Pouncy process obtained at that time—it was very considerable—it availed it little. For transfer carbon, then in embryo, was soon afterwards developed by Swan, and no more was heard of gum bichromate until the Frenchmen rediscovered it in 1894.

The Aniline Process.

Probably nine out of ten photographers have never heard of, and certainly never worked, the remarkably simple process which is exactly forty years old on Tuesday in next week. The aniline process was made known by its author, Mr. W. Willis, in a paper to the Photographic Society on April 11, 1865. It is a simple and effective application of the sensitiveness of bichromate to light and the well-known oxidation of aniline by bichromate into the dark dyes which formed the starting-point of the aniline-colour industry. As Mr. Willis describes it, the sensitising liquid consists of a solution of the bichromate of potash or ammonia, containing a small quantity of sulphuric or phosphoric acid. This liquid is applied to paper either by sponging or by floating. When dry the paper is exposed to light under a positive photograph or a drawing after which it is placed in an atmosphere charged with the vapour of aniline. Finally the print is washed in either plain water, or first in weakly acidulated water, and subsequently in plain water. The reader will see that in this process the image is formed, not from the substance which is formed, but from that which is left unchanged; it is the residual bichromate which produces the aniline colour when the print is exposed to its gaseous developer. Hence the process is chiefly useful for the copying of line plans and tracings which it is very desirable to reproduce in dark lines on a white ground. It was very largely employed for this purpose in Germany in engineering works for the multiplication of shop-drawings, for it is extremely cheap, extremely rapid, and the copies, although they are in dyes, are perfectly permanent.

HISTORICUS.

MEQUIN.—The developer which has obtained a universal reputation under the name "M.Q." (metol-quinol) is probably well known, from actual acquaintance with its properties, to every reader of these pages. This product was brought upon the market in 1894 by Messrs. John J. Griffin and Sons, primarily as the developer for Velox paper, and has been sold for some years past under its name, "M.Q." As this title cannot be registered, and as, therefore, the distinguishing mark of an excellent product can be used by other

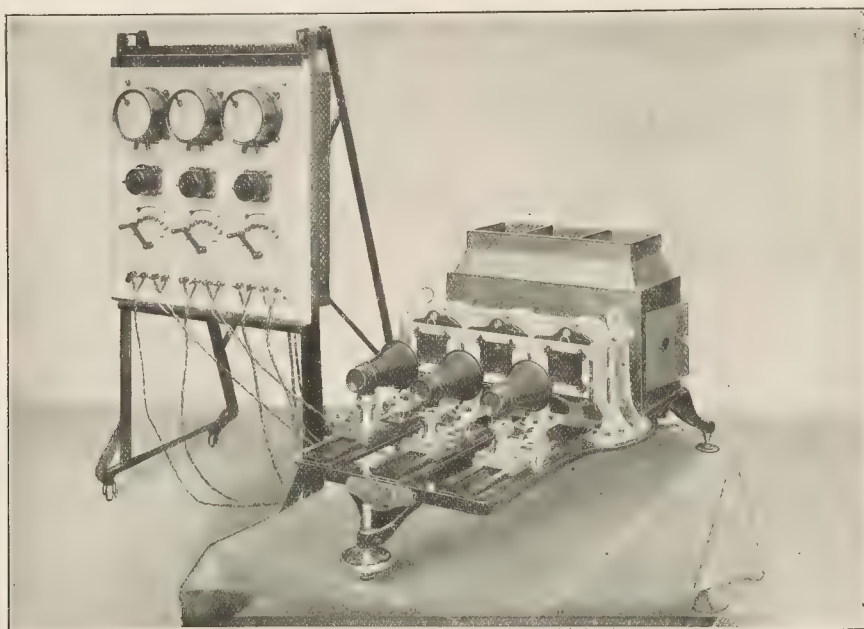
makers, Messrs. Griffin have now taken the step of protecting themselves by registering the word "Mequin," to identify their manufacture. "M.Q.," as made by Messrs. Griffin, should be as acceptable to photographers by any other name, but the new synonym impresses us as extremely felicitous, and we trust that the qualities of excellence and uniformity which it has been our experience to observe in the developer hitherto will be appreciated no less now that "M.Q." changes its name to "Mequin."

DR. MIETHE'S COLOUR PHOTOGRAPHY IN LONDON.

ONE outstanding attraction at the Photographic Trade Exhibition, which opens to-day at the Portman Rooms, Baker Street, London, W., is the projection of three-colour transparencies by the apparatus devised by Dr. Miethe and constructed for him by the well-known firm of C. P. Goerz. Some time ago exhibitions of the many trichromatic portraits taken by Dr. Miethe himself were regularly held in the Urania Theatre, Berlin, and now, after having twice crossed the Atlantic and having been a notable object of interest in the photographic section of the St. Louis Exhibition, Dr. Miethe's colour photography will be offered to the public view for the first time in England while the Portman Rooms are devoted to the photographic trade—viz., from April 7 to 14. The apparatus has a personal interest for us, as we chanced to be present when the first

mon to all three systems, however, is the cooling tank, which is designed more to protect the transparencies than the condensers from the heat. The lamps are hand-fed, and the current can be varied between 15 and 35 amperes, according to the size of the disc. The condensers are of the triple form, with a meniscus with its concave side to the light, and then two plano-convex lenses, with their convex sides towards one another, and between these two lenses is placed the water tank, which is filled with distilled water containing a little carbolic acid, and has an internal separation of about 6 cm.

The lenses and colour filters are arranged on three parallel optical benches, a design which permits of very exact movement along the optical axes. Special fittings are arranged for coarse and fine focusing, for raising and lowering, and a to-and-fro movement.



Dr. Miethe's Apparatus for Three-colour Projection. Photograph by C. P. Goerz.

working model was brought to Dr. Miethe's laboratory, and we heard his playful comment—"Ein schönes Thier!"—as he handled the roughly-constructed instrument. The projection lantern, as Messrs. Goerz have made it, is an instrument of precision. The following outline of its construction will explain how it differs from other projectors of trichromatic transparencies, and we give it with the recommendation to our readers to overlook neither the apparatus nor the marvellously beautiful colour photography which it displays when paying their visit to the Portman Rooms.

The apparatus, as devised by Dr. Miethe, was constructed by C. P. Goerz, of Berlin-Friedenau, and enables the images to be adjusted and superimposed before being thrown on the screen. It practically consists of three projection lanterns placed side by side, each having its own arc lamp, condenser, and projection lens. Com-

The filters are stained gelatine films cemented between plate glass, and fit somewhat like a cap on the lens hoods. Dr. Miethe claims that by this arrangement and suitable choice of the dyes the filters have a very long life, as in this position they are least exposed to the intense light: and it has been proved that they will stand for at least one hundred working hours.

The lamps, as already stated, are hand fed with inclined carbons, and so arranged that the crater may be moved vertically and horizontally. The resistances are capable of regulation, so that the current may be kept within the specified limits by turning a lever, and the constancy of the current is tested by three ammeters, from the readings of which the length of the arc is from time to time adjusted.

As regards the consumption of current, 13 to 15 amperes for each lamp are enough to illuminate brilliantly a screen from 7½ to 8 sq. ft.

with vivid colour rendering. For larger discs the current must be increased, and with 30 amperes a surface of about 15 sq. ft. is sufficient without any appreciable loss of light.

As the effect of the projection in colours depends to a very great extent on the regularity of the burning of the lamp, it is advisable to use nothing but the best carbons, and Dr. Miethe states that he has found the cored searchlight carbons marked "S. A.," made by Siemens and Halske, the best, and he uses cored carbons both for the negative and positive poles, and thus gets a quieter burning arc. The arc itself should be kept rather short than long, and the cable carrying the current should be so arranged that the arc is disturbed as little as possible by the electro-magnetic action of the current, and for the same reason the lamps are separated by sheet-iron.

Peculiar to this large projection apparatus of Miethe's is the transparency carrier. This is constructed of sheet aluminium, and when the positives have been once adjusted they always remain in the required position. The sheet of aluminium is cut with three square apertures, slightly less than the positives, and by the aid of spring clips, the positives, when they have been cut apart, can be fastened in this frame.

Accurate superposition of the three images may be obtained in one of two ways. The centre picture may be fixed in the apparatus and the two side ones shifted till they absolutely coincide, and then they may be clamped, or a special adjusting apparatus may be fitted, which can be used by day or by lamp light and without using the projection lantern. This apparatus consists of two microscopes, a slit, and a cross wire, which is accurately adjusted on a particular spot or subject in the positive, and then the same operation gone through with the other positives, though in this case the microscopes are kept fixed, and the positives moved. When the cross wire coincides with the same point as in the first positive, the positives are fixed in position in the frame, which is then ready to drop into the lantern, and the images will at once coincide on the screen, if the lanterns have been previously adjusted. Dr. Miethe states that from forty to fifty sets of positives can be thus adjusted in a morning.

To adjust the lanterns, an enlarged cross-line screen negative is used, two lanterns are lit up, and the images made to coincide, and then the third adjusted in the same way. Although extremely small differences may be seen they are of no moment.

Dr. Miethe originally used cells with liquid filters, but now he uses stained gelatine, and it is interesting to note that he states that precisely the same filters may be used for projection as were used for taking the negatives, though it is an advantage to use lighter ones, particularly in the case of the blue. Mr. F. E. Ives always contended and used, for projection, filters which practically allowed but a very narrow spectrum band to pass whereas according to this statement of Miethe's and a spectroscopic examination of a set of his taking-filters, each passes a broad, but not over-lapping spectrum band.

THE proposed amalgamation of the Society of Arts and the London Institution is discussed at considerable length in the current issue of the Society of Arts "Journal" in the form of the report drawn up by the managers of the two institutions. It is shown that both bodies are in a prosperous state, and that the fusion of their interests and the establishment of a compound body in a building in the West End should add to the facilities which are now separately enjoyed by the two bodies for the prosecution of their labours. It is hoped that the new institution will permit of the promotion of scientific research, once a main object of the London Institution, but one which it has lately been compelled to abandon.

Photo-Mechanical Notes.

Enlarged Half-tone Work.

WE observe on the hoardings at present two very large full-length portraits in costume of Mr. Fred Terry and Miss Julia Neilson, as characters in "The Scarlet Pimpernel," and on examination these prove to be half-tones, as does also the smaller poster for the same play, a flower containing Miss Neilson's portrait. These posters are by Messrs. Allen, the well-known theatrical poster publishers. At Christmas, conspicuous everywhere was a huge Christmas pudding with some children around it, also half-tone, worked with colours. Messrs. Meisenbach, Ltd., have lately circularised the lithographic printers, offering to supply at low prices half-tone lithographic transfers up to 60 in. by 40 in. from flat photographs of any size supplied, or to specially make photographs from living models, and from these the transfers. All this shows the steady trend of photo-mechanical reproduction towards conquering every branch of reproduction work.

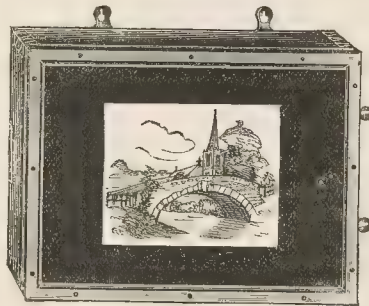
Enclosed Arcs and Bluish Originals.

In making negatives of bluish wash drawings with the enclosed arc-lamps which are now coming into use, it is often found that the reproduction is very flat as compared with the original. This is probably due to the fact that the light blues reflect nearly as much ultra-violet as the whites, and the result is a loss of tone. The exposures with this kind of original are usually so short that it is no great sacrifice to cut out some of the ultra-violet—indeed, it is essential, if the etcher is not to be given much work on the metal in correcting the defective tone rendering.

A filter should be used of quinine sulphate, 1 part; water, 100 parts, solution being effected by the addition of a drop or two of sulphuric acid, or a filter of bichromate of potassium, 1 part, in water, 10,000 parts, will also cut out the ultra-violet. These solutions are used in a cell of 10 millimetres thickness. If the bichromate filter is made stronger, it begins to cut out the violet and the blue, and exposures become so long as to make the use of wet collodion impracticable. Either of the above weak filters may, however, be used with ordinary wet plates without very seriously prolonging exposure.

A Process Copy-holder.

AN accessory of some considerable value to the process worker is a copy-holder which we recently saw in use at the L.C.C. School of Photo-Engraving, Bolt Court, Fleet Street, London. It consists very



simply of a frame like an ordinary deep printing-frame, provided with two hangers for attachment to the easel, and is made without projections at the back, so that if the easel is correctly at right angles to the axis of the lens, the glazed front of the holder and also the

copy which is pressed against it will likewise be properly placed. The lack of the holder is inserted if the copy is an unmounted drawing or print, but is dispensed with if a book or thicker object is to be pressed flat against the plate-glass front of the holder. As permitting almost any form of original to be held flat, the accessory is certainly an aid to the photo-engraver, and we understand that it is made in 20 x 16 size for 15s. 6d. by the Camera Construction Co., of Hackney, N.E.

PHOTO-MECHANICAL PATENTS.

Application for Patent.

HALF-TONE SCREENS.—No. 6,296. "Method of producing half-tone photographic screens." Theodor Dittmann, 40, Chancery Lane, London.

Exhibitions.

NOTTINGHAM.

THIS exhibition was opened on Wednesday, April 5, by Sir Henry Cotton, K.C.S.I. The entries are well up to the average, the open section containing many of the season's best pictures, the landscape and portraiture classes being particularly strong. The members' classes were never so well filled, nor has the work attained so high a standard as upon this occasion—some of the work might with advantage have been entered for the open classes. The club has adopted a most commendable arrangement in having the awards presented at the opening ceremony, the judging, we understand, being done early enough to allow of this.

The evening programmes include lectures by Sir Henry Cotton upon the great earthquake in the West Indies, and upon Holland by the President of the Club, Mr. Arthur Marshall.

The Club is to be congratulated upon a most successful exhibition, and upon the vitality and enthusiasm which exist amongst its members.

The judges, Messrs. J. T. Ashby and C. Barrow Keene, made the following awards:—

OPEN CLASSES.

Class A—Landscape, Seascape, and River Scenery: Bronze plaques, Chas. E. Walmsley, Arthur Marshall; hon. mentions, Arthur Black, Hugh G. Paterson.

Class B—Portraiture, Figure Studies, Animals, and Still Life: First bronze plaque, A. E. Coleman; second bronze plaque, Hugh G. Paterson; third bronze plaque, John Spark; first hon. mention, D. W. Kyle; second hon. mention, Chas. E. Walmsley.

Class C—Architecture and any subject other than Classes A and B: First bronze plaque, W. A. Clark; second bronze plaque, Arthur Marshall; hon. mentions, Thos. Wright, Noel Blagg, Wm. Mosley.

Class D—Lantern Slides (set of four, any subject): First bronze plaque, Rev. Henry W. Dick; second bronze plaque, Hugh G. Paterson.

MEMBERS' CLASSES.

Class E—Landscape, Seascape, and River Scenery: First bronze plaque, R. R. Enfield; second bronze plaque, Thos. Wright; hon. mentions, S. D. Middleton, E. H. Atkin.

Class F—Portraiture, Figure Studies, Animals, and Still Life: First bronze plaque (withheld); second bronze plaque, Thos. Wright; hon. mentions, F. H. Radford, Noel Blagg.

Class G—Architecture, and any other subject than above: First bronze plaque (withheld); second bronze plaque, E. H. Atkin; hon. mentions, Thos. Wright, S. D. Middleton.

Class H—Lantern Slides (sets of four, any subject): Bronze plaque, Arthur Black; hon. mention, Thos. Wright.

Class J Novices' Class (for members who have never received

an award of any kind for photography): Bronze medals, W. A. Appleton, W. H. Kirkland; hon. mentions, D. Gillespie, John Gale, Wm. S. Ellis.

President's Special Award—The special award of £2 2s. offered by the President of the Club for the best print in gum-bichromate, entered in the Members' Classes, has been awarded to Mr. Alec Hartley.

PHOTOGRAPHIC SOCIETY OF IRELAND.

THE annual exhibition of this Society was opened at the Leinster Lecture Hall, Dublin, on Monday, and will continue open until the 15th inst.

The following is the list of awards:—

MEMBERS' CLASSES.

Class 1—Landscape, etc.: Silver, R. Benson; bronze, Rev. R. E. Vernon Hanson; hon. mention, Mrs. F. Perry, T. H. Mason.

Class 2—Portraits: Silver, Mrs. Mahoney; bronze, A. Ponton; hon. mention, Mrs. F. Perry, T. A. Hackett.

Class 3—Architecture: Silver, J. B. Anderson; bronze, H. Pollock. Class 4: Bronze, Mrs. F. Perry, Mrs. Mahoney; hon. mention, J. B. Anderson.

Class 5: Silver, H. Pollock; bronze, H. Goodwillie; hon. mention, Basil Thompson.

Class 7: Bronze, A. Ponton; hon. mention, S. J. Harrison.

Class 8: Bronze, W. C. Wilson; Werner special award: Mrs. Mahoney.

OPEN CLASSES.

Class 9: Gold, Arthur Marshall; silver, A. E. Coleman; bronze, J. M. Whitehead.

Class 10: Silver, J. B. Doran; bronze, J. M. Keogh.

Class 11: Silver, Rev. H. Dick; bronze, F. G. Tryhorn.

A feature of the exhibition is the loan collection of pictures by the members of the Salon Club of America.

CHISWICK.

CHISWICK CAMERA CLUB's ninth annual exhibition, which was held in the Chiswick Town Hall, on Thursday, Friday, and Saturday last week, and Monday of this week, has gradually increased in magnitude year by year, and this year there has been added an apparatus section to it. In the pictorial section the judges were Rev. F. C. Lambert, M.A., and Mr. S. J. Beckett. In Class A (open) the silver medal was awarded to H. Gordon Stollard, for "A Sussex Lane"; the second medal (bronze) went to H. O. Bannister, for "Finishing Touches"; and the third (bronze) to J. B. Portway, for "Going to the Fold." In Class B (affiliated societies), for sets of four frames by four members of club, the medals went to the Hastings and St. Leonards Photographic Society for frames "A Country Girl," by Harry Cross; "Finishing Touches," by H. O. Bannister; "A Study of Old Age," by John Smith; and "November," by Fred. Judge. In Class C (members) (Landscape, River Scenery, and Marine), "The curfew tolls the knell of parting day," by W. E. Walker, gained the silver medal; the bronze medals went to W. E. Walker, for "The Harbour Sunset," E. R. H. Wingfield, for "A Corner of Hampstead," and H. Hucklebridge, for "St. Paul's." In Classes D, E, and F, the entries were very sparse, and there were no awards in them. In Class G (open), (Lantern Slides), H. Wormleighton's set of slides (various) gained the bronze medal. In Class H (members) (Lantern Slides), J. Woodger's set (various) gained the bronze medal. The apparatus section, which is entirely under the control of the Exhibition Committee, had selections of the latest apparatus of the following manufacturers: Messrs. Houghtons, Ltd., Kodak, Ltd., R. and J. Beck, Ltd., W. Butcher and Sons, W. Watson and Sons, and the Wizard Camera Co.; also specimens and samples of "Tabloid" specialities, Wellington and Ward's papers, and the Rotary Co.'s specialities.

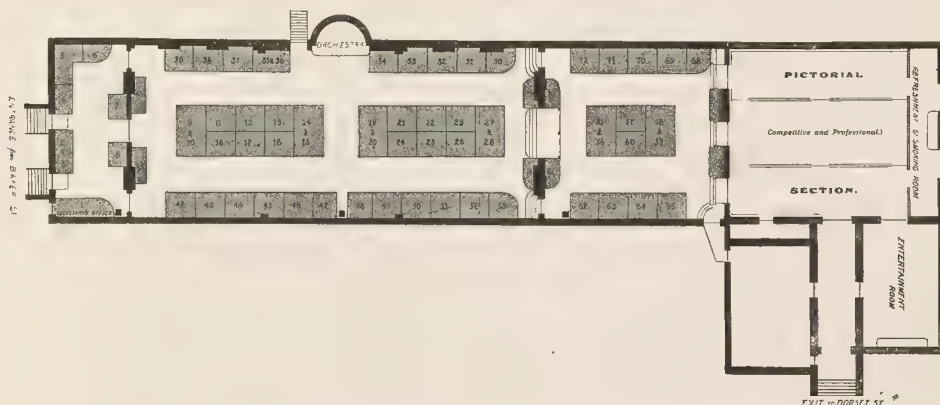
FOURTH PHOTOGRAPHIC TRADE AND PICTORIAL EXHIBITION.

THE photographic exhibition which opens at the Portman Rooms (Baker Street, W.) to-day promises to be one of the most interesting photographic events of the season. It is the fourth of a series of exhibitions held primarily in the interests of the trade, but in the present case the addition of pictorial exhibits by professional and amateur camera users has given the event a much wider scope and significance. It is the hope of the management that the general public will be attracted to the show in greater numbers than on previous occasions, and this will add a more direct interest and value to the affair from the trader's point of view. That the exhibition is a thoroughly representative one will be gathered from the accompanying list of exhibitors as supplied to us by the management at the time of going to press:—Elliott and Sons, Ltd.; Johnson and Sons; J. Ashford; C. P. Goerz; J. E. Lockyer; Adhesive Dry Mounting Co., Ltd.; Benetfink and Co.; A. and M. Zimmermann; Rajar Ltd.; Houghtons, Ltd.; R. W. Thomas and Co., Ltd.; D. Allan; Romanet and Guilbert; Dawbarn and Ward; C. Tyler and England Bros., Ltd.; Carl Zeiss; Butcher and Sons; Busch Camera

means of an elaborate specially designed and constructed piece of apparatus of C. P. Goerz, which we describe on another page. The latest in animated photography is also to be a feature of the entertainments.

The pictorial section is comprised of competitive exhibits by many of the best known workers in the United Kingdom, together with a loan collection contributed by eminent professional and amateur pictorialists. This section is under the management of Mr. Walter Selfe, the well-known honorary secretary of the Hackney Photographic Society. Six silver and six bronze plaques, and a gold medal for the best picture in the exhibition are to be awarded, the judge being Henry W. Bennett, Esq., F.R.P.S.

In every other respect the exhibition is being organised upon most popular and attractive lines. A good smoking and refreshment saloon is provided, and there is a capital orchestra. The exhibition remains open until Saturday, April 15, from 12 noon to 10 p.m. daily. It is well worth a visit, and being within three minutes' walk of Baker Street station, on the Metropolitan Railway, is very convenient and accessible. The admission fee, 1s., covers everything, there being no extras.



1. The Secretary's Office.
- 2 and 3. Jas. Walker & Co.
7. Moll & Jonas.
8. Thos. Illingworth & Co., Ltd.
- 9 and 10. Elliott & Sons, Ltd.
11. David Allan.
- 12 and 13. J. Ashford.
14. Benetfink & Co.
16. Quincey Photo-Development Syndicate.
17. Rotary Photographic Co., Ltd.
18. Jas. Lancaster & Sons, Ltd.
- 19 and 20. W. Butcher & Sons.
- 21, 22, 24, and 25. Houghtons Ltd.
26. Alston & Co.

- 27 and 28. Henry F. Purser & the Busch Camera Co.
29. The Wizard Camera Co.
30. Carl Zeiss.
31. Paget Dry-Plate Co., Ltd.
32. Adhesive Dry Mounting Co., Ltd.
- 33 and 34. J. E. Lockyer.
- 35, 36, and 37. Chas. Zimmermann & Co.
38. Service Photographic Society.
39. Johnson & Sons, Manufacturing Chemists, Ltd.
40. Romanet & Guilbert.
41. C. P. Goerz.
42. Dawbarn & Ward, Ltd.
- 43, 44, and 45. Chas. Tyler & England Bros., Ltd.
46. John Wrench & Sons.

47. A. C. Jackson (branch of Houghtons Ltd.).
48. W. Butcher & Sons.
- 49 and 50. A. & M. Zimmermann.
51. E. Schering.
- 52 and 53. O. Sichel & Co.
54. Rajar Ltd.
- 55 and 56. The Metatype Co., Ltd.
- 58 and 59. L. Gaumont & Co.
62. R. W. Thomas & Co., Ltd.
65. Burroughs Wellcome & Co.
66. S. Albu & Sons.
69. A. W. Penrose & Co.
- 70 and 71. "Focus."
72. Daniel Judson & Son.

Co.; Wizard Camera Co.; Burroughs Wellcome and Co.; O. Sichel and Co.; A. C. Jackson; Paget Prize Plate Co., Ltd.; C. Zimmermann and Co.; Moll and Jonas; D. Judson and Co.; A. Alston; J. Wrench and Son; Rogers and Webster; Rotary Photo Co.; Penrose and Co.; Lancaster and Son; Leto Photo Materials Co.; Illingworth and Co.; Metatype Co.; Chas. Harrison; Bayer Co., Ltd.; Gaumont and Co.; S. Albu and Sons; H. Edmund and Co.; Service Photo Society; Rosenberg and Co.

We understand that every effort is being made by the participants to bring together a thoroughly up-to-date array of novelties and accessories. The rooms themselves are admirably adapted for the effective display of goods of this description. The entertainment department is characterised by great variety, all the latest novelties in lantern and cinematograph work having been arranged. Dr. Miethe's colour slides from the St. Louis Exhibition should prove specially interesting. These are being shown upon the screen by

SHOTS'S EXHIBITION.

THE Shots's Camera Club is of comparatively recent formation, but that the members have a large fund of enthusiasm is evident by the exhibition held at the end of last week. In the open class J. C. Robertson, Brechin, carried off premier honours—the silver plaque—with his picture "The Picture Book"; bronze plaques were awarded to Wm. Clayden, Plymouth, "Tugging Home," and Fred Judge, Hastings, "November," while diplomas were gained by E. Seymour, Watford, "Flower Study." Vanessa C. Baird, Broughty Ferry, "Loch Vennacher," and R. Forbes, Edinburgh, "Waiting."

In the federation class the silver plaque was gained by G. L. A. Blair, Paisley, with "While London Sleeps." J. C. Robertson, Brechin, gains the bronze plaque with "A Study in Architecture." Diplomas were awarded to Mrs. V. C. Baird, Broughty Ferry, "Gipsy Life," and A. H. Allan, Edinburgh, "Figure Study."

In the members' class the bronze plaque awarded by the president

(A. W. Hill) is gained by J. Twaddle, secretary, with "Corn," he also gains a diploma, as also do Alex. Smith and S. Forsyth.

Probably the feature of the exhibition from a photographic point of view is the 27 prints exhibited by A. W. Hill, president of the society. These prints, as might be expected from the well-known proclivities of the author, are all gum-bi prints, and certainly they show a wide range of treatment and dexterity in the use of his chosen medium.

Mr. J. W. Eadie, Vice-President of the Scottish Federation, officiated as judge.

THORNTON HEATH.

THE annual exhibition of this society was held on Tuesday evening on last week, at East Surrey Hall, when 136 pictures were shown. The judging was done by Mr. J. T. Ashby, F.R.P.S., in whose opinion the best picture in the show was one contributed by Mr. W. H. Rogers. The awards were distributed in the evening by Mr. W. H. Smith, president of the Croydon Camera Club, and were as follows:—Class A., Landscapes, etc.: 1st "A June Morning," by G. L'Epine Smith; 2nd "Wotton Woods," by Fred Stokes. Class B., Architecture, Portraiture, etc.: 1st "An Interior," by W. Wood; 2nd "Innocence," by E. J. Smith. Class C., Any Subject: 1st "Through the Grey Mist," by J. H. Robertson. Class D., Lantern Slides: 1st Mrs. Edwards; 2nd W. Wood. Class E., Open: 1st "Towards the Close of Day," by W. H. Rogers; 2nd "A Spring Morning," by G. W. Jenkins.

FORTHCOMING EXHIBITIONS.

April.—International Exhibition, Genoa. Sec. Gen., Piazza Fontane Marose 18, Genoa.

April 3-15.—Photographic Society of Ireland. Hon. Secretary, R. Benson, 35, Molesworth Street, Dublin.

April 5-8.—Nottingham Camera Club. Hon. Secretary, S. W. B. Vines, 102, Woodborough Road, Nottingham.

April 7-15.—Photographic Trade Exhibition, Portman Rooms, Baker Street, London, W. Manager Pictorial Section, W. Selfe, 70, Paragon Road, Hackney, London, N.E.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

April 24-29.—Redcar and Coatham Literary Institute Photographic Society. Secretary, W. Hildrith, 42, Newwomen Street, Redcar, Yorks.

April 27-29.—Southend-on-Sea Photographic Society. Hon. Sec., J. Archer, 24, Ashburnham Road, Southend-on-Sea.

April 28-29.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen Ashcroft, Bushey Hall Road, Watford.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire-Général du Photo Club de Paris, 44, Rue des Mathurins, Paris

May 9-10.—Ballarat Camera Club. Hon. Secretary, G. Montgomery, 201, Sturt Street, Ballarat.

May 10 to June 19.—Salon of the Photo Club de Paris. Entries close March 1, and pictures must arrive by April 10. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

June.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

FORTHCOMING COMPETITION.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between March 20 and 25, 1905:—

DARK SLIDES.—No. 5,822. "Improvements in envelopes and dark slides for plates and flat films, and in camera backs and adapters receiving them." Max Staehler, 29, Margaret Street, Regent Street, London (Firm of Carl Zeiss, Germany).

RETOUCHING APPARATUS.—No. 5,840. "New or improved apparatus for use in photographic printing and retouching." Thomas Clegg, 38, Chancery Lane, London.

MARKING PLATES.—No. 5,852. "Improvements in and relating to means for marking photographic plates." William Frederic Butcher, 322, High Holborn, London.

FILMS.—No. 5,911. "Improvements in photographic films and apparatus connected therewith." Samuel Henry Adams, care of Adams' Hydraulics, Limited, Scotswood-on-Tyne.

CINEMATOGRAPH.—No. 6,068. "An improved cinematographic process." Robert Thorn Haines, 322, High Holborn, London.

CABINETS.—No. 6,150. "Improvements in or relating to cabinets for photographs and like articles." George Isaac Bakewell, 111, Hatton Garden, London.

PROJECTION APPARATUS.—"Improvements in optical projection apparatus." Albert Thornton Thompson, 322, High Holborn, London.

ILLUMINATION FOR ENLARGING APPARATUS.—No. 6,313. "An improved means of illumination adapted for use with photographic enlarging apparatus." Henry Rex Cook, Fort Fareham, Fareham, Hants.

IMPROVEMENTS.—No. 6,340. "Improvements relating to photography." John Page Croft, 18, Southampton Buildings, Chancery Lane, London.

CAMERAS.—No. 6,351. "Improvements in or relating to photographic cameras." Alfred Woods, 8, Quality Court, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

SHUTTER.—No. 25,385, 1904. "Relates to improvements in photographic shutters for cameras patented on April 28, 1903 (No. 9,572). The object of the invention is to provide a photographic shutter for cameras which may be used for instantaneous or time exposures and which may be used to take an instantaneous picture when the curtain is moving in either direction, up or down. The object of the invention is, further, to provide means whereby the width of the slot in the curtain may be varied from the outside of the shutter casing and the width indicated to a nicety by means of a dial plate. The invention consists in improved mechanism whereby the width of the slot is regulated and recorded by a dial; again, in the improved mechanism whereby it is impossible to change the width of the curtain slot until one of the spindles is locked to the casing; and again, in the improved mechanism for setting the curtain for time exposures, as shown in 17 figures and specified in 23 claims." J. S. Wright, Duxbury, Plymouth, Mass., U.S.A.

New Apparatus, &c.

The Dark-Room Companion. Made and sold by The Tress Company, 33, Oxford Street, London, W.

A piece of apparatus which we have long held to be a most useful and time-saving device in the dark room at length reaches us from the Tress Company in very practical shape. It is simply a light-tight box or cupboard with a door in the front which moves up and down in grooves. Inside is a shelf, and the size of the interior is such as will accommodate 12 by 10 paper or plates. The service which this very simple fixture renders the photographer is the storage of his sensitive materials where he can get at them in a minute, and yet be sure that they are secure from light fog. One's packet of bromide paper is divested of its wrappings, placed in the "Companion," and piece by piece removed as they are wanted. To spare the worker both his hands for charging frames, etc., the sliding door is actuated by a pulley worked by the foot. The apparatus, which costs 12s. 6d., is one of those absurdly simple things which should certainly save much labour and worry; the surprising thing is that it has not been supplied before.

The "Tress" Flash Lamp. Made by The Tress Co., 33, Oxford Street, London, W.

The chief claims for attention made by this new flashlight apparatus are its extreme simplicity and effectiveness. It consists primarily of a shallow tray measuring about 24 inches by 12 inches, on which the necessary amount of magnesium or flash compound is burned, preferably with the assistance of gun-cotton. In front of the tray a wire frame is fixed, on which tissue paper or thin butter muslin is stretched to diffuse the light, and at the rear, a large tin reflector is placed. In the lower part of this reflector is a small circular hole, through which a lighted taper is passed to ignite the flash powder, the reflector itself serving to protect the eyes of the operator from the flash.

The lamp is supported on a staff, which slides into a socket underneath the tray, and this staff can be supplemented by others, fishing rod fashion, so that the lamp can be placed at any convenient height. The entire apparatus, with the exception of this supporting staff, folds up neatly into the shallow tray, and the reflector folds over and forms a lid, which holds the whole together. It can then be carried easily under the arm, as it does not exceed one inch in thickness. The apparatus is made of thin sheet-iron and tin, and is well and strongly finished, and, as an effective and powerful flashlight apparatus for small or large areas, would be difficult to beat. It costs 17s. 6d. complete.

"Zigo" Self-toning Paper. Made by Thomas Illingworth and Co., Ltd., Willesden Junction, London, N.W.

This self-toning paper appears to have become firmly established in popular favour, and the chief reason for this seems to be the ease with which tones from red to dark brown are obtained by the use of the hypo bath only. The makers inform us that the most recent batches have been even further improved, both in the matter of the emulsion and in the matter of the packing. Prints on "Zigo," which have been exposed for nine months to strong sunlight, have shown no deterioration whatever, except in the tone of the raw paper; and Messrs. Illingworth draw special attention to the fact that "Zigo" is made entirely by British labour, at their Willesden Works, which have a capacity for coating five miles of the paper per day.

Special points in connection with the manipulation of "Zigo" that

should be borne in mind by the printer are:—1. Print deeply. Zigo prints reduce somewhat in the hypo solution, though the image comes back again when dry. 2. Have hypo solution full strength, viz., 4 oz. to 20 oz. of water, that is 4 tablespoonsful to 1 pint of water. 3. Do not use the hypo solution when ice cold, it is better with the chill taken off. The temperature should not be less than 60 degrees F. 4. The tone or colour of the prints is determined by the strength of the hypo solution and by the length of time they are left in the solution. Toning commences as soon as the print is put in the solution, and continues until it is taken out. 5. Any tone can be obtained by varying the strength of the hypo solution. Weak solution gives red tones. Strong solution gives purple or brown tones. 6. A slight yellowness of the paper will not affect the finished print, it all comes out in the hypo. 7. For deep purple tones print deeper, and strengthen hypo solution.

A NEW catalogue of the Goerz-Anschutz Folding Cameras is to hand from C. P. Goerz, 4 and 5, Holborn Circus, London, E.C. It contains full information regarding these well-known cameras and the new pattern focal plane shutter. It is well illustrated, and will be sent free on application.

A COMPREHENSIVE catalogue of photographic requisites is just issued by James Woolley and Sons, Victoria Bridge, Manchester, and will be sent post free to any applicant.

BREATHLESS Photography.—After the Boatrace on Saturday last there followed another contest, which was as keenly contested and, to those concerned, was even more exciting than the event of the day itself. On Saturday evening four London music-halls were able to show animated pictures of the race, but few among the audiences realised the amount of work done at racing speed which such an accomplishment involved. Four machines were focussed on the race, each of them taking hundreds of photographs a minute, and all these hundreds of yards of film had to be developed and prepared for putting on the machines which were to show them at night in a few hours. Such feats have become almost the commonplaces of modern life; yet, remembering that they would have been absolutely impossible but a few years ago, they surely deserve to be ranked among its marvels. The public has almost ceased to wonder at seeing the events of the day shown as they actually happened upon a screen in the evening, and is growing accustomed to seeing photographs of the happenings of one day reproduced in the illustrated papers of the next morning. Yet both are astonishing feats, and the latter, with its added difficulty of making blocks from which the illustrations are printed, and the printing and distributing of hundreds of thousands of papers all over the kingdom, involves the employment of the most up-to-date improvements and the application of the utmost enterprise and energy from all concerned. For instance, the photographs taken at Aintree last week during the running of the Grand National Steeplechase were reproduced in the "Daily Mirror" appearing next morning. They were taken at Liverpool after three o'clock on Friday afternoon. The films for the Biograph Company, which arranged to show them at the Palace Theatre that night, were taken at the same time. The films and plates were developed in a specially equipped saloon carriage during the run from Liverpool to London, where they arrived at nine o'clock in the evening. After that came the race to the "Daily Mirror" office, the preparation of the blocks and plates for the printing machines, and the printing of the paper in time for the early morning distribution. Such feats are now expected; but it can be readily understood that the race to show photographs of such contests are as exciting as the contests themselves.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
7.....	Wimbledon and Dis. Cam. Club	<i>R. & J. Beck's, Ltd., Novelties. Demonstrated. Mr. W. F. Slater, F.R.P.S.</i>
10.....	Derby Photographic Society ...	<i>Orthochromatic Photography. Mr. Arthur Payne.</i>
10.....	Ulster Amateur Photo. Assn.	<i>Prize Slides; and the Watkins No. 6 Pinhole Lens. Mr. Thos. N. Murray.</i>
11.....	Royal Photographic Society ...	<i>Calculating Pinhole Exposures. Mr. Alfred Watkins. Some Points in Modern Chemical Theory, and their Bearing on Development. Messrs. C. E. K. Mees, B.Sc., and S. E. Sheppard, B.Sc.</i>
11.....	Glasgow Southern Ph. Assn....	<i>The Don-side. Illustrated. Messrs. W. S. Morren and Wm. A. Frame.</i>
11.....	Rotherham Photo. Society	<i>Little Things and Pictorial Work. Mr. W. D. Welford, F.R.P.S.</i>
12.....	G.E.R. Mechanics' Institution	<i>Affiliation Competition Slides. Judging of third set of Slides and Prints in Members' Competition.</i>
12.....	Sefton Park Photo. Society.....	<i>The Platinotype Process. Demonstrated. Mr. A. W. Parr.</i>
12.....	Cricklewood Photo. Society	<i>Toning P.O.P. Messrs. Carter and Wilde.</i>
13.....	L.C.C. Sch. of Pho.-Engraving.	<i>Printing as an Art. Mr. Emery Walker.</i>
13.....	Ipswich Camera Club.....	<i>A Quernly Marshland Minister. Mr. E. W. Harvey Piper.</i>
13.....	Rugby Photographic Society ...	<i>Waistcoat-pocket Photography. Dr. Sidebotham.</i>

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

THE annual dinner of the association having ceased to exist as an official fixture, it was decided, a few weeks ago, by the committee to hold a festive gathering on their own account to cement the good fellowship which has always been a great feature of their business gatherings. Accordingly, on the evening of Friday last, the 31st ult., a dinner was held at the Villa Villa Restaurant, Gerrard Street, W., at which thirty sat down, including several ordinary members of the association and a few guests. In the unavoidable absence of the president, Mr. T. C. Turner, Mr. Alfred Ellis, past president, presided; the vice-chairs being occupied by Messrs. Martin Jacolette, vice-president, and William Grove, hon. treasurer and secretary. Among those also present were Messrs. W. Downey, S. H. Fry, A. C. Banfield, H. S. Mendelssohn, P. E. Marshall (hon. solicitor), E. Scamell, Thomas Bedding (founder of the association), George E. Brown (BRITISH JOURNAL OF PHOTOGRAPHY), Alexander Mackie, D. Prodger, H. C. Spink (Brighton), R. Fellows Willson, H. E. Hull, Frank Turner, Alexander Corbett, Albert England, Stuart Debenham, etc. An extremely pleasant evening was spent, Messrs. Barkley Gammon, and Stuart Debenham adding to the enjoyment by their musical and vocal entertainment.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 4, A. Haddon in the chair. Mr. A. G. Field gave a practical demonstration on "The Negative in Portraiture." The lecturer, who had brought all the paraphernalia of the studio with him, and was moreover assisted by a young lady model in fashionable evening dress and picture hat, was able to show in a convincing manner the various styles of lighting for effective portraiture. For the purpose of the demonstration a large "Ideal" magnesium light installation was used, and several negatives were taken with it. These were developed at once in the Society's dark-room, and passed round to show the type of negative required. Mr. Field referred to the various kinds of backgrounds in use in modern studios, and deprecated the use of vignetting when a dark ground was resorted to. He particularly impressed on those present the value of a high topside light for securing effective modelling of the face,

too low a light tended to produce flatness, while a top light only was of use to bring out character in a portrait, and was especially useful for old and lined faces. The head should always appear to be well balanced on the shoulders, no matter what the angle of the latter should be, and the camera should not be placed too high in the relation to the face. He recommended a model throne for the sitter, and suggested that a good height for the camera for average portraits was about the level of the chest. As regards studios, the lecturer believed in the old-fashioned studio with plenty of light, and roller-blinds; he did not think the single slant light was here to stay. The ideal studio should be lit from the N. or N.N.E., and should have a good topside light, with a capacity for side lighting also. The walls should be painted with a distemper of magnesium oxide to which a touch of pink had been added, or better still if the walls could be papered with white blotting paper. Personally he would like to have the studio glazed with yellow glass and the walls painted yellow; much finer portraiture would then result by using isochromatic plates, but the exposure would be excessive.

In the German studios beautiful low tone results were obtained by the use of a pink reflector, and in any case he preferred giving a long exposure whenever possible. An exposure of, say, 15 sec., provided the sitter did not move too much, or get up and walk away, gave a far better portrait than a quick exposure. This was due to the slight changes of expression that passed over the face during the exposure, and the portrait was, in effect, almost of a composite nature, reflecting the various moods rather than a fixed stare. The lecturer did not recommend the modern anastigmatic lenses for studio portraiture, or near-by portraiture out of doors, the flatness of the field was of no advantage to secure good modelling, which with a good portrait lens of the old type was obtained with ease, and in portrait studies the loss of marginal definition was of no consequence, as the centre of interest was the face. He recommended pyro soda as a reliable and well-tried developer, and suggested $\frac{1}{2}$ grain pyro to the oz. as a good proportion. To secure softer results, occasionally a little metal might be added to the formula, but in all cases the developer should be well diluted, with equal bulk of water at least, to avoid harsh contrasts. In practice he found that when a lot of portrait negatives had to be developed together three large developing dishes should be employed. In the centre one the dilute developer was placed, in the right-hand one a weak solution of bromide of potassium (about 2 per cent.), the left-hand dish should contain plain water of a temperature of about 70 deg. If the negatives, on being placed in the developer, showed symptoms of over-exposure, they were promptly transferred to the bromide dish; if under-exposure were apparent, they were placed in the water. In this way it was possible to obtain nearly all perfect negatives when a large batch of exposures were being developed by the operator in the dark room.

THE CRICKLEWOOD PHOTOGRAPHIC SOCIETY.—A lecture on "Troubles Commonly Met with in Using Dry-Plates" was given by Mr. J. Stevenson, of the Imperial Dry Plate Company, before the members of this society on Wednesday last. The lecturer showed a great number of plates which had been sent to the manufacturers for an explanation of failures which had occurred, chiefly through improper manipulation by beginners, but also by curious and out-of-the-way difficulties occasionally met with during ordinary practice. He showed the various forms of "pinholes" which might be met with, and pointed out that the real "pinhole" was caused by a speck of dust on the dry-plate during coating, or during drying after coating, but these now very rarely occur. Other so-called "pinholes," really spots, are often caused by dust on the plate during exposure or development, or by dust or air-bells in the developer. "Fog" is another occasional source of great trouble, and may be manifested

in many ways, some of them giving rise to bands and patches of uneven density, the cause of which is sometimes difficult to ascertain. He showed some very curious results caused by a small hole in the camera acting as a supplementary lens, and giving an image of the sun, which, through movement of the camera, took the form of irregular worm-like markings. Light reaching the plate through the corner or edge of the dark-slide sometimes gave rise to striking and curious effects. Mr. Stevenson said that there was a feeling on the part of photographers to blame the makers for any fault found in the finished result, although this feeling was not nearly so great as formerly. Plates are so carefully manufactured nowadays that defects are really reduced almost to vanishing point.

DENNISTOUN PHOTOGRAPHIC SOCIETY.—The members of this society assembled in their new rooms, 53, Roslea Drive, on Wednesday last, to hear Mr. Thomas W. Robertson, ex-president of the Glasgow and West of Scotland Association give the opening address of the season. The subject of the lecture was "Killin and District," and Mr. Robertson, who has visited it at all seasons of the year, showed about 120 lantern slides illustrative of its varied aspects.

NEWCASTLE PHOTOGRAPHIC ASSOCIATION.—Mr. C. T. Cothay, of Sunderland, lectured to the members of this association on Tuesday of last week on "Holidays with a Camera," illustrating his remarks by a series of excellent lantern slides depicting northern holiday resorts and views of the Shetland Islands and North of Scotland.

WHITBY CAMERA CLUB.—"Intensification and Reduction" formed the subject of a demonstration by Mr. W. Brown before the members of this society on Friday last. The lecturer, in commencing his demonstration, said that negatives were often being produced which required after-treatment, either by strengthening—commonly called "intensification"—or by weakening—commonly called "reduction." An over-developed negative, if flat, might be improved with the Howard Farmer reducer, made by adding as much 10 per cent. solution of potassium ferricyanide to ordinary hypo solution as would make it a sherry colour. This cleared the negative, and accentuated the contrasts. On the other hand, an under-developed negative, following an under-exposure, would require treating to a $2\frac{1}{2}$ per cent. solution of ammonium persulphate, the peculiarity of which was that it reduced the denser portion in greater degree than the thin parts. A stop bath of sodium-sulphite solution should be used when reduction had proceeded far enough. A thin, ghostly, under-developed negative could be brought up to printing density by using the ordinary uranium toning bath, such as was used for toning bromide prints or lantern slides. This gave a red colour to the film, varying according to the time of immersion, and, while causing slow printing, yet gave increased contrasts. Similar effects could be obtained by bleaching in mercuric chloride, washing, and then blackening in either a solution of ammonia or sodium sulphate, or re-developing with almost any developer. Ferrous oxalate he recommended for lantern slides. A mercuric iodide and sodium sulphite "Tabloid" intensifier was also used. A reducer made by adding to a saturated solution of iodine in alcohol as much of a saturated solution of potassium cyanide in water as would discharge the colour, was, when undiluted, an extremely powerful solvent of silver, but could be controlled by the addition of water.

THE SCOTTISH PHOTOGRAPHIC FEDERATION.—The meeting at Stirling last week was presided over by the new president, Mr. G. D. Macdougald, F.I.C. The recent Salon at Glasgow had been run at a distinct loss, although exact figures were not forward, but this loss will be undertaken by the guarantors, so that the finances of the Federation will not suffer thereby. The general opinion seemed to be that the Salon had not been long enough open to be fully known. It was regretted that it did not get the support

it deserved, even in some quarters where it might have been confidently expected. The 1906 Salon Committee was appointed as follows:—G. D. Macdougald, V. C. Baird, Arch. Campbell, and J. L. Scott. It was agreed that the annual excursion of the Federation be held to Blairgowrie on June 3, and the arrangements were left to the Blairgowrie Association. The President offered a silver plaque for competition in connection with the portfolio. The Council accepted the offer, and thanked the donor.

NEWCASTLE PHOTOGRAPHIC ASSOCIATION.—At a meeting of this society, in the Y.M.C.A. buildings, Newcastle, on Tuesday last, Mr. Charles Coothay, of Sunderland, lectured on "Holidays with the Camera." His subject embraced travel over a great portion of the British Isles.

EXETER CAMERA CLUB.—An effort has been made to reorganise the Exeter Camera Club, which has been dormant for two or three years. New officers have been appointed, and a short programme of lectures and demonstrations has been arranged for the remainder of the winter session. Excursions to places of photographic interest are being arranged, and hopes are entertained of the club attaining its former popularity. The club re-starts with a membership of about thirty. A demonstration on "Development of Negatives" was given by Mr. C. Cole, at the club's headquarters, Barnfield House, Exeter, on Monday. The hon. secretary is Mr. J. W. Lake, jun., 41, High Street, Exeter, and he will be pleased to hear from intending members.

CRICKLEWOOD PHOTOGRAPHIC SOCIETY.—Mr. T. M. Wilde having resigned the secretaryship of this Society, Mr. Wilfrid Emery has undertaken the duties *pro tem*.

On Wednesday evening last over eighty members of the Thornton Heath Photographic Society and friends enjoyed a *soirée dansante* at the Thornton Heath Public Hall.

An exhibition of "Advertising Photo. Studies" was opened at the Holborn Viaduct Hotel on Monday, and will remain open until the 15th inst. The exhibition is under the direction of the F. E. Coe Advertising Agency, Ltd., and the photo. studies are by Mr. J. Ellsworth Gross, of Chicago. Mr. Gross is responsible for most of the photographs used so liberally by American advertisers, and he is becoming recognised in the States as being right on the top of his particular business. Over eight hundred different studies are on view and they comprise photographs that can be applied to practically every kind of business that can be made the subject of pictorial advertisement. We commend this exhibition to our readers' attention as showing one of the practical applications of photography to modern requirements.

DEATH of a Veteran Photographer.—Many in York and the North of England will learn, with great regret, of the death of Mr. William Pumphrey—who for many years lived in York and the neighbourhood—which occurred in Bristol on Tuesday of last week, at the advanced age of 88 years. Mr. Pumphrey commenced business in the 'forties' as a photographer, in partnership with Mr. William Monkhouse, and he was the earliest in York and for twenty miles around to introduce the daguerreotype process. Retiring from business rather more than forty years ago, he entered public life in the city, and his lantern lectures and chemistry classes are remembered for the instruction they afforded. The lectures were the predecessors of the University Extension lectures of the present day. He was a prominent and active member of the Society of Friends, and did much good work in York. Continental travel, scientific experiments, and photography were occupations which he pursued with energy; and he was a member of the Microscopical Society, and president of the Photographic Club at Bath.

News and Notes.

A POSTCARD Pioneer.—We confess to a complete and mystifying ignorance as to what becomes of the vast numbers of postcards which pour forth from the presses of the great stationery houses; but if, as is reported, they bring delight to the heart of the suburban girl and the innumerable class of persons in their teens whose joy in life is still unabated, then the satisfaction of administering this consolation should be keen in the breast of giants in the postcard publishing trade, such as Mr. F. T. Corkett, manager of Messrs. Raphael Tuck's postcard department. We understand, however, that the feelings which do actually impel these gentlemen to pursue their avocations are of quite another character, and avowedly less magnanimous. Mr. Corkett, recently interviewed by the "British Printer," confesses to employing thirty artists and six out-door operators, and to producing 2,000 different originals during the past twelve months. Messrs. Raphael Tuck order their board for postcards 100 tons at a time. Apparently, 100 tons of cardboard does not appease the postcard public very long.

PHOTOGRAPHING the Pope.—The distinction of being summoned to Rome to photograph the Pope has fallen to the firm of Histed, of Baker Street. In the Vatican the photographer was allowed to choose from among a number of splendid apartments one that might serve as a studio. The sitting took place at half-past eight in the morning, and Mr. Histed states:—"His Holiness was perfectly delightful to photograph. He made such a splendid picture, with his fine muscular frame and massive head. Plate after plate was exposed, the Holy Father watching the operations with the greatest interest, and making continual comments to his private secretary. Once when he was smiling all over his face I ejaculated, 'Oh, if he would only keep that pleasant expression for a moment.' The secretary at once translated it into Italian, and his Holiness went off into a hearty roar of laughter. 'Too bad,' he said, 'don't I always look pleasant?'" Finally the photographer ventured the request that he might be allowed to take a photograph of his Holiness in the act of conferring a blessing. This was graciously acceded to, and should make a notable picture.

With regret we have to record the death of Dr. E. Holm, one of the scientific staff of the well-known optician C. P. Goerz. Dr. Holm was a constant contributor to German photographic literature, and the author of several works on photography.

YORKSHIRE Photographic Union.—The annual meeting and exhibition of prints will take place in the Grammar School, Manor Row, Bradford, to-morrow afternoon (Saturday). Mr. Godfrey Bingley will give his presidential address in the evening, and the following gentlemen will address the delegates on photographic topics:—Alex. Keighley, hon. treasurer, subject, "Artistic Perception"; Percy Sheard, vice-president, will read an extract from the minute-book of the "Garden Camera Club"; Percy Lund, vice-president, subject, "On Making Use of Photography."

"CRIMINALS Caught by the Camera" is the title of an interesting article in the current number of "Tit-Bits," and many interesting instances where photography has assisted the police are recounted. It appears that the photographing of habitual criminals in our prisons for the purpose of police identification dates back as a regular system to 1870. It is an extraordinary fact that a considerable number of newspapers at the time opposed the innovation in the strongest terms. It was urged that there were so many criminals that to photograph them all would take the police all their time;

that it was an outrage to photograph a man against his will; that one criminal was so much like another that photography would not distinguish between them! In spite of all these absurd objections, however, the police got their way, to the dismay and disgust of the criminal population, and by the end of 1872 the Commissioners of Metropolitan Police had collected in the Habitual Criminals' Office no fewer than 43,000 photographs of undesirable characters.

LORD EDWARD SPENCER-CHURCHILL is an expert amateur photographer, and one evening last week, in connection with the Windsor Camera Club, provided an exhibition of photos taken mainly by himself while on the voyage to the Cape on the Walmer Castle and in South Africa.

A GREAT historical pageant is in active preparation at Sherborne, Dorsetshire, to commemorate the 1,200th anniversary of the founding of the town, bishopric and school by St. Ealdhelm, A.D. 705. The pageant, which takes the form of an unique folk-play, specially written and invented by Mr. Louis N. Parker, deals with the chief historical events of the interesting town of Sherborne, and will be presented in the ruins of the Ancient Castle on June 12, 13, 14, and 15. No more fitting stage could be found, and the town, with its rich historical associations, should draw large numbers of visitors to witness this interesting out-door play, which will be entirely performed by the townspeople of Sherborne.

THE Postal Camera Club.—The P.C.C., which may be regarded as the premier organisation of its kind in this country, is about to suffer a loss by the resignation of its hon. secretary, Mr. W. R. Bland. Postal photographic clubs have long been regarded as the only possible solution of the difficulty of bringing earnest workers, living in widely separated parts of the kingdom, into close touch with one another, not only for the purpose of mutual help and criticism, but also for bringing out that vitalising desire to excel in competition that is inherent in every ardent exponent of his craft. That such clubs succeed in serving this purpose is evidenced on every side, not only by the two dozen or more flourishing British postal clubs now in existence, but also by the great number of inter-society circulating portfolios, which in many instances prove the secret of the society's strength and utility in the photographic world. The P.C.C. has been, and still is, probably the most conspicuously successful of the clubs with pictorial intentions, and when it is conceded that no matter on what lines such a concern is run, it will sooner or later collapse if no strong guiding spirit manifests itself to organise and look keenly after its interests, to preserve unity of purpose, and judiciously suppress any indication of cavilling criticisms, and above all to ensure the punctuality of dispatch of the folios from one member to another. The P.C.C. was exceedingly lucky in 1895 in finding in Mr. Bland a secretary who has proved capable of doing all this and more, and who was possessed of all the attributes necessary for keeping up the business end of the club in addition to ranking high among the best pictorial workers in the country. His influence has had an undoubtedly beneficial effect on the work of the club, and it is noteworthy to observe that during the past few years its members have taken more medals at the Royal Photographic Society than have the whole of the members of the Society itself. It will be gratifying, therefore, to the members of the club to learn that Mr. J. C. Warburg, who has identified himself not only with the Postal Camera Club, but with many forward pictorial movements, is to carry on the duties of hon. secretary.

THE "Southern" Exhibitions, 1905.—The Southampton, Hove, and Southsea Societies have fixed the dates of their exhibitions as follows:—Southampton, November 21-25; Hove, December 1-6; Southsea, December 12-20.

Commercial & Legal Intelligence

A PHOTOGRAPHER'S Misfortunes.—At the Leeds Bankruptcy Court, Wm. Elland, 81, Hill Top Mount, carrying on business as a photographer at 14, New Briggate, returned a statement of affairs showing liabilities £536, and assets £178. For twelve years bankrupt was manager for a wholesale firm of photographers at Manchester, after which he became secretary and manager for Eddison and Co., Ltd., in Leeds. He invested £500 in the concern, and in 1897 he purchased the branch business at New Briggate for £600.

A CHESTER Chemist's Affairs.—Ernest Williams, photographic dealer and chemist, lately carrying on business in Chester, attended for his public examination at the Chester Bankruptcy Court on Tuesday last. The liabilities are expected to rank at £1,826, and the deficiency is £1,620. In March, 1899, he took over the business of Mr. Kemp, chemist, Chester. It was valued at £1,536, and he paid £900 down, which he borrowed from relatives. The turn over was about £1,400 a year, and the gross profits 27½ per cent. The examination was closed.

A RECEIVING order was made at the Leeds County Court, on Thursday last, on the debtor's petition, in the case of Cecil Montague Stafford, of 2, Commercial Street, Leeds, photographer, residing at 5, Nassau Place, Chapeltown Road, Leeds.

THEATRICAL Photography does not Pay.—Jules Inger, of Denman Street, Piccadilly, a theatrical photographer, appeared at a first meeting of creditors and the Official Receiver last week. His business had been carried on under the style of the Tamesis Syndicate, and after the retirement of his partner he (debtor) carried it on alone, trading recently in Denman Street, W. In November last a company was formed for the purpose of taking over the business, together with his liabilities and assets, and he acted as managing director until the date of the receiving order. The debtor further stated that he was an undischarged bankrupt, and attributed his present position to the failure of the company to satisfy the whole of the liabilities which it had taken over from him.

NEW COMPANIES.

CHARLES WALKER (Harrogate), LIMITED.—Registered March 23. Capital, £1,000 in £1 shares. Object: To acquire the business carried on by C. Walker at 11, Coldbath Road, Harrogate, and to carry on the business of chemists, druggists, drysalers, dealers in photographic apparatus and materials, oil and colour men, importers and manufacturers of and dealers in pharmaceutical, medicinal, chemical, industrial, and other preparations and articles, etc. Registered office: 17 and 18, Quebec Street Chambers, Leeds.

E. H. HALL, LTD.—Registered March 21, by Jordan and Sons, Ltd., 120, Chancery Lane, W.C. Capital, £2,000, in £1 shares. Object: To acquire the business carried on by E. H. Hall at 60, Church Vale, Handsworth, and to carry on the business of chemists, druggists, opticians, dealers in all kinds of salts, acids, alkalis, drugs, photographic requisites, and scientific, surgical and optical instruments, etc. Registered office, Church Vale Drug Stores, 60, Church Vale, Handsworth.

THE Peripatetic Kodak Exhibition was opened at the Queen's Hall, Edinburgh, on Tuesday last, by the Lord Provost, Sir Robert Cranston.

EASTER Holidays in Holland.—Mr. W. F. Slater sends us a programme of a personally conducted photographic excursion he is organising for Easter to Volendam on the Zuyder Zee. Intending participants in the outing should communicate without delay to Mr. Slater, 84, Longhurst Road, Lee, S.E.

Correspondence.

*** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*

*** We do not undertake responsibility for the opinions expressed by our correspondents.*

THE P.P.A. ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I note your remarks in connection with the P.P.A. assistants' certificates scheme in yesterday's "Ex Cathedra."

I am in the position of the branch-managing operator you exemplify, and have considered the published note of second-grade qualifications for certificates with some considerable doubt. It occurs to me that the grading between that and a first-grade certificate is too wide and abrupt to satisfactorily include all those who occupy situations other than those of the "hundred or so studios" that you mention.

If an applicant could be assured that a second-grade certificate will give a sufficiently high standard of certified workmanship, I have no doubt that the P.P.A. would receive filed applications in sufficient numbers to prove gratifying, in contrast to the disappointing "few" you are informed of. I do not think the fee difficulty that you refer to is the major reason for the want of enthusiasm, but, rather, so far as first and second grade certificates are concerned, at least, to the steepness of gradation that occurs between them.

There are many operators who may be justified in assuming themselves qualified for first-grade certificates to whom, apparently, the conditions of the second grade apply inadequately. They have not had opportunity, perhaps, to engage in the very highest class of work, nor can they all be competent in electric and other methods of artificial lighting, but yet are capable of work of good standard that five years' (minimum) experience, etc., could not justify. They are debarred from taking first-grade certificates because their work is not representative of the class of the "hundred or so studios" that you refer to, and the result is dissatisfaction, which, I must confess, your remarks, however assuring they may appear to be, do not dispel.

I would suggest that a special class might be instituted, termed, say, "Extra first-grade," that would apply to those operators whose exceptional experience and ability would command it, and that the first grade be available to such applicants as those I have indicated. The second grade could still occupy the same place and under the same conditions—and the third grade the same.—Yours faithfully,

Scor.

[Several other letters on this subject received as we go to press are held over until next week.—Eds., B.J.P.]

"DEVELOPMENT FACTOR."

To the Editors.

Gentlemen,—There is an old proverb that if you give a misstatement a day's start you can never overtake it. Someone at a recent meeting of the Royal Photographic Society appears to have stated that I have used the term "development factor" in a sense different to that of Hurter and Driffeld, and that a confusion of terms has resulted. Since then, I have been busy writing to editors and others denying the statement; but unfortunately it appears again in your issue for March 31.

Let me state emphatically that I have never since 1894 used the term "development factor" in any other sense than that used by Hurter and Driffeld. For at least eleven years I have, in writing of

my system of factorial development, invariably and consistently used the term "multiplying factor" for the factor necessary to my plan.

It is, I always think, rather unfortunate that Hurter and Driffeld adopted the word "factor" for what is really only the measurement of a result, but I have always respected their prior use of the term "development factor." If the index of the "Watkins Manual" is consulted, it will be found that I have kept perfectly distinct the two terms "development factor" and "multiplying factor."—Yours truly,

ALFRED WATKINS.

Hereford, April 2.

[We are glad to have Mr. Watkins' assurance that the confusion of terms is not his, and a review of his writings and of the instructions issued by the Watkins Meter Company is sufficient to convince us of his innocence in recent years. He will pardon us, though, if we remind him that in his first paper, "A Method and Instrument for Timing Development," before the Central Photographic Club, and reprinted in our pages on February 23, 1894, the expression "development factor" is used throughout. The eikronometer, he says, "will automatically multiply by the development factor." If we saddle Mr. Watkins with the onus of guilt in the first instance we will do him the justice of stating that the term does not occur in his subsequent papers.—Eds., B.J.P.]

THE INVENTOR OF "GUM."

To the Editors.

Gentlemen,—It seems quite a singular coincidence that only the day before your last issue (in which "Historicus" referred to my father) that, having occasion to shift some things in a cupboard of the room he worked in during the later years of his life, I came across a box of letters carefully sorted in bundles, each person's by themselves, and in their respective envelopes. On the first one I noticed the name "Annan," and I knew these would be business letters; but, with no intention of going through them, I opened about three of them. As one of these so thoroughly bears out the remarks in your issue of March 24, allow me to quote from it, because, quite incidentally, it proves *how much he had succeeded* in what was then undoubtedly his greatest desire—to produce good copies of oil paintings in oil colour so that people of moderate means might be able to possess such as near as possible to the originals, which only the wealthy could possibly have.

As at this time he was most anxious to be tested by independent people, it would seem from the wording of *this reply* that he had suggested to Mr. Annan to borrow a good picture that he might produce a copy to prove still further what he could do:—

"Glasgow, December 29, 1871.

"... I am looking out for a picture to *purchase* that I may take a negative for you as a companion to the one you have done. I would not like to ask a loan of a picture from a friend to make *such an exact copy* as you can make.—Yours truly,

"THOMAS ANNAN."

One cannot but admire Mr. Annan's proposal to purchase. It will be seen, however, that no copies of an original could be used commercially without first obtaining permission of the owner of the copyright.

I should like next week to give you an extract of a letter of recent years, since his death, which almost unintentionally proved also the excellence of his work in this direction. It is not a little remarkable that in this direction the very excellence was used by some as a barrier to the work, while in the early days of the gum-bichromate process those who tried the most to throw cold water on his work did so because the results would not compare with the fine texture of an albumen print, though I have still some of his earliest produc-

tions which for fineness of gradation and half-tone will compare very favourably with any that are done to-day; the fact is, these critics expected too much for quite a new departure, and if he had not had a good amount of grit in him he would have been discouraged.—Yours truly,

W. POUNCE.

Dorchester, March 28, 1905.

THE EDINBURGH PHOTOGRAPHIC CLUB AND THE SCOTTISH FEDERATION.

To the Editors.

Gentlemen,—Would Mr. McCulloch kindly give the reason why the Edinburgh Photographic Club rescinded its resolution to join the Scottish Photographic Federation. If the facts as generally current in Scotland were known to your readers, they would put a very different complexion on Mr. McCulloch's statements. I also note he disparages the Club, carefully omitting to state its membership is limited to forty, also that entry is difficult. In conclusion, I would ask: *Has the Edinburgh Photographic Club withdrawn from the Federation?*

AN ASSOCIATE OF THE S.P.F.

WANTED, A WORD.

To the Editors.

Gentlemen,—Through the medium of your journal, will you permit me to ask why photographers, in one important particular, should remain in the rear of almost all departments of trade and science?

No alternative terms for "photographs" and "photography" being recognised, it becomes necessary, in many establishments, to write or speak these words, each of eleven letters, hundreds of times in the day; it is therefore impossible to estimate the time wasted in typing or writing. The thought is overpowering.

No business man can correspond, either by letter, order, memorandum, or invoice, without sorely feeling the lack of shorter substitutes for expression, as noun or verb.

With very little delay, "wire" and "cable" supplanted "telegram"; who now thinks of using the whole word "bicycle"? While we, ourselves, should groan, had we to adhere to "hyposulphite of soda" and "pyrogallie acid."

Unhappily, also, abbreviation is impossible; we cannot write to our clients concerning "the phogh" or "the photh." While "photo." may occasionally be in use, it is quite too suggestive of "Arry" to be adopted in a good-class studio. "Pho."—"We wish you to pho. our premises, etc."—hardly meets the need.

This matter, being of almost international importance, might perhaps claim the attention of the P.P.A.

Probably the announcement of a prize would bring in an acceptable and comprehensive appellation.—Yours,

ECONOMIST.

[We must confess that the disability made much of by our correspondent had not impressed us as it has him; and we are not in the slightest sympathy with his object. Attempts to expunge the current words "photograph" and "photography" from the vocabulary seem to us as hopeless as they are ill-advised. Certainly we would discourage the use of the vulgarism, "photo," by professional photographers.—Eds., B.J.P.]

THE largest efficient telescope in the world is to be added to the equipment of Harvard University. The new instrument is 27 feet in focal length and has a 5-foot aperture—nearly twice as large as the Lick Observatory telescope, which has a 36-inch aperture. The telescope will be used chiefly for photographic work.

ST. ALBANS Photographic Society.—The first exhibition of this Society was opened last week at the Museum, St. Albans, and has proved an unqualified success.

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- W. T. Carter, 43, Drake Street, Rochdale. *Photograph of A. G. C. Harvey, Esq. Photograph of Ryland Adkins, Esq. Photograph of the Venerable Archdeacon Wilson, D.D.*
- J. J. Wright, 125, London Road, King's Lynn. *Photograph of the King's Lynn Football Club, Season 1901-1905.*
- M. H. Grocock, Laurel Cottage, Ulverston, Lancs. *Photograph of Mr. W. Symon.*
- J. A. Stelling, "Modena," 60, Peckham Road, S.E. *Photograph of the Rev. M. Cumming.*
- J. R. Browning, 11, Bedford Circus, Exeter, Devon. *Three Photographs of the Mayor of Exeter (C. E. Perry, Esq.) Driving a Tram Car.*

COPYRIGHT.—We have taken a series of photographs which we are having reproduced in colours as postcards, which we intend to copyright. Will you kindly inform us whether it would be best to copyright the original photographs or the finished postcards?—**ARTEX.**

We think it will be quite safe to register the original photographs, which, we take it, are absolutely identical with the cards, save that the latter are coloured. The case of another querist this week involves the same point, but his conditions are somewhat different. See reply to "B. S."

BROMIDES, ETC.—1. Can you please give us any information as to producing bromide enlargements without the customary washing of the papers, as we are informed this is being done? 2. We would also like to know how the bromide postcards are done—while you wait? 3. Do you issue a photographic directory? and, if so, can we obtain one from you?—**MARKS AND CO.**

1. We presume that what is meant here is the elimination of the hypo by chemical means. There are several preparations on the market which effect this, such as Hypax, sold by Griffins; Thioxydant, by Lumières; and Bayer's Hypo Eliminator. The print, after a short rinse, is immersed in the solutions and then again washed; see also article p. 244 last week. 2. If the cards are produced from a negative taken at the time, they must be, of course, squeezed to the wet negative and developed and fixed, and then treated with a hypo eliminator. 3. So far as we know, there is no photographic directory in existence.

CRIMSON TONES ON P.O.P.—Some months ago you gave a formula for obtaining crimson tones on P.O.P., unfortunately, in our spring clean, the B.J. has been burnt or thrown away. Do you mind repeating?—**TROUBLE.**

In our issue for January 13 Herr Kessler states that on matt collodion paper, red and reddish-brown tones may be obtained by using: Prepared chalk, 1 oz. (25 g.); water, 35 oz. (1000 ccs.). Shake well and allow to settle, and two hours before use add the clear supernatant liquid: Chloride of gold (1 per

cent. solution), 168 m. (10 ccs.). Another very good formula is: Thiocarbamide, 20 gr. (1 g.); water, 2 oz. (50 ccs.). Add enough of this solution to: Chloride of gold (1 per cent. solution), 1 oz. (25 ccs.) to dissolve the precipitate first formed. Then add: Tartaric acid, 10 gr. (0.5 g.); water to 40 oz. (1000 ccs.). Wash the prints well before toning. This acts very quickly, and it is as well to double the quantity of water in order to make it act more slowly. Another good formula, and one that we have found very satisfactory, is: Uranium nitrate, 1 gr. (2 g.); thiosinamine, 5 g. (10 g.); water, 1 oz. (1000 ccs.). Immerse the prints, before toning, in salt and water, and then well wash, and wash after toning.

WESTBANK.—(1), (2), and (3). We should say (2) holds out the best prospects; the other two are trade secrets, and unless you have some considerable chemical and technical experience you are not likely to make much headway. Write to the Regent Street Polytechnic, or the Bolt Court School, Fleet Street, for prospectus of instruction in "process." (4) Yes. Messrs. Elliott and Sons.

TORQUAY.—Technically your prints are of very good quality indeed, and admit of little improvement. Pictorially they do not rise much beyond the guide book or topographical stage. No. 1 contains far too much niggling detail, and the interest is scattered. It contains sufficient material for half a dozen pictures. No. 2 is better, but even here no attempt appears to have been made to concentrate the interest, and the lines of the composition lead the eye out of the picture. The district portrayed appears, however, to contain much pictorial matter, and first-class pictures should be obtainable there. Try again and let us see your results.

L. R.—We believe cameras can be classed as tools and, if there are other goods, cannot be distrained.

FINISHING BROMIDES.—Can you tell me if bromide paper requires coating with any solution previous to finishing with brush, so as not to show the working when viewed in a different light from that in which it is worked?—**INQUIRER.**

No coating is required. But avoid the use of gum with the colour, unless the paper is very glossy. Have you read the articles on "Finishing" that appeared in our issues for January 13, February 3, and March 17?

COLLOTYPE VARNISH.—Will you please give me the recipe for varnishing imitation P. O. P.'s (in colotype)?—**OWEN.**

Mastic, 30 parts; oil of lavender, 5 parts; alcohol, 150 parts; benzole, 40 parts. This mixture is kept for a week with occasional agitation, and the clear liquid is finally drawn off. It is applied with a broad brush, and the prints dried in a warm place. Or the prints may be floated on a water varnish made by boiling 60 parts white lac in 1,000 parts of water in which is dissolved borax, 60 parts.

COPYRIGHT.—I have two composition pictures made by aid of photography. I should like to copyright same, but as in each case much additional matter has been added in the finishing of the enlargements (pastel), I do not know how to proceed. Will you kindly tell me whether prints made from copy negatives should be sent, or, if not, what I should do? Of course, it is the originals (as worked up) that I wish to be copyrighted; not merely the copies therefrom.—**B. S.**

There is no reason to doubt that registration of the copies of the worked up original will be sufficient to protect the latter.

J. HARRIS.—As a mere size, we should say that you have plenty on the card, but if you want to make the card absolutely impermeable, you would have to put a much thicker coating on, and use a little alum. Write again and let us know exactly what you want, and whether the emulsion is to be printed out or developed.

B. W.—There is no other work that treats of the subject.

COPYRIGHT.—I am the author of a landscape negative which has never been published or registered. I sold the negative to a firm of publishers. Cannot they copyright the negative as their own? I think they can, but am not sure. Can you put me right?—THIRTY YEARS' READER.

Neither of you can register the copyright, as it has been destroyed by the sale of the negative before registration.

WOULD-BE ADVISER.—The value of a business is usually based upon the average of the three previous years' profits, and the present value of the stock, apparatus, etc. The prices obtained is also a factor in the case. High prices, of course, for the same returns, involve less labour and supervision than in the case of a cheap trade. A useful article on "Goodwill" appeared in THE BRITISH JOURNAL OF PHOTOGRAPHY for July 25, 1902, p. 585.

MOISTURE IN STUDIO.—I had some additions made to my studio two years ago, built of wood, and roof covered with felt—ridge roof. In the winter I find the frost comes through very badly. As soon as the fire is lighted it drips from the roof almost like a shower bath; the other parts, which are about twenty years old, do not do this. Can you suggest any cause for it? The first winter there was only one coat of tar on it, and that, I think, was rather thin; but last summer I gave it a thorough good coating, but I saw no difference this winter. The wood seems perfectly good. I have seen the roof dripping after one hour's mild frost (I am writing about the interior). I shall be much obliged if you can give any explanation.—W. MAYOR.

The cause is that the studio is badly ventilated, consequently, when it is heated, the moisture in the building condenses on the roof and then drops down. The remedy is to have better ventilation, so that the moisture can escape instead of condensing on the colder portions, as the roof.

ARE CAMERAS TOOLS?—Can cameras in a studio be distrained on for rent or debt, or are they classified with tools?—S. W.

We should assume that cameras and lenses are tools, and they cannot be distrained upon if there are sufficient other goods to satisfy the distraint. Even if there are not, they will be privileged provided they are in actual use at the time, we should surmise. We cannot call a case to mind that has been decided in a court of law as to whether photographic apparatus has been classed as tools or not.

DOUGLAS KENNEDY.—We are much obliged for the prints you send, but the subject has been nearly exhausted, and is of little practical interest.

WASHING PRINTS.—After fixing for ten minutes in hypo, what is the shortest time hypo can be eliminated (say, two or three prints only) of "rubbing down" water?—ENQUIRER.

See article in last week's B.J. : "Short versus Long Washing."

LOCAL REDUCTION OF NEGATIVE.—Can you inform me if there is any method of "rubbing down" a film to reduce it locally with spirits of wine.—S. E.

Lay the negative—film or glass, it does not matter—on a soft support, a few sheets of blotting paper, and rub with a bit of chamois leather, drawn tightly over the finger, and moistened with spirits of wine.

F. R.—1. It is yours if your purchase includes copyright: it is usual to state this item in the terms of sale. 2. Yes; you can register the transfer. 3. Anything from half-a-guinea.

CARLO.—1. We think not to be of much use. But if the wall itself were whitewashed, you would get a large amount of light reflected into the studio that would be useful, as it would be, practically, a side light. 2. A little more glass in the roof would be of service, but we do not see that any advantage would be gained by increasing that at the side. 3. It is doubtful, judging by the sketch, if the advantage gained would repay for the expense incurred. It appears to us that you will have to make the best use you can of the top light, of which there seems plenty, aided by screens and reflectors.

LENS QUERY.—I feel in doubt which kind of lens, of a good make, I ought now to purchase for a studio about 17 ft. long, and a very dull one. Whether a 3 B portrait would be the best, or an anastigmat lens, at the present time. I want same to take children very quickly; and have the sharpness combined. If an anastigmat would answer for out-door work, what kind would I require to take photographs up to whole-plates? How they describe same for this size?

The "3 B" would be, decidedly, the quickest lens for portraiture, inasmuch as it has an aperture, approximately, of $f/3$, whereas the largest of that of the majority of anastigmats is $f/6$. Consequently the latter will require somewhere about four times the exposure of the former. A 3 B will do very well for half and three-quarter length portraits in a studio 17 ft. long, but will be too long in focus for full lengths of the cabinet size. An anastigmat would be the best for out-door work. Better get a list from one of the makers of them; they will give you the information as to the focal length required for different sized plates.

"BLACK AND WHITE."—I permit me to ask you to have the goodness, and to send me an explication for the expression to work up *black and white*; if that will say negat. and posit., or if it is one expression for different whites to work on bromide paper; also P.O.P., is that one paper matt? With consideration, yours, ALFRED RICHTER, Monaco.

"Black and White" is a process of retouching bromide prints in dark and light chalks. Matt brands of P.O.P. are made.

G. W. W. (Doncaster).—Apply to the Professional Photographers' Association, 51, Baker Street, London, W.

H. H.—No, zinc will not do, as some of the silver will be deposited on it. You should get a paraffin cask.

R. G. AVERZATHY.—We cannot say; but you can get it from Dawbarn and Ward, Ltd., 6, Farringdon Avenue, London, E.C.

P. J. S.—We think they have not broken faith with you.

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EX CATHEDRA.

The Fox-Talbot Memorial.

The final report of the committee which in 1896 undertook to raise funds for the restoration of the chancel of Lacock Church as a memorial to Fox Talbot, has now been published. The total amount subscribed is £990, and the cost of the restoration appears to have been just over £1,000. With the exception of one or two names, the list of subscribers is made up entirely from ladies and gentlemen not directly interested in photography, a fact which cannot be construed into a reflection on photographers' esprit de corps, for the form of the memorial is not one that we can regard as attracting the sympathy and support of photographers, however highly they may value the labours of Fox Talbot. We can congratulate the committee, however, on having raised a large sum of money, though we feel bound to deplore the form which the memorial has taken.

* * *

Duty Free Alcohol.

The outcry of manufacturers for the use of duty free alcohol, which has been very much to the fore of late years, resulted in the appointment of a committee on the subject, and the Chancellor of the Exchequer, when introducing his Budget on Monday, said "The other committee, the appointment of which arose out of our Finance Bill discussions of last year, was appointed to inquire into the facilities which now exist for the use of alcohol for industrial purposes, and to recommend any changes which they might think necessary, with a view to facilitating the development of our trade. Their report reached me a few days ago, and will be in the hands of members within a very short time. It proposes certain changes in our regulations, some of

them of a rather technical character. On the consideration which up to the present I have been able to give to them, I hope to be able to adopt the whole of these recommendations, which, however, will require legislation, and must form the subject of a separate measure. They will, I believe, remove difficulties which have existed in the use of alcohol in certain trades, and I hope they will be accepted by all concerned as a satisfactory solution of a very difficult and complicated problem."

* * *

Advice on Advertising.

Supplemental to the series of articles by Mr. Casey, which concluded last week, we publish to-day some notes and suggestions by one who is not connected with photography, save through a very intimate association with certain departments of technical advertising. Such aids to the business management of a studio, we would believe, should prove of value to a large proportion of the profession. Leading photographers can afford to neglect them. Their scheme of advertising must be individual, and cannot be prosecuted along anything like a beaten track. But the articles aim at suggesting to the middle class professional how he may make the most of the available channels of advertisement.

* * *

The Photographic Trade Exhibition.

The exhibition opened at the Portman Rooms, Baker Street, London, on Friday last, should do much to acquaint the visitor with the condition of the photographic trade in England at the present time. Overlooking the fact that one or two of the leading firms are conspicuous by their absence, the exhibitors make a brave show that will do much to strengthen the optimistic tone that is beginning to be heard in many quarters regarding the prospects of the trade in the immediate future. It appears from a general survey of the show that the tendency is all towards cheapening apparatus, etc., for photographers' use, and apart from the cameras and materials specially provided for the professional, small and effective cameras and time and labour-saving devices are in the majority. No doubt the increased facilities for obtaining large pictures by means of the many enlargers now on the market account for the former, and doubtless the voice of the amateur, heard loud o'er the land, is largely responsible for the latter. Compared, however, with the last exhibition of the kind, held in the same rooms in April, 1902, there is a marked falling off in the number of firms exhibiting their goods. On that occasion there were 89 stalls, occupied by 55 exhibiting firms. This year there are 72 stalls, and 41 firms only are represented, but nevertheless the note that is sounded by the exhibition is a healthy one, and signs are not wanting on every side to convince the most sceptical that the corner has been turned, and the

times of depression complained of last year have given place to brighter prospects for the ensuing season.

Latitude in Exposures.

A pull which the present day worker has over the earlier photographers, is the combination of speed and latitude in the best modern dry plates. We might almost safely say that the last five years has quadrupled the latitude of the moderately rapid plate of a speed of about 200 H. and D. In actual practice this means that a plate may be used of speed sufficient to enable rapid exposures being made, and yet exposure need not be adjusted with the accuracy necessary with much slower plates a few years ago, when it was well understood that a too full exposure rendered it almost impossible to obtain printing density. This gain in latitude arises principally out of new methods of obtaining density-giving qualities in modern emulsions. We have made a number of tests on a plate of about 250 H. and D. which has recently been placed on the market, and find that two seconds being the approximately correct exposure, plates exposed for two, four, eight, and sixteen seconds, all gave satisfactory negatives when developed in the same dish and for the same length of time. Such a difference as that between two and sixteen is hardly likely to occur with a reasonably careful operator, and with such plates there need be no fear of serious over-exposure. The importance of having the mind free from the worry of accurately adjusting exposure in portrait work is alluded to in another paragraph.

Expression in Portraits.

We have quite recently had before us a number of portraits taken by budding professional photographers, and the prevailing characteristic is an almost entire absence of any indication in the portrait of sympathy between the photographer and the sitter. Reasonably adjusted exposure, carefully arranged lighting, and satisfactory posing—but nothing more. Speaking generally we should say that the single quality most appreciated by the public is likeness, and this usually means expression. It is very doubtful whether the apprentice or improver can have taught to him the art of inducing pleasing and characteristic expression. An important point is a complete mastery of the technical matters of lighting, exposure, and camera manipulations, so that these things are done quite mechanically, and without any mental effort. The mind is thus left free to estimate the sitter's character, to determine the most usual satisfactory expression, and decide on the best means of educing that expression. A good general education and a good address or manner are of first importance, yet they are too frequently quite overlooked when the question of taking up photography as a profession is under consideration. The insight into human nature, which usually comes with such associations as are possible in a public school or a large business, is also valuable. One wants to be able to tell, for instance, how much each man really means when he says he wants no retouching, no flattery. The astute operator will learn more from the man than from his instructions in most cases.

Photographs of the Solar Corona.

It is reported that Dr. Hausky, of the Odessa Observatory, has obtained some photographs of the solar corona, by the aid of certain coloured screens placed in front of the plate, which, if a fact, is interesting, but this must not be accepted unless corroborative proof is obtained at the time of the eclipse next August. It seems at first sight somewhat difficult to understand how the enormous glare of the sun itself can be suppressed by the use of screens, and yet the light from the corona be left intact. The subject

has been most successfully attacked in quite a different manner by Professor Hale, of the Kenwood Physical Observatory, at Chicago, and fourteen years ago some very successful photographs of the corona and prominences were obtained by him, and daily photographs were taken for some time. Professor Hale's method was to take advantage of the fact that by enormously increasing the dispersion by the aid of a diffraction grating, the continuous spectrum of the sun itself was very much reduced, whilst the bright line spectra of the prominences remained strong, and selecting the K line of calcium, the extension and form of the prominences were accurately mapped out. A further improvement in this arrangement was made by using two moveable slits, the second of which isolated the K line, whilst the image of the sun itself was prevented from falling on the plate by an opaque diaphragm in contact with the slit; a slow rate of motion was then given to the slits, the corona photographed and the diaphragm removed: and with a very rapid motion of the slits the body of the sun itself photographed. The whole operation only took one minute, and the operation was automatically repeated every five minutes. The movement of the various parts of the instrument was effected by means of a glycerine clepsydra.

The Action of Stannous Chloride on Silver Bromide.

In 1897 Professor Namias, of Milan, pointed out that stannous chloride, $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$, caused a much quicker precipitation of metallic silver from the ammonio-tartrate of silver solution, used for silvering mirrors, and, led by this fact, he has been experimenting with gelatino-bromide plates and papers, and finds that a 1 per cent. solution acts on the bromide exactly the same as light, producing a latent image, and that with excessive action general fog is caused in the same way. He also points out that those who hold with the chemical theory of the latent image may find in this another support for their views. The action of the chloride of tin must be infinitely little, for, assuming that a 12 by 9 cm. plate contains 0.1 gramme of silver bromide, and a latent image is produced by 0.00025 g. of stannous chloride, and this is assuming that the whole acts, which is not the case, the actual amount of bromide reduced to sub-bromide is only 0.0001 g., that is to say, only one thousandth part of the total weight of bromide. Namias does not believe in the sub-bromide theory, and asks, "As so little sub-bromide is formed, how is it that the action extends to the whole of the bromide?" The interesting point of his communication, which appears in the "Photographische Correspondenz," is that bromide plates and paper, soaked in a 3 per cent. solution of stannous chloride and dried, will print right out, and the image withstands the action of hypo.

The Art of Advertising.

A copy of "St. Louis Republic" of March 24 contains a short paragraph with a plain lesson for the photographer who is seeking to make his work and his studio like household words in the community from which he draws his customers. "At a meeting of business and professional men," runs the article, "last night in the 'Growlery' at Strauss's Studio, plans were completed to organise a society to promote the interest of art in St. Louis. A meeting is to be held next Tuesday night at the same place to draw up papers of incorporation and to appoint committees." The full meaning of these sentences may not be patent to everybody. Everybody perhaps does not know how Mr. Strauss, by the force of personality and astute knowledge of the men and women of St. Louis has made his establishment one of the institutions of that city. Not every photographer is a Strauss,

and not every photographer has Strauss's opportunities. To few men does it occur that a persistent policy can succeed in making a photographer's gallery the place to spend a spare half hour. Mere sumptuous premises do not do that. Mr. Strauss has a palace of art, but the magnetism which draws people implies something more than pouring out money like water. There was his exhibition of portraits of the well-known bachelors in St. Louis society; and that is only one of a series of steps taken with a profound knowledge of what will interest people and set them talking. That Mr. Strauss has pursued this course without sacrificing, but instead intensifying, the dignity of his business should encourage every photographer to examine his own circumstances. We do not suggest that a photographer's studio can or should become the obvious venue for public movements such as that quoted above from the St. Louis newspaper, but we do declare that many photographers disregard such opportunities for quiet, dignified, but nevertheless influential publicity.

PLATE SPEEDS.

IN the early days of the gelatine plate we were quite content to accept the definition of the speed of a plate as so many "times" wet plate, but this method was soon supplanted by the use of Warnerke's sensitometer, which, whilst an improvement, was by no means satisfactory, particularly if his phosphorescent tablet was used as the standard light, and it was customary to take the number of the last square that could be read after fixation and call the plate of this speed, though it might frequently happen that this, and probably three or four other numbers were so faint as to be absolutely useless for printing purposes. At the same time possibly one or two numbers were so over-exposed as to be useless, so that the range of the plate was curtailed. Then, again, the instruments differed so much that they could not be compared one with another.

When Messrs. Hurter and Driffeld described their system many of us hoped that we had once for all a real settlement of the question, and that uniformity would be evolved from the previous chaotic condition of plate-speed testing. Unfortunately, chiefly through a misconception of terms, this system was vigorously attacked, and it was some years before it became generally adopted by plate makers, and even now one cannot actually compare the numbers as found by different workers. That this should be so is a matter of regret, as we know that if rigorously carried out according to the lines laid down by the original investigators, this might be so.

It is well known that the whole of the original experiments were carried out with the standard candle, and exception was naturally taken to this on account of its spectrum composition, a like objection being raised against the standard pentane lamp. And we do not think that it necessarily follows that one plate is faster than another to daylight, though it may have been proved to be so by an artificial light. As a matter of fact, we can state that in a dull light one plate may prove to be faster than another, and the variation in the brightness of individual parts of the spectrum may also lead to variation in speed, even although the plates may have been tested by the calibrated acetylene light of Messrs. Sheppard and Mees.

Assuming, however, that we adopt acetylene as the standard light source, there is another and an important point which seems to be somewhat neglected, and that is the action of the various developing agents on the speed of

the plate. The original standard developer was ferrous oxalate, to which there was the very grave objection that it was rarely if ever used in negative work, and the speeds obtained by it were not the speeds obtained by an operator when using pyro-soda or any other developer, and therefore pyro-soda was later adopted; but while this may be practically the standard developer for the studio and professional work, we should imagine that the majority of amateurs use one of the newer developing agents, and then the H. and D. speed is not or may not be as stated.

In confirmation of this point, which is disputed, we may be permitted to quote Mr. Driffeld, who says in "The Photo-Miniature," November, 1903, page 361:—"As the activity of the various reagents employed as developers differ considerably, it is necessary to adopt a standard developer for the purpose of speed determination, if the results obtained by different operators are to be comparable. To the amateur, however, who employs our system simply for his own guidance, it is quite open, of course, to employ any developer he thinks fit, but he must clearly understand that the speeds he obtains will not necessarily correspond with those obtained with our standard."

As we write there lies before us an H. and D. chart of a plate which was exposed under standard conditions, then cut in two, the one strip being developed with the standard pyro-soda, and the other with metol and hydroquinone. With the former the speed is 113; with the latter, 170—a considerable difference, and one which, it may be said, is of no moment, because all plates have now a latitude which is much greater than this. In the "Photographic Journal" for April, 1900, Mr. Watkins's paper on "Some Developers Compared" appears, and he states there that using pyro, metol, ortol, kachin, hydroquinone and glycin, in equal strengths, equal alkali, and no bromide, his results could be summed up as follows:—Effect on speed of plate, very slight or doubtful difference; searching out detail, no difference; ultimate density power, no difference discovered; fogging propensity, no difference; effect on different gradations, no difference; appearance of image, wide difference; speed of working, wide difference. This, then, is directly opposed to Mr. Driffeld's statement, and to one made some years ago by Messrs. Hurter and Driffeld, in which they stated that they found some plates three times as fast with rodinal.

Again Mr. John Sterry says in his excellent little work "Photography by Rule," 1903, pp. 48 and 49:—

"It has been noticed in practice it is not necessary in most cases to carry development as far as possible, and that differences in the action of developers are very marked in consequence. One of the principal effects of this is shown in the different results obtained from the same exposures with different developers. This may also be stated thus: The effective speed of the plate varies with the developer used. To a less extent, the same developer may give a difference of speed according to the relative amounts of the developing agent and alkali that are used. Whilst all these differences may be brought into effect at will, it is evident that they will only lead to confusion if not thoroughly understood. It is only by careful scientific measurements that all the differences can be mastered, for even the same make of plates will not always behave in the same manner. In the case of a series tried together it was found that usually plates were about one and a half times as rapid with pyro as with ferrous oxalate, and three times as rapid with eikonogen and rodinal; but the latter gave more trouble in obtaining sufficient density. . . . In one case a plate was found to be ten times

as rapid with rodinal as pyro-ammonia when specially working to obtain extreme differences, but it was noticed that, whilst with the rodinal there was a great latitude permissible in the exposure, that for the pyro-ammonia needed to be very accurate."

Before leaving this subject it is as well to point out that it is important in H. and D. testing to avoid the use of free bromide in the developer, and that even if in practice pyro-soda with bromide be used the speed of the plate will not be the same; but this does not get over the fact that some plates contain free bromide in the emulsion, and the effect of this is well shown by the following extract from the above-mentioned little work by Mr. Driffield:—"In an extreme case the influence of free bromide in the film is so marked as to absolutely necessitate a recognition of the varying speed of the plate as dependent upon the development factor to be reached. . . . The two strips, simultaneously exposed but developed for two and four minutes respectively, gave development factors of 0.73 and 1.0. Had there been no free bromide present the inertiae yielded by the two strips would have been coincident, and the speed, in consequence, constant; but

in this instance the inertiae are 0.75 and 0.22 respectively, so the speed varies from 45.3 to 154.5 for the two development factors obtained."

There is one point which has been advanced against the H. and D. system, and it is that by this method the period of under-exposure is entirely ignored, and yet it is this period which is to the practical worker the most important, for it is in this period that the "shadow detail" lies, and to which so much importance is attached by some, but it is obvious that the printing value of this is not so much dependent on the plate as the printing process that is used.

We have said sufficient to show that the question of plate speeds is not a simple one, and there is yet considerable work to be done in order to clear up many dubious points. Some years ago the Royal Photographic Society appointed a Plate Speeds Committee, but the results obtained by the various members were so ludicrously different as to lead to no useful result. Possibly, therefore, we may have to rely upon individual effort, but it would certainly be advantageous if a common agreement could be come to, so that the speeds of various plates could be directly compared.

SKYLIGHTS OF DIFFERENT STYLES.

THE old-time question of "what style light do you think best for making negatives" is still asked by many of our professional photographers, and some of them are of the best in the country. It is discussed at length by Felix Raymer in a recent issue of "Wilson's Photographic Magazine." Mr. Raymer's undoubted knowledge of the subject makes his remarks worthy of attention by all studio workers. He says: Taken as a whole, this matter should not bother one who has given the question close study, and who has a fair amount of artistic ability. If he wishes a certain effect in lighting it will be secured by him, it matters not from what source the light may come. On all sides we hear the questions what should the angle of a skylight be, what size, and of what kind of glass we should make it, and so on through the whole list. If there was any certain style light of a given size that was absolutely necessary to the making of good work, it would be pitiful to note the few in the country who could produce it, for there are not a half-dozen lights in the whole of the United States, so far as I know, that are of the same style, size, and of the same kind of glass.

Different Styles of Lights.

It has been my experience that the operator who has a good understanding of lighting, and knows what he wants when he goes in under the light, will succeed in getting that which he is after. To sum up in a nutshell the whole matter of different style lights, I will say that there are what we know as the double slant, single slant, and the perpendicular, or a large window. It has been my privilege to have worked under all these styles, and there are, of course, other styles that I have not seen; but, speaking from my experience with those I have tried, I feel confident that all of the other styles may be as easily controlled as those mentioned.

All Forms of Lighting the Same.

As to the style of light, it will make no difference in the effect of the lighting whether it be a single slant, double slant, or the window, so long as the one great principle of direction is carried out in the work. It is not the skylight that we are to consider, but the lighting, as it is to be made on the face. The lighting will never change. The same lighting can be made on all faces. The same effect can be secured any number of times, for it is made up of light and shade

through which run the half tones connecting the two, and this combination of light and shade will be the same at all times and on all faces, if it is made the same by the operator, the skylight having nothing to do with it except as a means to an end.

The Single Slant Light.

A few suggestions as to the manner in which each of the lights should be worked will perhaps make this statement clear. A single slant light measuring, say, twelve feet wide and eighteen feet high, starting about three feet from the floor, may be taken as an average of skylight construction. This style light usually drops into the room about four and a half feet from the top. To begin with, the light below the subject's head when a full length sitting is being made is absolutely useless, and not only that, but a hindrance to good work. I mean, the light is too low, and if I had such a light, the first thing I would do would be to cut off all of the lower part up to a foot or two above the subject's head when standing. This will make the light start about seven or eight feet from the floor.

Lighting from Below Useless.

The reason for this is that in portrait work there is never a time when we want the light to fall on the subject from beneath. If it does it will reverse all our ideas of nature. The light should come from a point above the subject, and from only one source. Now, it may be said in cutting off so much of the light the exposure will be increased. This may be true, but what if it is, provided we make our work better. There can be no work of a satisfactory nature where the light strikes up under the face illuminating the lower part of it more strongly than the upper portion.

The closing off of this lower portion of the light may be done with opaque curtains. After closing it off we will have a light measuring about twelve feet by twelve feet. If it is desired, such a light may be worked without other curtains, the only thing necessary being to place the subject at the right point or place in the room to get the light falling from the proper direction.

Correct Position of the Sitter.

The light being twelve feet wide, I would suggest that the subject be placed twelve feet from the light, out in the

room, and at a point directly over, with one end of it. This will allow all of the light to fall on the subject from the front. That is, all of the skylight will be in the front of the subject. Now, if the subject is turned slowly away from the light until all of the light leaves the shadow ear the lighting will be correct from any position the camera may occupy in the room. The reason for this is that you will be working the light on the square, so to speak. If it is twelve feet high and twelve feet wide and you have the subject posed twelve feet from it, the subject will occupy one corner of the square as it were, and the light falling towards the subject, will divide the square in halves. This will give a fall of forty-five degrees. In other words, and to make it plainer: If the light fell in a line from above straight down on the subject, it would be an angle of ninety degrees, and that line would represent one line of the square (the perpendicular line). But if the light fell from the side straight toward the subject, that would be the right angle of ninety, and the line thus formed would be the horizontal line.

Concentrating and Softening the Light.

Now, if this square is divided the light will fall from a half-way point, which will give the angle of forty-five degrees. As this square is reduced in size, the concentration of light and the accentuation of features will increase. But when it is reduced the subject must at the same time be moved nearer the light so as to hold him in the lower corner of the square. For example: If the subject is placed within five feet of the light, the opening of light in front of him should measure five feet wide by five feet high. If the subject is ten feet from the light the opening should be ten feet square, and so on. If stronger contrast is desired, the subject must be posed nearer the light, and the opening made smaller. In this way the light is concentrated on the parts that are desired to be emphasised. If softness is desired, the full square opening of the light should be used. Now, why the square, it will be asked by some. For the reason that it can be most easily managed. The wider the light, the softer the results, and to make them stronger the light will have to be curtailed off anyhow, to get them, so why not work with that idea in view all the time?

The Double Slant.

Now for the double slant. If it is worked in the same way, the effect of the light on the face of the subject will be identically the same. If your light measures twelve feet wide, pose the subject twelve feet from it, under one edge, so that all of the light falls from the front. Close off all light from the subject's head, and curtain the light so that it will be the same height as width, and the subject will be

in the lower corner of the square farthest from the light, as in the single slant, and the effect will be the same.

If more contrast is desired, make the square smaller, but do not fail to move the subject nearer the light so as to hold him in that lower corner of the square, bearing in mind that the smaller the square, and the nearer the light, the more concentrated the effect.

The Window Light.

If the light is an ordinary window, work it in the same way. If it is four feet wide, pose the subject four feet from it and at one edge, so that all the light is in front of the subject, and then make the opening measure four feet above the subject's head, closing off all light from below the top of the head. This will again place the subject in the corner of the square, and the result will be the same as in the other examples, except that they will be more concentrated and the features more accentuated, for the reason that the opening in the light was smaller.

Size of Light Makes no Difference.

So we arrive at the conclusion that it matters not what the size of the light. If worked in squares, one light will be as good as any other. If it is but eight feet wide, pose eight feet from it. If twenty feet wide, and it is desired to work it at its full square opening, the operating-room should be wide enough to pose twenty feet from it. It has been the accepted opinion for many years past that the light should measure a greater number of feet in height than in width, but personally I prefer a square, and should curtain it so that it would be square when lighting the subject, whatever its original shape. Nor do I believe in putting in a light so that it is lower than the height of a subject posed standing, for it has not been my experience that this lower light is ever used. I have never found a fine workman who wanted the light to fall from any other direction than that mentioned above.

Different Kinds of Glass Used.

As to the glass used in the construction of a light, it is merely a matter of personal preference. One operator will like strong, crisp, high lights, and will find clear glass best for his purpose. Another will like soft, delicate results, and will find ground or hammered glass more suitable. There is the whole matter in a nutshell. The crispness or softness of effect is not a principle of lighting. The operator may use his pleasure in making it, bearing in mind, however, that there should never be a time when his high lights are so high as to fail in showing flesh tints, nor the shadows so deep that they fail to show the detail. There is no place in portraiture for absolute white or absolute black. Let there be detail in both.

PHOTOGRAPHERS' ADVERTISEMENTS.

SOME COMMENTS BY AN OUTSIDER.

A PHOTOGRAPHER friend of mine one day murdered two people who had provoked him. He thought little of it at the time. Certainly he had no intention of going from bad to worse. But, sir, that was just what he did. In a few weeks he for the first time came home almost fuddled. Then he ceased to be truthful. He ceased to be punctual. He ceased to be neat. He took to cycling on Sunday. But why continue? In Sir Edward Clarke's historic phrase, "it grows more and more sad." Like many another man who began his downward career with a little murder or two which he thought nothing of at the moment, my friend sank and sank till at last he became worse than wicked. He became absolutely vulgar. He absolutely—*advertised*.

That story has one slight fault. It happens not to be true. Yet it may do for a start. I have an impression that it "touches the spot." If it does, let me re-inforce its impression.

Advertising need not be a matter of cheap-jack cajolery; of

screaming; of white-lie-ing. As Mr. Casey's useful articles in this journal have pointed out, it may be just a man's determination to do a triple justice—first, justice to some good work, or justice to the special power residing in him for producing that good work (an abstract consideration, no doubt; and yet do we not all talk of a man doing justice to his art or his craft; and we mean something by it); secondly, justice to himself; and, thirdly, justice to the public, who ought to benefit to the full through any man who has command of any special means of serving them. I believe photographers as a body do realise this. If they declared they did not, I should wonder if "hypo" was short for "hypocrisy."

Even John Morley!

Advertise; why certainly! Who does not? The other day I was reading Gladstone's biography, written by that model of severe restraint, Mr. John Morley. Even he once broke out

into an "ad." And always admiring him even amid any disagreements, I felt I loved him the more for this human trait. "One poor note the reader will not grudge," he writes in a foot-note, and he adds that in Gladstone's diary for the month which he is dealing with, he finds the entry, "Saw Morley, and commissioned him to see to —. He is about the best stay I have."

The Non-Advertiser: More Quixotic than Quixote.

I chanced to take up Cervantes's "Don Quixote" almost the same day. Cervantes was in gaol over some tax dispute (passive resistance, perhaps) when he wrote the "Don"; and he had the added mortification of seeing a paltry rival finding much greater favour with the public. So he works a word for himself into the Don Quixote story. He makes a priest and barber go over the Don's library to throw out for the bonfire any books which may have contributed to the knight-errant's madness. The last they come to is one by Cervantes, and thereon the priest, so far from bonfiring, makes a charming little speech about Cervantes and about the book which that author "proposes." The author gives himself a very ingenious advertisement, says the Quixote editor in a foot-note. Quite so. A hint from centuries bygone.

Mr. Disraeli's curl, Mr. Chamberlain's orchid, Mr. Keir-Hardie's one-time cloth cap in Parliament, Thomas Carlyle's style, and the latest actress's smile, do not these things all partake, more or less, of the nature of advertisement?

How our Leaders Work.

As I am writing comes to hand the shilling "Manufacturing Number" of the "Advertising World" (ordinarily sixpence, Granville House, 3, Arundel Street, W.C.). This journal or the "Advertising News" (one penny weekly, 21, Bride Lane, brought out by Mr. E. S. Day, the doyen of our advertising journalism) should be regularly studied. Try them in your (developing) bath. They float, and will help you to float. I see Elliott and Fry have a page in this "Advertising World." It is to illustrate how they as photographers assist advertisers. We see a sportsman shooting in the Highlands. He is waterproofed; he is holding his gun. It would suit a rubber man or a gunsmith. The subject (half-tone) is ruled around, and a design of feathers, conventionalised, with a bird which has been hit and two birds which have got off free, makes up a telling picture. There are simplicity, strength, and "keeping" in the whole. Note the wording, "We are now photographers for advertisers." These words are in black, panelled out, "The whole of our organisation and experience as photographers is behind this new department. We believe that goods well portrayed are goods half-sold. But they must be well portrayed. We will gladly send you samples of our work if you are interested in illustrations that sell goods."

Vanity: A Constant Market.

"Vanity of vanities, saith the preacher, all is vanity." And a good job, too, for the professional photographer. It means that he has a public always persuadable. You cannot persuade overcoats on to men in summer, nor pleasure-boat hiring on the Thames in winter, or in times of rain. You cannot persuade women to buy things long out of fashion. I say, a good job too, that vanity stays on for ever, because of the market it implies, and even for its own sake. You and I might have undiluted common sense, and insist on demonstrating the possession, till there was really no living with us. We might be

"Too wholly pure and good

For human nature's"—and the photographer's—"daily food."

Happily, we've a few redeeming faults, moderate vanity being one, and by no means the worst a man could have. It does not exclude gumpion. For instance, I, for one, am not very handsome; but I may be a degree less handsome in twelve

months' time; and why shouldn't I catch the passing phase? Better "the devil you know than the devil you don't know"; the face, the unfortunate face, even, of to-day than the possible face of a year or two ahead.

My Specific is "Be Specific."

Photographers then, of all men, are just the ones who never need wholly waste their advertisement seed. They've always a kindly soil somewhere. We are agreed so far, are we not? They, particularly, ought to advertise. The question then is "How?" The answer comes pat, "Specifically." I first lit on that jewel of wisdom for myself; and afterwards I chanced to handle the £2 2s. work Fowler has brought out in America entitled "Fowler's Publicity, an Encyclopædia of Advertising and Printing, and all that pertains to the public seeing side of Business," by Nathaniel C. Fowler, jun.; New York: The Publicity Publishing Company.

I turned up "Photography" in "Fowler." Sure enough, he had the same counsel, "Be specific." One day, says he, talk children's pictures; nothing else. Tell how you take their portraits instantaneously; you catch the most fleeting expressions; your children are children.

Other "Fowler" Hints.

Mr. Fowler says that the advertisements should never be less than two inches, and "occasionally half a column or more will be profitable during the season." "Advertise the taking of groups as a specialty." (I know the divided opinions as to this; but I go for the grouping.) "Let advertising stimulate a demand for pictures taken in costume." "The photographer should be an artist as well as a photographer, and should be able to pose people so that they will appear to the best possible advantage." "Make up an odd-size picture sometimes; give it a name, and advertise it under that title." "Any new finish can be properly advertised."

Hold on there a moment! What of the new adhesive dry mounting process? I think I can put any inquirer writing me at the office of this JOURNAL on to the way to benefit by this remarkable method, which I have most closely examined. Border effects are most easily obtained, and stretching of the prints is done away with. There are remarkable advantages in quickness as well. Surely there is advertising value here as well as mere saving of money, for those who are quickest on to it in their district.

As to prices, Fowler says: "Prices should be given unless the photographer caters only to the highest grade of people." Personally, I believe in giving some indication of cost. Circulars and advertisements which omit cost do no harm, I know; but we don't make our fortune by negatively doing ourselves "no harm." A little positive good is just as well once in a way.

The gentle art of getting free advertisements from editors is woefully neglected, though editors tell me they don't think so. Seriously, there must be many an occasion when the reporter would mention quite as an ordinary item in his report that the group on the squire's lawn, or at the vicarage, or the club house, was taken by So-and-So.

Fowler suggests some catch-words, not, I think, very catchy; but there's something in "Cross babies taken;" "Art in photography;" "Natural photography;" "He wants your picture;" "She wants your picture;" and there is audacity in his "I take you for yourself"—there would be still more in "I take you for—your money."

The Incident Advertisement.

What of a short incident in small type to head your advertisement or circular? As this:—

"Alderman Sir Robert Carden met a bright-faced boy in the City. Something made him stop. He fumbled in his pocket; then gave the boy a shilling. 'Thank'ee, sir, what's it for, sir?' 'Dunno, boy; dunno at all. Only, you look so jolly.' Exactly, and a bright young face with happy, instantaneously

caught expression, looking out at us from our wall at home, especially if it be the face of our own youngsters, would constantly refresh our hearts as this boy's jolly face cheered up the old alderman."

Or, again, this line, intrinsically pleasant, and having also allusive interest:—

"It must have been dear and refreshing to a father's heart: 'Mr. W. E. Gladstone, speaking in the House in praise of a speech which Mr. Austen Chamberlain, then new to the House, had just made, and made in his father's hearing.'"

Then the advertisement might proceed to enforce how dear and refreshing to a father's and mother's heart the child's face, particularly the face of the absent child, might be.

Human Interest.

You see my point—human interest. That is what the photographer has in common with the public. Human nature is a great many things. Incidentally it is a small gold-mine—for the shrewd advertiser.

FRANK COLEBROOK.

[The conclusion of the above comments, suggested by Mr. Casey's articles, will appear next week.—Eds. B.J.P.]

THE WEEK IN HISTORY.

The Ancient of Days.

PROBABLY few of my readers have not read of that dodge whereby a negative is helped in printing by concentrating the sun's rays upon part of it with a lens. This expedient is so old as to renew its youth periodically, when it starts its tour once more round the foreign photographic journals as a method hot from the brain of your latter-day enthusiast. Probably the author of the paragraph adapted, or, as the playwrights say, "thickened," it from THE BRITISH JOURNAL OF PHOTOGRAPHY of over forty years ago, for on April 15, 1863, there it is in these columns, and then, as now, the author dwells upon the virtues of the venerable "wheeze." "Now when our pressure-frame containing the negative or the sensitised paper is exposed, we furnish ourselves with a burning-glass by means of which we guide what may be called the luminous point to those parts of the negative most opaque to light . . . and the effect of this condensed light is something so energetic that the most opaque parts of the negative, thus lighted, have acquired the necessary exposure before the more transparent portions are sufficiently printed. We have been able, in this way, to reproduce more delicate details than by ordinary light—details which would in fact have become lost in the density of the negative."

Photography in Embryo in 1897.

Thursday in next week (April 20) is the day on which Nicéphore Niépce was narrating his earliest photographic experiments only twelve years short of a century ago. Writing to his brother Claude he says:—"I believe I have told you that I have discontinued the use of silver chloride, and I believe you

know the reasons. I was much perplexed to replace it until I read in a chemical book that "résine de guaiac," which is yellowish grey in colour, becomes a beautiful green when exposed to light, and thereby acquires new properties—viz., it becomes less soluble in alcohol. I therefore made a strong solution of this resin, and noticed that when spread as a film on paper and exposed to light, it became emerald green in a short time, but that when a film as thin as was necessary for my purpose was used, it did not exhibit the least difference in solubility towards alcohol; so that after many experiments I have become convinced of its unsuitability, and have given it up.

The "résine de guaiac" which Niépce used is evidently the guaiac resin of the West Indies. Paper treated with tincture of this material becomes blue or green in the light, but Niépce did not observe that these colours are destroyed on further exposure, particularly to orange rays.

Niépce stuck close to the resipuous bodies in his search after a "resist" for a metal plate, and three months later he was telling his brother:—"I have just been analysing the gum resin of guaiac with the object of isolating that part of it sensitive to light. I have already found that the portion of the resin soluble in water does not possess this singular property, and that the resin deprived of this portion is much more sensitive. Also this resin still contains a constituent insoluble in both water and alcohol—a fact which enables me to obtain it perfectly pure. If I find that in this state its combination with oxygen by the aid of light renders it less soluble in alcohol, I shall have made a great step towards the solution of the problem."

HISTORICUS.

WILD-GAME Photography.—The difficulties experienced in wild-game photography are discussed in a recent issue of the "New York Tribune," and although the opportunities for this kind of sport are not so plentiful in this country as in America, the observations in the article referred to make interesting reading. For successful picture making the photographer must approach to within five or ten yards of his subject, and within twenty or thirty yards with a long focus or telephoto, the latter further requiring time exposure and the handling of an awkward 24 in. bellows. Then, after crawling for possibly 200 yards or more under cover and against the breeze, and gaining a good close-range view of his quarry, he must consider the focal distance, the light and the motion of the animal, and regulate the scale, diaphragm, and speed accordingly. All of these adjustments in readiness, the question rises how to make the exposure without detection. There are numerous possibilities of accident or neglect, all of which lead "knowing ones" to admit that it is more credit to secure a single photograph of wild game than to slaughter a whole herd of animals. The methods employed by the few successful wild-game photographers differ materially, according to localities, the special habits of the animals, and the individual judgment of the man at the

camera. Mr. A. G. Wallihan, a pioneer in the field, obtained his mountain-lion, bear, and bob-cat negatives by treeing the animals with dogs. He secured his antelope pictures in the fall before the early snows afforded liquid refreshment on the north hillsides and when the watering-places were scarce and not easily located. One of the most prominent wild-game photographers, and the only one who has employed successfully the flashlight for this purpose, is Mr. G. Shiras, of Pittsburg. For many years his summer outings have been spent in Northern Michigan, where he has given up his time largely to photographing wild deer at night. With a stereoscopic and a four by five camera focussed at twenty and twenty-five feet, and arranged beneath a jack-lamp and flash-pan, he has invaded the inlets and swamps of this part of the country, paddling cautiously along the shores against the breeze. Sometimes in company with a skilful guide he thus has explored the haunts of the deer for as long as a week without making a single successful exposure. Arranging his cameras to cover practically the same field as the jack-lamp, the difficulty lies in locating the deer and approaching within the required distance. But once having determined these points, the flash is discharged, when the alarmed deer is off before the smoke has cleared away.

HOME-MADE LANTERN PLATES.

CONSIDERING the general excellence and moderate cost of the commercial lantern plate, it is probable that comparatively few would care to undertake their manufacture at home, but those who have the spare time and inclination will find the preparation of a simple emulsion and the coating of a few dozen lantern plates not only of considerable interest, but of educational value as well. Mr. S. H. Wratten, at the Croydon Camera Club on the 5th inst., very clearly showed and explained how a slow lantern plate might be made without difficulty, and, judging from the slides which were afterwards thrown on the screen, of first-rate quality also.

A Simple Formula.

The following was the formula and method of working recommended by Mr. Wratten:—40 grains of Nelson's No. 1 gelatine are taken and rinsed in two or three changes of water, to remove adhering dirt and any acidity present, and placed in a clean jam-pot with the addition of four ounces of distilled water. The mixture is gently heated, stirring the while, and the following added and thoroughly incorporated:—

Ammonium bromide	110 grains.
Sodium chloride (ordinary table salt)	30 grains.
Hydrochloric acid (1 in 10)	10 minims.

The ammonium bromide should be tested for acidity, and, if acid, neutralised with ammonia. In a clean graduate next dissolve 200 grains of silver nitrate in one ounce of distilled water. The foregoing operations can be conducted in ordinary daylight; the subsequent ones must take place in the dark room, but a very bright orange light can be employed, and with advantage, without any fear of fogging the emulsion.

Making the Emulsion.

The silver solution is now added very gradually in a fine stream

to the solution first made up, which is maintained at a temperature of 125 degrees Fahr., stirring well with a glass rod all the time, and the mixture digested at a temperature of 150 degrees. Fahr. for ten minutes; 175 grains of a good hard gelatine (previously soaked till quite soft, and rinsed in two or three changes of water) are next added, and when dissolved the bulk of the liquid is made up to eight ounces with distilled water. The emulsion, which should, by transmitted light, appear of a ruby colour, is allowed to set, and when firm cut up with a bone or ivory paper-knife into small squares and tied up in a canvas bag of fairly open mesh, the bag being suspended in a pail of water for half an hour, the water being changed every five minutes. This will remove the soluble salts. The surplus water is then well drained off, the emulsion remelted, filtered through any suitable fabric, and two grains of tannin finally added.

Coating the Plates.

For coating the plates an ordinary stoneware teapot will be found most suitable. The glass plate, which must be scrupulously clean, is conveniently held by a pneumatic holder, and the emulsion, at a temperature of about 100 degrees Fahr., poured on, and made to flow to each corner by gently tilting the plate, any air bubbles that may form being immediately conducted to the edge with the glass rod. The plate is now carefully slid on to a level and wet surface—a piece of levelled plate-glass answering very well—and allowed to set. In hot weather it may be necessary to cool artificially the levelled slab with ice. When set, the plates are, one by one, removed to a drying cupboard, through which a current of warm dry air is allowed to circulate, and stacked at an angle of 45 degrees, at least four inches apart to ensure even drying. The plates will be found to work well with any reliable transparency developer, and if carefully stored will remain in good condition for a considerable period, six months at least.

ARTISTIC Perception.—At the annual meeting of the Yorkshire Photographic Union on Saturday last Mr. Alex. Keighley gave an address on "Artistic Perception," in which he claimed that the faculty to see the beautiful in nature and in art was quite a thing apart from the mere physical sense of sight. Mankind generally did not look for those truths and qualities which artists looked for, and were too often content to use their eyes as channels for mere information. Seldom thinking about beauty, and not looking at nature with any reference to art, they scarcely saw the æsthetic aspects of nature at all, or only in a very imperfect way. There were many people with cameras who were ready to photograph any object they met with, providing it were a definite object—a church, a castle, a bridge, or something else to which a name could be put, and the work was done with little thought as to obtaining the most pleasing result. Such persons had not learned to see, in the artistic sense of the word. The artist, like the poet, was said to be born, not made, and in some individuals the sense of artistic perception seemed to be largely innate, while in others it existed only in a minor degree. But whatever might be the natural endowment, real and permanent success as an artist could only be achieved by careful and constant study of nature and of art. However much one might appreciate a beautiful landscape, his appreciation would be enhanced if he looked at it with the eye of an artist, trained to understand the effect of form, light and shade, and knew why it was beautiful. He advised the budding pictorial photographer to take every opportunity of visiting picture galleries, exhibitions of works of art of all kinds, and of studying art-books, and art-magazines, and the photographic journals which gave attention to the art side of the subject. Better still, he should practise any of the graphic arts. In conclusion, he urged upon photographic societies

the desirability of paying more attention to art culture, instead of devoting themselves wholly to the study of plates, paper, and methods.

"**OZOTYPE in Gelatine and Gum,**" Mr. Manly's practical guide to the modifications of this process, has appeared in a new fourth edition, which contains certain new formulæ, including a new acid reducing bath which can be kept for some considerable time. There are also directions for sizing papers, spotting and mounting prints, etc. The little book is sent free by the Ozotype Co., 1, Weedington Road, Kentish Town, London, N.W.

SHEFFIELD Photographic Society.—The next exhibition of this Society will be held from October 28 to November 4. The Joint Hon. Secretaries are: J. W. Charlesworth, 1, Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield. The prospectuses will be ready about September 1.

BRITISH Association Geological Photographs.—The geological photographs committee of the British Association has completed the first series of published photographs from the collection housed in the Museum of Practical Geology, 28, Jermyn Street, S.W. There are twenty-four photographs in the present issue, all of great interest, showing much skill in technique, and considerable artistic power in the choice of the point of view from which the objects were taken. They treat of a variety of subjects, chiefly the action of wind and rain, frost and ice, and sea-waves, igneous intrusion, the character of sedimentary rocks, and structures due to faulting and folding. The series issued to subscribers and just completed consists of a selected number (72) of photographs, taken from negatives generously lent by their owners, and furnished with descriptions by many of the leading geologists of the day.

Photo-Mechanical Notes.

A New Dry Plate for Process Work.

THERE are probably not more than half a dozen firms in the photo-engraving craft that rely exclusively upon dry plates for making their negatives, and it is certain that if ever they are to become popular such plates will need to be isochromatic. With characteristic enterprise Messrs. Wellington and Ward are the first to fulfil this requirement, and have placed upon the market a colour-sensitive process plate under the name of "Ortho Process."

From practical trial we find this an excellent plate; it is of fair rapidity (much quicker than the "Etching" plate); it develops quickly, giving great density; it is entirely free from fog, giving good gradation, while the deposit is of very fine grain, and the plates are exceptionally clean between the dots. As regards the colour sensitiveness, from a photograph of the arc spectrum it would appear that this is conferred by the erythrosine type of dye, since there is the familiar gap in the blue green, and great sensitiveness in the yellow green, extending as far as the D line. The ratio of yellow to blue sensitiveness is about 1 to 4, which is rather higher than the average isochromatic plate.

It will thus be seen that this plate is a decided acquisition to the process worker, as not only will it do all that the ordinary plate will do, but the operator may use a suitable colour-filter when making screen negatives from coloured originals, and he will then not only have better values in his reproduction, but get a good printable dot at the same time, which has been almost impossible hitherto. As the price is the normal 2s. 3d. per dozen for half-plates, we see no reason why plates of this kind should not replace entirely the ordinary process plate now used.

Care of the Half-Tone Screen.

Some cautionary notes, which we suspect are somewhat old, are quoted by the "Inland Printer" from "Le Moniteur de la Photographie." They are worth repeating, however, as many photo-engravers seem to disregard the inherent liability of a screen to deterioration. Explaining that the cover glass of the screen, owing to the high temperature and pressure under which it is cemented, is in a state of tension, the writer points out that the least perceptible rise of temperature, in softening the balsam, causes the glass plates to return to their primitive form, leaving bubbles between them, which are very brilliant when examined by reflection. Screens which have been in use some years are less subject to this defect than new ones, and withstand the effects of a high temperature without being loosened. Consequently, new screens should be kept in as cool a place as possible and tightening them too much in the screen holder avoided, as pressure tends to produce deformation which may loosen the balsam. Certain precautions must be taken in cleaning screens. A scratch on the surface through clumsiness may render a screen useless, or, at least, necessitate tedious retouching on each of the negatives obtained. If the scratch is very light, it will suffice to have the surface polished by a specialist. Usually, at time of use, the two sides of the screen are polished with a silk rag or piece of tissue-paper. Thus the glass is greatly electrified, and the screen becomes covered with a regular cloud of atmospheric dust which is attracted. Thence the necessity of not polishing the dry glass, but employing a wet rag. It is, however, to be noted that any solvent of balsam, especially alcohol, should never be allowed to remain on the screen, as it would enter through the joints.

Having removed the screen from the apparatus, place it in its box, or on a cushion of paper or fine linen, and then dust it lightly

with a very soft badger's hair brush. A piece of cambric is now employed, moistened with a few drops of alcohol, to gently wipe the surface over. Another rag is used for drying, and to prevent electrification, breath upon it before touching the screen. Press very moderately and pass the rag slowly over the surface.

If metallic stains make their appearance on the surface, owing to the fall of some drops of nitrate of silver and subsequent reduction, wipe them off with a piece of fine cambric slightly moistened with nitric acid in double its volume of water, and then, before cleaning as above, wipe the surface with another rag slightly dampened with ammonia. By observing these precautions there will be no danger of the least accident.

Absorbent Properties of Printing Papers.

The absorbent properties of paper for the oily medium of printers' ink do not correspond exactly with the absorption of aqueous inks; e.g., certain soft-sized papers absorb the oil of printers' ink no more readily than hard-sized papers. The quantity and ink-resisting power of rosin sizing (according to a paper by P. Klemm, abstracted in the "Journal of the Society of Chemical Industry") have no influence on the absorbent properties of the paper towards oil, since rosin is easily wetted by oil. Gelatine hinders the absorption of the oil, as is shown in the case of coated papers, but mineral matters are favourable. The structure of the paper, as determined by the nature of the fibres and their behaviour on beating, is also an important factor. The denser the structure the less oil-absorbent is the paper, since the fibre substance itself resists oil, but not water; the absorptive powers of different papers towards oil do not vary so widely as towards water. When paper is printed, the oil-varnish medium distributes itself between the pigment and the paper, according to the relative absorptive powers of each. If the paper be too absorbent the medium may be withdrawn from the pigment to such an extent that the latter rubs off. This effect will vary according to the thickness of the oil-varnish. With very absorbent papers it may be necessary to employ a thicker varnish, or else a certain excess of varnish, which will fix the pigment after the paper has absorbed as much as it is capable of. The elasticity of the paper is of greater importance than the porosity on which the absorptive power depends. It is desirable that any inequalities and pores in the sheet should be capable of being evened up by the pressure during printing; the good printing qualities of coated "art" papers are due to the uniformity of the surface, and their deficient absorptive power is of little importance. One great advantage of a highly porous paper is that the access of air is facilitated, and the varnish dries more rapidly; this is of greater importance than a high absorptive power. A drawback of high porosity, however, is the liability of the oil to penetrate to the back of the paper, and show the printing on the reverse side.

UNDER the auspices of the Otley Camera and Art Society, an exhibition of picture postcards and almanacs was held at the Mechanics' Institute on Saturday afternoon, when upwards of £12 was given in prizes. The competition brought forward 292 exhibitors, and the large hall was filled with an interesting collection. The exhibition was opened by Mr. E. P. Arnold-Forster, who said that it was very fitting that the first exhibition of that kind should be held at Otley, the home of the valentine, which was now becoming obsolete. The subject of postcards led him on to speak of the functions of the Post Office, and he said he hoped that at some time there would be a free postage in the United Kingdom. This was no more impossible than a universal penny postage in the British Empire had seemed when he had the temerity to advocate it ten years ago, and yet to-day it was an accomplished fact.

Exhibition.

FOURTH PHOTOGRAPHIC TRADE AND PICTORIAL EXHIBITION.

As announced in our last issue, the Portman Rooms Exhibition opened its doors to the public on Friday last, and disclosed a collection of photographic apparatus and materials representing the very considerable progress which has been made by manufacturers since the previous exhibition in 1902. The first impression is the advance in tasteful decoration adopted by the stall holders. Messrs. Elliott and Sons, of Barnet, whose stall faces the entrance, are the first to create that feeling, which is strengthened by the decorative designs adopted by Houghton's, Ltd., the Rotary Photographic Co., Ltd., A. and M. Zimmermann, and Burroughs Wellcome and Co., to name only a few of the many exhibitors who have expended care and money on the artistic presentment of their wares. The full list of the exhibitors appeared in our last issue, and we need not, therefore, repeat it. The visitor will find that, with a few notable and important exceptions, such as Messrs. Kodak, Ltd., Ilford, Ltd., Imperial Dry Plate Co., Ltd., Marion and Co., Ltd., J. J. Griffin and Sons, Ltd., etc., etc., the photographic trade obtains a very efficient representation at the hands of the organisers of the exhibition. A casual stroll round the seventy stalls affords a convincing demonstration of the large place photography has made for itself in modern industry. The variety of the modern photographic manufacturers must be surprising to those who have not watched the entrance of the amateur into the circle from which the makers of apparatus and materials draw their customers. But the professional equally has had the attention of the trade, if not in the provision of an infinite and ever-changing variety of accessories and fittings, at any rate in the improvement and cheapening of his appliances. The Portman Rooms, therefore, during the two days on which they remain open—they close to-morrow at 10 p.m.—may well be visited by any photographer who can spare an hour. In addition to the purely trade exhibits, there are lantern demonstrations of cinematography and of Dr. Miethe's colour photography. Of the latter, we ought to say, in qualification of our notes last week, that the operators apparently were not able to adjust the rheostats governing the three arc-lights to give a steady and equal illumination to each of the three monochromes. The result was that many of the effects were visible only for a few instants, and the spectators obtained occasional glimpses only of what colour photography was capable of. Dr. Miethe's series, however, contained a number of slides which impressed us as marvellously faithful to the original scenes.

Demonstrations are an attraction at one or two stalls. Messrs. Thomas Illingworth and Co., Ltd., show the simplicity of "Zigo" paper, and exhibit some striking examples of the paper which "needs no toning." The Quincey Photo-Development Co. draw a crowd to witness the development of plates and films in the various Quincey boxes, and the latest form of their apparatus is shown, and seen to embody improvements in the matters of inspection of the plate during development—the whole can now be seen—and in the certain transference of the roll film, exposure by exposure, into the developer.

Among printing processes the Barnet papers make a strong and varied show, which includes a number of results by the new "Owl" toner. The Paget Prize Plate Co. exhibit a brilliant collection of work, chiefly on self-toning collodion paper, of which they are just issuing a new brand—on a cream matt paper—which seems specially deserving of investigation by professional photographers. Paget self-toning papers, further toned by a short immersion in the platinum bath, make a very powerful appeal for this simplification of printing methods. Prints in gold, silver, and copper effects are shown by the

Métotype Co., Ltd., whose specialties ought to attract enquiries from professionals. The range of tones on "Pan" paper is a striking thing with the Bayer Co., whose chief show, of course, is their many chemical preparations.

NOVELTIES FOR THE SEASON AT THE PORTMAN ROOMS.

One object of our tour of inspection was to discover new goods coming, or lately come, upon the market. As most of these will sooner or later, be more fully announced in these pages, we content ourselves now with a brief mention of some notable newcomers which are on view in the Exhibition:—

"RED SEAL" plates, a new ultra-rapid plate at popular prices. The "Barnet Book of Photography," new edition (Elliott and Sons, Ltd. Barnet).

Ball and socket head for cameras, with one motion to tilt the camera, and a second separate one to turn the camera. Also a ball and socket head adaptable to any camera turn-table (J. Ashford Birmingham).

"Card Index" systems of storing negatives and prints with boxes, cabinets, etc., for carrying it out. A comprehensive scheme which should be valuable to the professional (Houghtons, Ltd., London).

Ensign non-curlable film (Houghtons, Ltd., London).

Magazine reflex cameras, price 30s. Folder portfolio mounts in art styles (Chas. Tyler and England Bros., London).

Beck Multiflex lantern objective, embodying in one instrument focal lengths of 6, 8, 9, 10, 12, 14, and 16 inches (John Wrench and Son, London).

Reflex hand camera with focal-plane shutter, etc., price £5 (O. Sichel and Co., London).

Rotary carbon stripping film (Rotary Photographic Co.).

New Ernemann focal plane cameras, and the "Kino" amateur cinematograph apparatus (Chas. Zimmermann and Co.).

New "Agfa" developers and specialties (Chas. Zimmermann and Co.).

THE PICTORIAL SECTION.

The competitive pictorial section of the Exhibition has been well supported, and a collection of 257 framed prints, and 25 sets of lantern slides are on view. The pictures are well displayed on screens, and include a great number of well-known works by members of the Hackney Photographic Society, the hon. secretary of which, Mr. W. Selfe, was responsible for the organisation of the section. Mr. H. W. Bennett was the judge, and the following is the award list:—

Gold Medal for best picture in the Competitive Section.—No. 35, "A Stormy Sunset," by W. A. I. Hensler.

Class A.—1 (silver plaque), No. 10, "A Golden Sunset," by Wm. Rawlings; 2 (silver plaque), No. 3, "Winter," by Thos. Wright.

Class B.—1 (silver plaque), No. 123, "Lady Disdain," by Marian Silverston; 2 (bronze plaque), No. 94, "A Dutch Fisherman," by Wm. Rawlings.

Class C.—1 (silver plaque), No. 157a, "The Last Rest," by Arthur Marshall, A.R.I.B.A.; 2 (bronze plaque), 153, "The Undercroft Wells," by G. Catherall.

Class D.—1 (bronze plaque), No. 174, "Iris," by J. Hummel; 2 (bronze plaque), No. 164, "Chrysanthemums," by E. Seymour. (Silver plaque withheld.)

Class E.—(Lantern Slides).—1 (silver plaque), "Time of Sunshine," by Rev. H. W. Dick; (first bronze plaque), "Daffodils," by W. H. Goy; (second bronze plaque), "Sunshine and Shadow," by F. E. Rooft.

WATFORD CAMERA CLUB.—The last meeting of the session was held on the 31st ult., at the headquarters, 100, High Street, Watford. Mr. W. D. Welford gave an illustrated lecture on "Photography in General."

FORTHCOMING EXHIBITIONS.

April 7-15.—Photographic Trade Exhibition, Portman Rooms, Baker Street, London, W. Manager Pictorial Section, W. Selfe, 70, Paragon Road, Hackney, London, N.E.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

April 24-29.—Redcar and Coatham Literary Institute Photographic Society. Secretary, W. Hildrith, 42, Newcomen Street, Redcar, Yorks.

April 27-29.—Southend-on-Sea Photographic Society. Hon. Sec., J. Archer, 24, Ashburnham Road, Southend-on-Sea.

April 28-29.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen Ashcroft, Bushey Hall Road, Watford.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire-Général du Photo Club de Paris, 44, Rue des Mathurins, Paris

May 9-10.—Ballarat Camera Club. Hon. Secretary, G. Montgomery, 201, Sturt Street, Ballarat.

May 9-13.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

May 10 to June 19.—Salon of the Photo Club de Paris. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

September.—Royal Photographic Society, New Gallery, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

FORTHCOMING COMPETITIONS.

May 15.—Burroughs, Wellcome, and Co. Money prize for negatives developed with Tabloid Pyro-Metol developer.

May 15.—Warwick Dry Plate Co. Money prizes for prints from negatives on Warwick plates. Open to members of Photographic Societies only.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

Commercial & Legal Intelligence

At the Birmingham County Court, Mr. Registrar Lowe made a receiving order in the matter of Walter Elliot Lander, photographer, residing at 86, Belgrave Road, and carrying on business at 104, John Bright Street, Birmingham.

POOR Postcards.—At the Manchester County Court, on Wednesday of last week, the Grove Photographic Company, Lime Grove, Long-sight, sued Mr. G. Worthy, also of Lime Grove, to recover £3 in respect of photographic postcards, which had been taken by the former. After the Judge had capiously criticised the postcards, he said he could not say the articles he had seen formed a reasonable compliance with the terms of the contract. He gave judgment for the defendant with costs.

NEW COMPANIES.

F. C. MORGAN AND CO., LIMITED.—Registered March 28. Capital, £2,000 in £1 shares. Object: To adopt an agreement with F. L. G. Kollmorgen, B. Weissert, and I. L. Ashe, and to carry on the business of art publishers, newspaper proprietors, photographers, engravers, etchers, printers, publishers, dealers in chemicals and photographic apparatus, etc. No initial public issue. Registered without articles of association. Registered office: 4, New Union Street, Moorfields, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between March 27 and April 1, 1905:—

CINEMATOGRAPHY.—No. 6,436. "Improvements in cinematograph cameras." Max Hansen, 22, Nachod Str., Berlin W., 15.

APPARATUS.—No. 6,514. "Improvements in photographic apparatus." Samuel Henry Adams and Colin Henry Adams, care of Adams' Hydraulics, Ltd., Scotswood-on-Tyne.

PLATES AND FILMS.—No. 6,657. "Apparatus for working with photographic plates and films in any place." Wilhelm Vogel, 6, Bream's Buildings, Chancery Lane, London.

RAPID PHOTOGRAPHY.—No. 6,705. "A machine for taking and finishing a photograph on paper or other substance in from two to five minutes." William Ricketts, 80, Rothbury Street, Scarborough.

MERCURY-VAPOUR LAMPS.—No. 6,755. "Improvements in or relating to mercury-vapour electric lamps." Charles Andrew Lee, 24, Cleveland Square, Hyde Park, London.

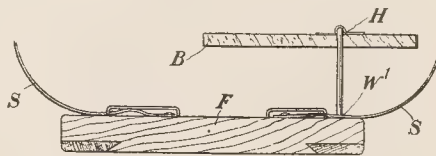
COLLODIONS.—No. 6,783. "Improved means for filtering and drawing collodions and cellulose solutions." Société Desmarais and Georges Morane, and Maurice Jules Armand Denis, 7, Southampton Buildings, Chancery Lane, London.

PIGMENT PRINTS.—No. 6,877. "A new or improved process and means for producing pigment pictures, single or multi-coloured photographs, and plastic or printing plates with a silver salt or like emulsion." Jules Meszados, 18, Buckingham Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PRINTING FRAME.—No. 10,597. 1904. The frame is made in the usual way, but instead of the back being separate from the frame it is joined to it by a wire passed through the centre of both hinges, or a series of metal straps to form hinges, the wire being long enough to be bent at right angles to both sides of the back, and pivoted on each side of the frame near one end; or the wire may be made in two parts, one end of each part being bent so as to form the centre of an ordinary butt hinge, the other end of



each part being pivoted to the sides of the frame, as before described, thus making the back an absolute fixture to the frame, and by the same means removing all risk of moving the sensitised paper during examination of the print. The figure shows a side view of the frame, with the back partially lifted away for the insertion of the negative and for the examination of the print. The part B. of the hinged back is raised, whilst the other part is held in place by the wire. John Baty, 124½, Wills Street, Lozells, Birmingham.

FRAMES FOR PHOTOGRAPHS.—No. 10,548. 1904. A form of frame, the supporting strut of which is connected to a base plate by means of a flexible joint. The strut is attached by a flexible

connection, and the plate carrying the leg is fixed to the back of the frame by a pivot connection." Frank James Hall, New Zealand Avenue, Barbican, London.

STEREOSCOPIC POSTCARDS.—No. 5,949. 1904. Cards bearing stereoscopic pictures and means for examining the same. The pair of stereoscopic pictures is printed from half-tone blocks, the impression from each block being superimposed upon the other, or nearly so. The colours that are complementary to each other, such, for instance, as red and green, are used in the printing, one block being printed in one colour, and the other block in the other colour. In the remaining part of the same card are made two holes, which are covered with transparent red and green media, respectively; or with transparent media or any other two colours that are complementary. To examine the stereoscopic view, the perforated portion of the card is to be detached and used as a stereoscope, one eye looking through the red medium and the other eye looking through the green medium. Theodore Brown, 34A, Castle Street, Salisbury; and Ernest Osman Brown, 9, Queen's Road, Bournemouth.

SHUTTER ADJUSTMENT.—No. 6,974. 1904. Methods of carrying out a suggestion made in the Watkins' patent, No. 5,737, 1900—viz., that, instead of making two separate adjustments of shutter and lens aperture, the setting of the latter should automatically adjust the former to the proper speed. In devising appliances for this purpose a diaphragm is constructed, such that the area of the iris aperture varies in the same proportion for equal amounts of the rotary movements of the iris plate slide. This movement is accomplished in several ways, two of which are shown in the accompanying figures. The claims are: (1) The combination of an iris diaphragm with means for actuating it in which equal displacements of the actuating means produce a constant rate of variation of the area of the aperture, substantially as described. (2) An iris diaphragm, the leaves of which are actuated by a rotatable iris plate in such a manner that the angular displacement of the iris plate is proportioned to the logarithm of the area of the resulting aperture, substantially as described. (3) An iris diaphragm having the leaves formed substantially as shown in Fig. 1 for the purpose specified. (4) An iris diaphragm, the leaves of which are actuated by mechanism constructed and operating to effect the purpose herein specified, substantially as described, with reference to Fig. 4 of the accompanying drawings. (5) A lens mount for compound lenses, having an iris plate slide controlling the iris aperture in such a way that a common scale can be used for lenses of different foci, substantially as described. (6) A lens

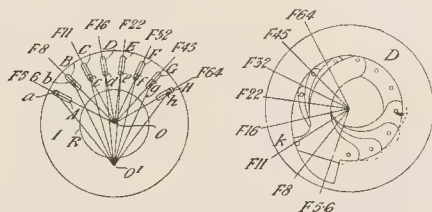


Fig. 1.

Fig. 4.

(From patent specification).

mount provided with scales for the computation of exposures, in which one of the moveable scale slides is arranged to alter the area of the iris aperture in such manner that successive equal displacements of the scale slide either doubles or halves the area of the iris aperture, according to the direction of motion of the slide. Alfred Watkins and Charles Godfrey Woodhead, Imperial Mills, Hereford.

PROJECTION LANTERNS.—No. 5,839. 1904. An optical lantern, specially for use with the Nernst electric lamp, the filaments of which are mounted to a porcelain or other insulatory plate. The construction of the lantern body is tubular, and, as seen in the figure,

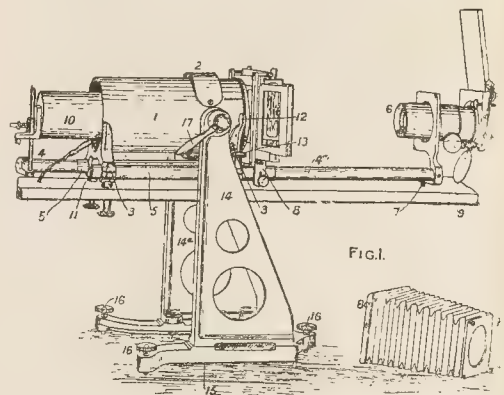


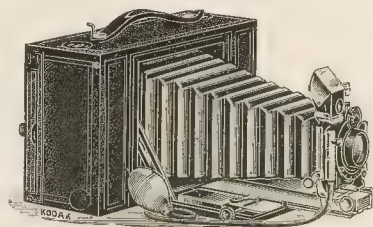
FIG. 1.

admits of projection, horizontally or vertically. The claims are for a lantern of this kind in combination with a Nernst lamp. Robert William Paul, 68, High Holborn, London.

New Apparatus, &c.

The No. 4 Screen Focus Kodak. Made by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

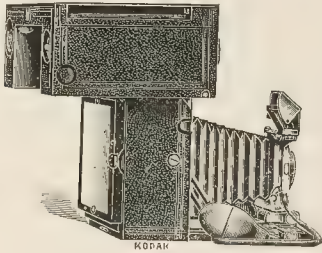
There are many camera users who would like to have a roll film camera, but who, from the class of work they affect, or from custom want to focus on the ground glass most of the exposures they make. The same demand is made by many workers commencing photo-



The Screen Focus Kodak, showing double extension.

graphy. It is to meet this growing demand that the enterprising Kodak Company has introduced an important addition to its already large family, and the special claim made for the No. 4 Screen Focus Kodak is that it allows the operator to focus every picture, whether on roll film or plates, for both of which it is adapted. This Kodak is a clever combination of roll film and glass plate camera. It is in two parts—the camera proper and the roll holder. The latter is secured to the camera by a catch and bolts, and can be made to swing up so as to carry the film out of the focal plane, and allow a glass screen to be placed across the open back for focussing purposes. The possibility of focussing each exposure, whether on roll film or plates, is the chief feature of the new Kodak. In order to do this it is only necessary to pull out a shutter which is carried in the camera back, and insert it in a slit in the holder immediately in front of

the roll film. Its function is to protect the film by rendering the roll holder light-proof, and to make possible the raising of the roll holder away from the focal plane. The roll holder is secured to the camera by a spring catch, operated by a button, which cannot be moved



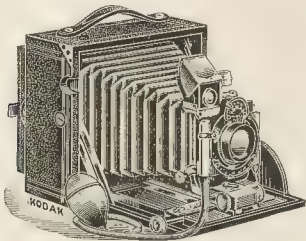
The Screen Focus Kodak, showing roll holder raised and ground glass in position.

unless the shutter, referred to above, is in position in front of the film. The possibility of fogging the film by separating the roll holder and the camera, while the film is unprotected, is therefore entirely obviated. The shutter being in position in front of the film, the concealed button at the lower right-hand side of the camera is pressed, and the roll holder raised on the pivot bolts until it catches in a horizontal position, disclosing the open back of the camera across which is affixed the ground glass screen.

The raised film holder now serves the purpose of a focussing shade. After the picture is focussed, a pressure on the catch releases the film holder, which is then swung back into the focal plane, the cut removed, and the exposure made in the usual manner.

The Screen Focus Kodak may be quickly converted into a plate camera of high efficiency by detaching the roll holder and affixing a special plate adapter provided with a ground glass and spring focussing hood. Having focussed the picture the plate holder is slipped in between the spring ground-glass frame and the camera, and the exposure made.

The general equipment of the camera is of the usual completeness and finish for which the Kodak Company is famous. An important feature which will recommend the No. 4 Screen Focus Kodak to those workers who wish to do their best work with films is the



The Screen Focus Kodak as a glass-plate camera -without the roll holder

able extension bed. This allows the operator to work to within in. of the subject when focussing the image on the ground glass—ensuring perfect accuracy and sharpness.

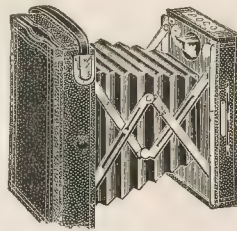
A rising, falling and sliding front, which adds so much to the usefulness of a camera, is provided. The rising and falling front is operated by an automatically locking rack and pinion, and the sliding front by means of runners and a simple clamping lever. The lens is a rapid rectilinear of excellent quality fitted with iris diaphragm. The shutter is the Kodak "Automatic," with pneumatic and trigger release, giving instantaneous exposures graduated from 1/100th to 1 second and time and bulb exposures. The finder is of

the brilliant description, easily opened for the cleaning of the mirror and lens, and a spirit level is attached, the two reversing together for horizontal or vertical pictures. Focussing may also be effected by means of an indicator and scale marked in feet and metres.

The new Screen Focus Kodak is described in complete detail in the very useful manual of instruction which accompanies the instrument, and in which will be found full directions for developing and printing. The price of the camera is six guineas, which, considering its advantages, cannot be considered a high figure.

The Pocket Poco Cameras. Sold by Messrs. John J. Griffin and Sons, Ltd., 20-26, Sardinia Street, Lincoln's Inn Fields, London, W.C.

This series of handy and efficient little cameras, which Messrs. Griffin are issuing this year, well sustain their claim to be considered "pocket" cameras. There are four patterns, varying in price from



The Pocket Poco A (open).

£1 1s. to £4 4s., making them suitable for all purses. Now that the inexpensive enlarger is so popular, the tendency is all in favour of such folding cameras producing quarter-plate or 5 by 4 size negatives.

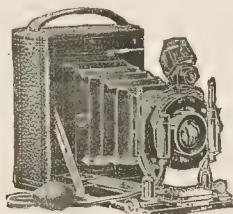
The Pocket Poco A, illustrated above, is a compact little instrument measuring only 5½ by 4 by 1½ when closed. It takes quarter-plates in neat single metal slides, and the bellows have a draw of 5½ in. The body of camera is covered with seal grain leather, and the metal parts are nickel and black. The camera has a self-setting shutter for time, instantaneous, and bulb exposures. The lens is a single achromatic of good covering power, and a reversible viewfinder and two tripod sockets are included.

Pocket Poco B is of the baseboard and draw-out bellows type, and is a well-equipped camera for all-round work. The camera is well and strongly made in mahogany, leather-covered, and with leather bellows. Its dimensions, closed, are 5½ by 3½ by 2, and it fits readily into a coat pocket. It takes plates 3½ by 4½, and has a bellows-draw of 5½ in. The front is sliding, and there is a spring in the back which may be opened, disclosing the ground glass for focussing. R.R. lens, "Gem" automatic shutter, and reversible brilliant finder are included. It is also made in 5 by 4 size. Pocket Poco C is another model of the series, and is characterised by further additions to the equipment than is included in the two patterns previously mentioned. It has a rack and pinion focussing attachment and a bellows-draw of 7½ in. It is well made in dovetailed mahogany, with strong piano hinge to baseboard. The metal parts are highly finished nickel and brass. A focussing panel and ground glass form part of the back, and the lens is a good rapid rectilinear, Automatic shutter, brilliant finder, tripod sockets, etc., are included. This little instrument is not only an efficient plate pocket camera, but the Premo film pack can also be used in the place of the double dark slide.

Pocket Poco D is the latest of the Poco series, and is very complete in all respects, both as a hand and stand camera. It is beautifully made in mahogany, and the baseboard is metal. All other metal parts, with the exception of the lens mount, are highly

nickelled. It is a very light camera, and is made in one size only, $4\frac{1}{2}$ by $3\frac{1}{4}$. Its outside measurements when closed are 5 by $3\frac{3}{4}$ by $2\frac{1}{4}$.

Focussing is by rack and pinion. The front is of metal, with rising and falling movement, and patent clamp. The back is removable, with ground glass panel. The lens is the Planatograph, and "Auto" shutter, brilliant reversible finder, tripod socket, and plate



The Pocket Poco D (open).

holder are included in the outfit, which is remarkably good value for the price, £4 4s. With this camera is furnished, without extra charge, a film pack adapter, for accommodating the Premo film pack, thus rendering it very complete for cut films as well as plates.

A NEW light, with features which invite inquiries from photographers contemplating the installation of an artificial illuminant, is now being introduced as the "F.P. Airlight Lighting System." "F.P.," in the language of the company's circular, stands for "fire-proof" and "fool-proof," and the one great claim made on behalf of the airlight, apart from power and economy, is safety in inexperienced hands. The active principle of the light is gasolene vapour mixed with air, which is consumed in a Bunsen burner, and raises to incandescence a mantle very similar to that used with coal-gas incandescent burners. The plant generating this combustible vapour is perfectly self-contained, and—for a battery of six lights, each, so it is claimed, of 500 candle-power—occupies a space of about 4 by 1 by 1 ft. No gas connection or other auxiliary is required—a gasolene burner vapourises the main supply of that material, and the apparatus, as we have examined it, works silently and without odour. The light resembles acetylene in its quality more than other illuminants, and we are informed that it has been found satisfactory for distinguishing between minute differences of colour such as blacks and blue-blacks. The present promoters, The British American Safety Airlight Co., of 66, Victoria Street, Westminster, put up the light in various forms, the most suitable for photographic portraiture being presumably the "double arc," designed to give 1,000 candle-power. As the light can be installed anywhere, as it consumes only light spirit such as can be bought at any motor garage, and as the cost of running it is evidently very low, there seems good reason for directing attention to it. The types of lamp now made are probably not well suited for studio lighting, but the production of others, meeting photographers' requirements, should not be a difficult matter.

A NEW price-list reaches us from Ilford, Limited, which specifies the many sizes in which the Ilford products are made, and gives a series of brief notes on the special suitability of the various Ilford plates and papers. The proportionate speed of plates, etc., in seconds' exposure required is among the notes, and will probably be useful to many:—Ordinary and Chromatic, 1; Empress, $\frac{1}{2}$; Rapid Isochrom, $\frac{1}{2}$; Special Rapid, $\frac{1}{4}$; Zenith, $\frac{1}{4}$; Monarch, 1-9; Process, 8; Half-Tone, $1\frac{1}{2}$; Special Lantern, 50; Rapid Bromide Paper, 5; Slow Bromide Paper, 20.

RECEIVED.—"Salon" plates. The Gem Dry Plate Company, Limited, Willesden Green, London, N.W. A new ultra-rapid plate on which we shall report in due course.

New Books.

"The Camera in the Fields, a Practical Guide to Nature Photography." By F. C. Snell. London: T. Fisher Unwin. 5s.

More Nature and the camera! And Mr. Snell gives us a good deal of both. His plan of instruction is extremely simple and extremely pleasant. He spends a couple of chapters in telling us about apparatus and the best kind of fit-up for the work—in the course of which he recommends an "exposure metre"—and then out he goes into the country and begins to talk about birds, and beasts, and reptiles, and the various little things he has observed about them and endless photographic ways and means which have suggested themselves to him. In all this there is as much to be learnt of natural history as there is of photography, and that is the beauty of the book; it is not for naturalists, but for photographers who would find new interests and occupations. Hence Mr. Snell's useful hints on the manners and customs of his humble friends are not superfluous. Thus, beware of the badger, for he is vicious and savage by nature, and will claw you if he can get the chance. And when pursuing the slow-worm do not make him angry or, in the excitement of the moment, he will break off his tail, and you will be chagrined to see the two halves of him departing in opposite directions.

Mr. Snell chats in this wise while he takes us into his confidence in the matter of photographic methods. And as his very elegantly printed book contains a hundred or so of examples of the author's work, we do not hesitate to name it as a guide and incentive to the branch of photography which, we are glad to say, is finding new adherents every day.

"German Technical Words and Phrases." An English-German and German-English Dictionary. By C. A. Thimm and W. Voß Knoblauch. London, E. Marlborough and Co., 2s. 6d.

The arrangement of this pocket dictionary is one that can be desired as it collects the technical and "shop" terms of various crafts under the appropriate generic heading. But some of the synonyms strike us as awkward, to say the least of it. Thus under "Photography" to translate "Prints" and "Printing" as "Abdrücke" and "Vervielfältigung," or "Drucken," is to mislead the reader of German photographic books where "Copieren" and "Copiren" are used for these terms almost without exception, and "Brennweite" is used a hundred times to "Fokus" once. These, however, are exceptions: usually the terms, are the natural ones.

"Das Pigment Verfahren." By H. W. Vogel and Paul Hanneke. Published by Gustav Schmidt, Berlin. Price 3 marks.

This is the fifth edition of the late Dr. Vogel's handbook on the carbon process, revised by Herr Hanneke, and contains complete directions not only for the preparation of the tissue, but also for its application to ordinary work, and special supports, and also for photogravure. The gum bichromate and ozotype processes are also treated of, and the fact that a fifth edition is called for proves that it is generally accepted in Germany as a reliable and useful text-book.

In view of the danger from fire, the Theatres and Music Hall Committee have recommended the London County Council to prohibit the cinematograph at Sunday concerts in licensed places.

THE Council of the Scottish Photographic Federation, at a meeting held in Stirling, resolved that the Federation outing be to Blairgowrie on Saturday, June 3. Last year's outing to Callander was a decided success, and this year's must be even a greater success, Blairgowrie being the cradle of the Federation's institution, with a large membership in the immediate vicinity.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
4.....	Watford Photo. Society	<i>Emulsions.</i> Mr. E. A. Robins.
4.....	Aberdeen Photo. Assn.	Lantern Exhibition—Scottish Federation Prize Slides for 1905.
4.....	West London Photo. Society ...	Discussion on Work for Forthcoming Exhibition.
7.....	South London Photo. Society....	<i>Various Tones on Paper by Development.</i> Mr. E. J. Smith.
7.....	Bowes Pk. and Dis. Ph. Soc. ...	<i>Mounts and Mounting.</i> Mr. H. C. Bird.
7.....	Southampton Camera Club	Lecture Competition.
7.....	Exeter Camera Club	<i>Hints on Lenses with Experiments.</i> Illustrated. Prof. A. W. Claydon.
7.....	Bonnybridge Amateur Ph. A....	S.P.F. Prize Slides and Portfolio.
8.....	Royal Photographic Society.....	<i>Notes on and Experiences in Architectural Photography.</i> Mr. E. R. Bu l.
8.....	Larkhall Camera Club	Entries Close for Exhibitors.
8.....	Blairgowrie and Dis. Ph. Assn. ...	<i>Gum-Bichromate Printing.</i> Mr. A. W. Hill.
8.....	Glasgow Southern Ph. Assn.....	Suggestions for next Season's Programme.
8.....	Leeds Photographic Society	<i>Kirkstall Abbey.</i> Mr. Charles B. Howdill. A.R.I.B.A.
8.....	Brechin Photographic Assn.	S.P.F. Prize Slides.
9.....	Wimbledon and Dis. Cam. Club ..	<i>Sulphide, and other Methods of Toning Bromide Prints.</i> Demonstrated. Mr. T. W. Denton.
9.....	Everton Camera Club	<i>Night Photography.</i>
9.....	North Middlesex Photo. Soc.	<i>Development of a Negative.</i> Mr. A. H. Lislet.
9.....	Boro' Poly. Photo. Society	Lantern Night.
9.....	Cricklewood Photo. Society	<i>Flashlight Photography.</i> Demonstrated. Mr. W. Emery.
9.....	G.E.R. Mechanics' Institution ..	Lectures by Members.
9.....	Batley and Dis. Photo. Soc.	Slide and Print Competition and Judging.
9.....	Southport Photo. Society	Annual General Meeting.
9.....	Greenock Camera Club	<i>A Trip to St. Kilda.</i> Mr. Thos. Lupton.
9.....	Dundee and East of Scot. Ph. A. ...	S.P.F. Prize Slides.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 11; Major-General Waterhouse in the chair. A paper on "Three-Colour Photography," by Dr. G. Aarland, of Leipzig, was read by the secretary. The author treated, in a general way, of filters, sensitisers, and inks for three-colour work, and urged that currently accepted views must be modified. He claimed stability for many of the aniline colours capable of employment in inks, and urged that varnish should not be regarded as a necessary vehicle for them in inks, suggesting, apparently, that inks such as those used in the Rembrandt intaglio process might be employed. The Joly process was at present the subject of investigation by the author, with a view to securing finer rulings of the triple-coloured line-filters. In regard to sensitisers, a new dye, "Collochrom," the invention of a Leipzig chemist, was stated to be an advance on Homocool, Pinachrom, and methyl red, which were spoken of highly as sensitisers for panchromatic effect. One drawback of the isocyanine sensitisers was that, as they imparted increased sensitiveness to red, the green-sensitiveness fell. "Collochrom," it was stated, gave greater sensitiveness to red, with little or none to green. Reference was also made to the method of the Bayer Co. of dyeing silver bromide, and afterwards emulsifying it. In the making of half-tone three-colour blocks, the author ascribed the large share which the fine-etcher now has in the final result, and drew attention to the Schultz method of etching as aiding in the elimination of hand-work. Of printing inks, he found the best were those of Fleming and Co., and Ault and Wiborg. Mr. Arthur Payne criticised the paper as somewhat vague, and stated his view that the "ideal" inks, as that term is commonly employed in three-colour work, are not the actual complementaries of the colour sensations.

A paper, by Mr. Alfred Watkins, on "Calculating Exposures in Pinhole Photography" was also read. The author referred to the variation of the best size of pinhole for various focal distances, and stated Abney's rule for the diameter as $\cdot008 \sqrt{b}$, where b is the focal

length. The pinhole, however, could depart considerably from the diameter given by this rule without affecting the results. For calculating, by meters, or otherwise, exposures with pinholes, the author now adopts a system which is a development of the rule first published in "The British Journal Almanac" for 1893, viz., divide the aperture by the distance from pinhole to plate (as in finding f numbers), and using the quotient as the f number, calculate exposure with an f number one tenth of this, and give 100 times the exposure. This calculation Mr. Watkins, taking a suggestion from Dr. D'Arcy Power, has now reduced to the following simple shape. He gives to each pinhole a number such that when multiplied by the extension the product is used as the f number in calculations, the result, as found in seconds, being taken as minutes.

The secretary showed a simple device for measuring the diameter of a pinhole. A graduated rule was fixed at a small angle to a metal straight edge so that the side of the narrow triangle opposite the angle between the two was a known fraction of the length of the rule. Thus the diameter of the needle will be indicated by the point at which the needle stops on being pushed between the two edges. For example, if the rule is 4 inches, and the separation from the one end of the straight edge is 1-16, the needle, if it stops at the 2 inch mark, will have a diameter of 2-4 of 1-16, or 1-32nd of an inch. The secretary also exhibited a centre punch, as used by Mr. Bolas, for making a pinhole which shall be an aperture only, not a tunnel, in a metal plate.

WOODFORD PHOTOGRAPHIC SOCIETY.—Mr. J. C. S. Mummery gave an instructive demonstration on "Gum Bichromate Printing" before the members of this society on Thursday last. Mr. Mummery gave a lucid exposition of his methods. He showed his audience the papers most suitable for the process. For large prints he used a rough surfaced drawing paper, while for finer or smaller work "Autotype single transfer paper." For coating Mr. Mummery recommended 4 oz. gum dissolved in 8 oz. water for the gum solution. For the pigment he recommended 45 gr. ivory black and 9 gr. burnt sienna, and for coating this pigment should be incorporated with one ounce of gum and one ounce of saturated solution bichromate of potash. Several pieces of previously exposed prepared paper were then developed. Mr. Mummery did this by wetting them, laying them on a glass easel, and spraying with a very fine spray of water, the unexposed portions of the picture being gradually and evenly washed away.

BACUP PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held on Monday evening last, in the new premises, at the Bacup Mechanics' Institution. The secretary, Mr. W. J. Sutcliffe, read his report, which gave evidence of a satisfactory year's work.

EDINBURGH PHOTOGRAPHIC SOCIETY.—At the last meeting of this society Mr. James Paton's lecture on "Frans Hals" was read by Mr. Thomas Rennie. Frans Hals was described as the first great artist of Holland, and, amid all the exploiters of new fields, he is to be named only after the giant Rembrandt. No man was more strictly and exclusively a portrait painter; no work of his is known in which the interest does not centre alone in the human countenance and form. Of peculiar interest to the photographer also is his accomplishment from the fact that he was the first to solve the vexatious problems of pictorial grouping. And we might almost be constrained to believe that Hals in his practice realised the secret of instantaneous photography. In some of his pictures the figures are not only vital and instinct with feeling, the very action is seen in process even under the most distracting and difficult conditions, on a great oblong canvas, in the full blaze of light, with every individual demanding his fair share of prominence and realisation. Without the unifying and harmonising witchery of chiaroscuro, Hals yet produces a pictorial unity. In our own day he has been re-discovered, and although commercial

value is ever a poor criterion of art, it is certain that the works of Hals are now more justly estimated than they have been at any time since the hey-day of his prosperity.

BOWES PARK AND DISTRICT PHOTOGRAPHIC SOCIETY.—On Monday, April 3, Mr. H. W. Bennett, F.R.P.S., gave a lecture, before a large audience, on "Carbon Printing," at the society's headquarters, Unity Hall, Wood Green. Mr. Bennett explained the theory of a carbon print, and then gave a practical demonstration by developing several prints. He then brought before the members' notice the advantage of his improved sensitising bath, whereby a worker can keep by him a stock of various coloured tissues and sensitise for himself as occasion arises. This is essentially a method which should appeal to small workers, as it obviates the necessity of keeping a large stock of sensitive material. By using this particular bath one can obtain all the gradation of tissue which is sensitised in the course of manufacture, and one great advantage is that gas fumes do not affect the tissue during drying operations. The formula recommended is: Potassium bichromate, 4 dr.; citric acid, 1 dr.; water, 25 ozs.; ammonia, .880, about 3 drs. This bath keeps for some months, and may be used repeatedly. To sensitise, use the bath as cold as possible and immerse the tissue for one minute and a half.

CROYDON CAMERA CLUB.—An interesting and practical demonstration, on "Home-made Lantern Plates," was given before the members of this club on Wednesday of last week by Mr. S. H. Wratten. A condensed report of Mr. Wratten's paper appears on another page.

GATESHEAD CAMERA CLUB.—The lantern slides entered in the exhibition in connection with this club for prizes offered by Messrs. Hurman, of Newcastle, were judged by Mr. Wm. Parry, of North Shields, the awards being as follows:—J. T. Brownlow, silver medal; S. Thompson, a guinea camera; T. W. Nicholson, photographic goods to the value of half-a-guinea. A bronze medal offered for competition by Mr. T. W. Nicholson, was awarded to S. Thompson.

YORKSHIRE PHOTOGRAPHIC UNION.—The annual meeting of the Yorkshire Photographic Union was held on Saturday last at the Bradford Grammar School. An exhibition of work by members of the Bradford and Leeds societies was on view during the afternoon, together with an interesting collection of the work of the late H. P. Robinson. The meeting was held under the presidency of Mr. Godfrey Bingley, and there was a large attendance of representatives of societies from all parts of Yorkshire. The Chairman, in opening the proceedings, referred to the success which had attended the work of the Union during its six years of existence. The hon. treasurer (Mr. Alex. Keighley) presented his accounts, which showed a balance to the credit of £16 14s. 8d., and Mr. E. Clough, the hon. secretary, presented his report, which showed the steady advance of the work of the Union. During last winter the Union provided no fewer than 175 lectures for the various photographic societies in the county. It was announced that the ballot for the election of officers had resulted as follows:—President, Mr. Godfrey Bingley (Leeds); vice-presidents, Mr. C. B. Howdill (Leeds), Mr. P. Lund (Bradford), Mr. Percy Sheard (Leeds), Lieutenant-Colonel Johnson (Hull), and Mr. J. Cook (Huddersfield); hon. secretary, Mr. A. Keighley (Keighley); hon. secretary of the portfolio section, Mr. W. H. Atkinson; hon. secretary of the lantern-slide section, Mr. W. H. Houghton; hon. business secretary, Mr. E. Clough (Bradford). The following had been elected as the official judges for the year 1904-5:—Messrs. G. Bingley, A. Keighley, P. Sheard, Gilbert Foster, R.B.A., Percy Lund, and Harry Wanless.

SOUTHPORT PHOTOGRAPHIC SOCIETY.—An exhibition of slides in connection with the members' lantern slide competition was given on Thursday evening of last week at the Queen's Hall, Southport, by Mr. G. Cross, hon. secretary. Twenty-one sets of slides were sent

in by fifteen competitors, and the society's bronze medal for the best set of six was awarded to Mr. T. W. Banks. A medal, presented by Mr. A. Barnett, for the best slide sent in, was awarded Mr. W. Williamson.

GLOUCESTERSHIRE PHOTOGRAPHIC SOCIETY.—The annual business meeting took place on Monday evening last, when the following officers were elected for the ensuing year:—President, Mr. Sheffield Blakeway; vice-president, Mr. J. Tibbitts; joint hon. secretary and treasurer, Mr. Edward A. Ind, 36, Northgate Street, and Mr. S. A. Pitcher, College Court; hon. lanternist, Mr. A. H. Pitcher; committee, Messrs. Dugdale, Wells, Hatton, Gransmore, Jaynes, and Dr. Clark.

DARWEN PHOTOGRAPHIC ASSOCIATION.—On Thursday evening of last week Mr. Walter D. Welford, representing Messrs. Burroughs, Welford, and Co., lectured before this association upon "Little Things and Pictorial Photography."

News and Notes.

At the annual meeting of the Yorkshire Photographic Union on Saturday last Mr. Percy Lund gave an address "On Making Use of Photography." He said that photographs nowadays must be really interesting from one point of view or another, or they would not command a moment's attention. The making of photographs was taken up as a hobby, but amateur photographers might just as well turn it to profit in some way or other. He did not mean financial profit, but it might and ought to be used to bring to the photographer culture of some kind. In default of other definite work Mr. Lund suggested to the amateur photographer that he should collaborate with the student of some subject, whose work he might advance at the same time that he himself gained an insight into that study. As an example of the work which might be done, he instanced Mr. Godfrey Bingley's most valuable geological photographs, and he mentioned that he had been himself studying the ancient monuments, the dolmens, menhirs, and colossal erections which existed in almost every part of the world. If he was not able to use his camera with facility, he would certainly have had to call in the aid of another photographer to make the study of those works possible.

Old members of the Photographic Club will regret to learn of the death of Mr. F. H. Carter, which took place on Saturday, the 8th inst., at Hornsey, N. He had been suffering from a painful illness for some years. Mr. Carter was among the earliest of photographers to practise the gelatine process, and for many years was a constant attendant at both the meetings and outings of the club, and was also for some years a familiar figure at the Convention meetings.

New South Wales Photographic Employees' Association.—The first annual meeting of this Association was held on February 22, 1905, the vice-president (Mr. N. Bradley) occupying the chair. The secretary reported that the past year had been most successful, as the Association started with fifteen members, and had increased to nearly a hundred, and the financial statement showed a very good balance in hand. The election of officers resulted as follows:—President, Mr. J. C. Cruden; vice-president, Mr. H. Bradley; secretary, Mr. Walter Davies; assistant secretary, Mr. J. Stuart, jun.; treasurer, Mr. A. Morrison.

Royal Institution.—The following are the lecture arrangements at the Royal Institution, after Easter:—Professor L. C. Miall, Fulleren Professor of Physiology, R.I., Three Lectures on the Study of Extinct Animals; the Rev. H. G. Woods (Master of the Temple),

Three Lectures on Velazquez; Professor Sir James Dewar, Fullerton Professor of Chemistry, R.I., Three Lectures on Flame; Professor A. Fleming, Three Lectures on Electromagnetic Waves (The Tynall Lectures); Professor H. Marshall Ward, Two Lectures on Moulds and Mouldiness; Dr. J. G. Frazer, Two Lectures on The Evolution of the Kingship in Early Society; and Mr. A. H. Savage and Mr. A. H. Savage, Two Lectures on Exploration in the Philippines. The Friday Evening Meetings will be resumed on May 5, when a Discourse will be delivered by Professor H. E. Armstrong on Problems underlying Nutrition. Succeeding Discourses will probably be given by Professor E. Fox Nicholls, Sir Charles Eliot, K.C.M.G., Professor W. Bruhl, Mr. George Henschel, and Sir William H. White.

A NEW Warwick Competition.—Particulars are to hand from the Warwick Dry Plate Company of a series of cash prize competitions for 1905, for photographs taken on Warwick Plates. Each competitor must be a member of some photographic society or club in the United Kingdom, and entry forms and conditions will be obtainable either from the Warwick Dry Plate Company, Warwick, or from the Secretary of the society or club. Twenty-two pounds ten shillings will be given away monthly during May, June, July, August, September, and October, as follows:—1st prize, £10, together with a donation of £5 to the photographic club to which the winner belongs. 2nd prize, £5, together with a donation of £2 10s. to the photographic club to which the winner belongs. Should the winner of either prize belong to more than one club, he shall name the club he wishes the donation to be given to. A further donation of £10 will be given at the end of the season to the club which has supplied the largest number of competitors during the season.

AMERICAN Federation of Photographic Societies.—At the annual meeting, held March 22, 1905, at the Metropolitan Camera Club of New York, the following clubs were represented:—Pictorial Club of Philadelphia; Capital Camera Club of Washington, D.C.; Boston Camera Club; Columbia Photographic Society of Philadelphia; Photographic Section, Pittsburg Academy of Science and Art; Wyoming Valley Camera Club of Wilkes-Barre, Pa.; Salon Club of America; Toronto Camera Club; Brooklyn Camera Club; Metropolitan Camera Club; nineteen delegates being present. The Franklin Institute of Pennsylvania was appointed temporary custodian of the Historical Records, pending arrangements with the Congressional Library at Washington, D.C. Resignation of the Secretary was accepted, and Mr. William T. Knox, of Brooklyn, was elected secretary for the unexpired term. Permanent foreign representatives of the Federation were appointed as follows:—Great Britain, H. Snowden Ward; France, A. H. Stoiber; Austria, Mathies Surin; Belgium, Victor Stouffs; Italy, Alfredo Ornano; Denmark, Copenhagen Photo. Klub; Germany, Otto Scharf; Australia, A. G. Griffiths; India, Photographic Society of India. For the Second American Salon it was decided to appoint local advisory juries in each section of the United States (the representatives abroad arranged for similar preliminary juries). All entries to be sent to representative in each district. A certain percentage of work to be forwarded to the Metropolitan Camera Club by the representative, and balance returned to senders, who thereafter have the privilege of sending direct to the New York headquarters, if they so elect. A national preliminary jury, composed of the foremost American pictorial photographers, will then select all entries that are up to the standard, and submit them to the jury of Painters for the final selection. The closing date for entries (at New York) to be November 1905, and no entries will be received thereafter. It was resolved that no photograph which was entered for the First American Salon be eligible at the Second, or succeeding Salons, as it is desired that American Salon shall be composed of work not heretofore shown, and represent the accomplishment of the current year.

Correspondence.

* * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

EDINBURGH PHOTOGRAPHIC CLUB AND THE SCOTTISH PHOTOGRAPHIC FEDERATION.

To the Editors.

Gentlemen,—But for the possibility of some of your readers being misled by the letter of "An Associate of the S.P.F.," contained in your issue of 7th inst., I would not reply to his letter, for I do not care to accord the satisfaction of a gentleman to an individual who has not the pluck—always the mark of a gentleman—to put his name to his letter.

The reason why "the Club" rescinded its resolution to join the "Federation," as stated in the letter of its Hon. Secretary to me intimating the fact, was "in the interests of the continuity of the Club." This decision was arrived at in the course of a debate on a motion to dissolve "the Club" on account of its having joined the "Federation."

Your anonymous correspondent more than hints that my statements are misleading. On Wednesday, 5th inst., the champions of the Scottish Photographic Federation had an opportunity of placing "the facts as generally current in Scotland" before a meeting of the Edinburgh Photographic Society in support of a motion that that Society should join the "Federation"; but their opponents had also the opportunity of replying, with the result that while 15 votes were cast in support of the motion to join, 76 were given in support of the amendment that the Society do *not* join the "Federation." I leave your readers to judge of the merits of "the facts."

In my letter to you, Sirs, I distinctly state that the membership of "the Club" is limited to forty, all of whom "must be" members of the Edinburgh Photographic Society, and point out that owing to the similarity of the names "the Club" and the Society are apt to be confused, but that the former in no sense represents the latter. Your printer has changed the words "must be" into "probable," and that may have confused your anonymous correspondent, but I certainly have no desire to disparage "the Club," and fail to see wherein I have done so.

The best reply I can make to your correspondent's last query is to quote a sentence from the letter of the Hon. Secretary of "the Club" intimating the rescinding of the resolution to join the "Federation." He says:—"I beg to inform you that the Edinburgh Photographic Club have decided, solely in the interests of the continuity of the Club, to rescind their resolution to join the Scottish Photographic Federation."

With apologies for taking up so much of your valuable space,
—I am, yours faithfully,

J. S. McCulloch,

Hon. Sec. Edinburgh Photographic Society.

3A, North Street, David Street, Edinburgh.

April 8, 1905.

[In justice to "An Associate of the S.P.F.," we may state that our correspondent wrote, too late for last week's issue, asking us to delete the concluding query contained in his letter.—Eds., B.J.P.]

THE P.P.A. ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—Please allow me to challenge your statement that in your last week's issue, page 243, re "Situations Open to Assistants." For wages of the unskilled labourer you may find a situation, but ask a bricklayer's wages—that is, £2 2s. per week—and you will

not find a berth without a protector; that is, an interested person in a going concern. You can find that out yourself. Advertise in your own journal under chiffre; offer your ability, and transform yourself for once in a sort of secretary for your Editor, à la "Answers," and then report—that shall be the article of the year.

I judge from the going trade in this town of 150,000 inhabitants. There are almost fifty established photographers here, only one has a paying concern—and the proprietor is a photographer.—Kindly excuse yours,
COMPULSORY RETIRER.

[We print our correspondent's letter as exactly as its caligraphical and orthographical mannerisms permit, but he will pardon us, we hope, if we describe it as incoherent. We should be sorry to class the writer with the general body of assistants.—Eds., B.J.P.]

To the Editors.

Gentlemen,—On behalf of the Committee of the Professional Photographers' Association, I thank your correspondent "Scot" for the first practical criticism we have had on the certificates scheme from the assistants' side of the question. If the point raised had been submitted to us during the period between the publication of the draft scheme and of issuing the complete prospectus, I am certain we should have recognised its importance and have provided for the cases he refers to. As it was, we had to submit to the mortification of having our endeavours to benefit both employers and employees received with that appalling silence which is worse than direct condemnation.

We shall not be able to alter our conditions until the year's probation has expired; but I may say that as far as fees are concerned it is not the idea of the Committee to make money out of their project. I cannot, of course, say what the Committee will or will not think proper to do, but, judging by the general policy they have adopted, I should say that no one need fear being disadvantaged pecuniarily or otherwise by taking a certificate under the present conditions. Probably, when the fees are reconsidered, what will happen is that, say an assistant takes out a third-grade certificate, he will pay the minimum fee of 10s.; on taking out a second grade he will be liable to pay, not the entire fee for second grade, but the difference between the fees for third and second grade—that is, another 10s., and so on.

In our friend "Scot's" case, he admits most sensibly that he cannot claim a training attainable only, to use your editorial words, "in a hundred or so studios," but it cannot be a disadvantage to him to have passed a test which at least proclaims him an efficient photographer. Under any circumstances, his business abilities as a manager would not be a matter under our cognisance. Those would be taken to be included in the expression personal character, with which we have nothing to do.

In conclusion, may I emphasise the fact that assistants have no reason to look upon the Association as a body inimical to their interests. The Committee recognise that many of the assistants of to-day will be the professional photographers of to-morrow. We cannot interfere between masters and servants in individual cases, but we wish generally to establish more cordial relations between the two classes. As representatives of the masters, we admit fully the interdependence. Photographers cannot conduct their businesses without assistance, and the more highly trained assistants are as a class the more independent they will become, and the less liable to the competition of what is practically unskilled labour.—I am, etc.,

WILLIAM GROVE, Hon. Secretary.

51, Baker Street, W.

April 10, 1905.

To the Editors.

Gentlemen,—In reference to the remarks of "Scot" last week in the B.J., it seems to me that the P.P.A. would clear the subject of the certificates considerably if they could give specifications, as it were, of the qualifications of assistants who can, and cannot, expect to obtain the first, second, or third grade certificate. As it is, we have the list of questions drawn up by the P.P.A., but we should like to know what proportion of the qualifications the candidate must possess to be granted the certificate. In other words, Sirs, let the P.P.A. dissect one or two certificated assistants, and let us see the manner of men they are.—Yours truly,
J. PATTERSON.
Glasgow.

To the Editors.

Gentlemen,—We hear the views of assistants like "Scot" and myself, but what about the employers? Are we to understand that preference is likely to be given to holders of the certificates by employers generally? The P.P.A. includes only some hundred or two members. What about the great majority outside? Will they recognise the P.P.A. diploma, or what steps are being taken to lead them to do so? I should like to hear the views of non-members of the P.P.A.—Yours faithfully,
"POUND A WEEK."

AMERICAN COPYRIGHTS.

To the Editors.

Gentlemen,—I am desired by my Committee to write you in reference to paragraph commencing "Copyright Query" under "Answers to Correspondents," on page 260 in your issue of 31st ult.

Although this might be legally correct if the picture is not already registered here by a British subject residing in America, my Committee are of opinion no one should be advised or encouraged to do this, which is morally, if not legally, a piracy, especially when we are trying to get this recognised by publishers on both sides of the Atlantic.

My Committee know a photographer, long resident in New York, who is still a British subject, and who is constantly sending photographs to this country for registration and reproduction.

Therefore my Committee felt it might place your correspondent or others in a dangerous position, hence the reason for this letter, which I hope you may find space for in the next issue of the JOURNAL.—I am, dear Sirs, yours faithfully,
HENRY GOWER, Secretary.

23, Soho Square, London, W.

April 10, 1905.

PHOTOGRAPHERS' ADVERTISEMENTS.

To the Editors.

Gentlemen,—I have carefully followed up the columns of "Advertising and the Professional Photographer," by Mr. W. J. Casey in THE BRITISH JOURNAL OF PHOTOGRAPHY of March 24, 31, and April 7. There are certainly very good hints given to photographers who wish to advertise, and no doubt it will be a good lesson to every photographer who does advertise his business. I shall esteem it a favour if you will kindly advise me in my case how to advertise, and must therefore give you a short description of my studio, situation, etc., etc. A few months ago I took over this place (which unfortunately I found in a very bad and neglected state). I closed same for about a month or so to make necessary alterations, putting up notices in the windows—"These premises will shortly be re-opened as..... by....." When I re-opened it, with nice and attractive show windows, soon after, I circulated pamphlets round the neighbourhood (between 15,000 and 18,000), one of which I herewith enclose,

and I also advertise in one of the best local papers. The neighbourhood consists of a good middle-class people. In what way would you now advise me to advertise? I find pamphlets rather too expensive.—Yours faithfully,

L. C. T.

[Our correspondent asks for advice of a kind which is not easily given by anyone not on the spot, but if we may criticise his price list, we think it says too much and shows too little. It confuses the reader with too many specialties. It would have been much better to have filled nearly all the eight pages of art paper at disposal with half-tone reproductions of pleasing portraiture, explaining in a word or two under each what distinctive styles they represent. A smaller list, suitably illustrated, would have been more efficient as a business bringer, it seems to us: or even a postcard well done in half-tone. There are several firms who make a specialty of such stationery for photographers. We shall be glad to find space for advertising suggestions from our readers, and we will answer queries on this subject in each week's "Answers."—Eds., B.J.P.]

BREATHLESS PHOTOGRAPHY.

To the Editors.

Gentlemen,—With reference to your paragraph in last week's issue on above subject, a slight error has crept in regarding the pictures of the Grand National being shown at the Palace Theatre. This is the work of the Autoscope Company, and not that of the Company you mention. It is the outcome of having five cameras on the course.

You hit the right nail on the head in saying that very few people, even photographers, have any idea of the "breathless" haste with which we work on "topical" events. The Boat Race we did for the Palace Theatre was the work of three cameras—one at the start, one at the waterworks, and one on a launch at the finish. Each operator made for the dark-room as quickly as he could after exposing. The one who took the finish was not able to reach Waterloo from Mortlake Station until 1.20 p.m., yet the complete film was exhibited at the matinee the same afternoon at the Palace. Surely marvellous enough.

To give some slight idea of the work that has to be put into film, there were, roughly, 6,500 distinct photographs in the Boat Race picture. When printing the positive film, which is projected on the screen, each of the 6,500 pictures in the negative receives separate exposure to make the transparency.

We do not know other firms' methods, but the secret, if it can be called a secret, of our speed is division of labour. Only by cutting the negative into several sections, and having several printers at work, are we able to produce prints in such an incredibly short time.

Thanking you in anticipation of your kind correction,—Yours very truly,
For the Autoscope Company,
50, Gray's Inn Road, Holborn, W.C. WILL. G. BARKER.
April 10, 1905.

At the exhibition of the Röntgen Society, opened on Thursday in last week, improvements of apparatus tending to economy of space and power were on show. Among the new inventions were several X-ray tubes permitting the use of alternating current direct from the mains. Hitherto only continuous current, often necessitating costly and cumbersome apparatus, had been obtainable. Messrs. Watson had a specially interesting stand, on which were displayed lead-glass spectacles and opaque rubber gauntlets, giving perfect immunity to operators. The lead glass is perfectly transparent to the human gaze, but does not permit the passage of X-rays.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSES. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- B. T. Cornforth, 5, Rock Street, Higher Broughton, Manchester. Photograph of the Bolton Town Hall, Coronation Illumination, 1902.
- R. Hodgson, 93, Pinestone Street, Sheffield. Photograph (Combination) containing Four Views, with Fancy Border on the Postcard, with Coat of Arms.
- A. J. Ashbolt, 52, Oxford Avenue, Southampton. Two Photographs, Groups of Canon Stephenson, Rev. B. J. Deane and Rev. F. H. Sangster. Two Photograph of the Rev. Canon John Stephenson.

"ESSEX" AND OTHERS.—In our next.

WALTER SWINTON.—8, King Street, St. James', S.W.

E. WEST.—1. The design is very good. We would suggest, however, as the studio is of a good width, that the solid at either end be increased to 5 ft. or 5 ft. 6 in. Also that the glass, at the side, be brought 6 in. or 8 in. nearer to the floor. 2. For the roof, we should recommend either light green or medium-blue blinds, and for the side, curtains of "art serge" of similar tint. 3. Any light, quiet colour, French grey, for example.

J. E. LINCOLN REES.—We do not know a firm which makes a speciality of the article. Try Fairbanks, Lavender, and Son, Eldon Works, Walsall.

GLAZING PRINTS, ETC.—1. I have a large number of prints to glaze, something like 8,000 half-plates per day. Could you give me an outline of what you would advise to get these dry quickly after squeegeeing down. A colleague of mine suggests that I should build cupboards against the walls, with openings at the bottom to admit the air from outside, and have lighted gas jets at the top, so as to cause a continual current of air through the cupboards. He contends that I should then have a quick and perfect drying cupboard; but I am inclined to doubt its efficacy. What is your opinion? Do you think such a cupboard would be quick drying? 2.—Can you give me a method of preparing glass for glazing bromide prints? One where there is no necessity to polish dry before laying the prints down, i.e., to clean the glass with a sponge, prepare it, and then lay the prints on, all in "wet stages," if I may so call it. 3. Can you tell me a quick way of removing surface markings and abrasions on bromide paper (glossy)? I've tried both water and methylated spirits, but neither of these are effectual in removing the deeper markings. Some of them seem indelible, and the surface of the paper very often comes away on account of the print having to be rubbed so vigorously.—TEMPUS FUGIT.

(1) Considering the amount of work to be got through, we should say that it would certainly pay to build cupboards, and, further, to put an exhaust fan at the top, and draw heated air, at about 80 to 90 deg. F., through the same. Failing this, it would certainly be advisable to adopt the plan suggested, with the addition of gas jets below as well, so as to warm the air going through the cupboard, but, of course, the products of the gas consumption must not be allowed to enter the drying chamber. Suitably arranged, there should be no difficulty in drying the prints in an hour. If we had a plan of the room

to scale, we could possibly suggest a special cupboard. (2) There is not, so far as we are aware, any "all wet" method, but the quickest method we know is to rub the glass all over with tripoli, 1 oz.; liq. ammonia, fort. .880, 1 oz.; methylated spirit, 19 oz.; using a sponge or wash leather, and then polish off with a dry wash leather. If half a dozen slabs are treated like this, the first will be dry enough to polish by the time the last is treated with above. Immerse the prints in methylated spirit, and then squeegee down. They rapidly dry this way. (3) Stubborn stains can be removed by rubbing with a very weak solution of potassium cyanide in a mixture of water and methylated spirit; this must be carefully used, or the image will be attacked.

PORTRAITURE IN COLOURS.—Could you kindly inform me if there is any firm that is making portraiture in natural colours a specialty? I should like to practise this branch of photography exclusively; in fact, I have gone as far as possible in educating myself in this respect, and should like to know of a firm that would employ me.—**MARTREES.**

So far as we are aware, no firm makes a specialty of this branch of photography. If our correspondent has made any substantial progress he should have no difficulty in obtaining a situation with one of the leading West-end London houses.

J. HARRIS.—Use the following: (1) Barium chloride, 30 gr.; hard gelatine, 90 gr.; water, 5 oz. (2) Ammonium sulphate, 15 gr.; water, $2\frac{1}{2}$ oz. Allow the gelatine to soak in the barium solution, melt at 100 deg. Fahr. in a water bath, and add No. 2, stirring all the time; allow to set well, break up, and wash to remove the ammonium chloride, then drain, and remelt, and add slowly: Chrome alum, $7\frac{1}{2}$ gr.; water, $\frac{1}{2}$ oz.; stirring all the time; the paper may be floated on this for a minute and hung up to dry.

FAILURE.—Your chief trouble arises from immersing the cards in the salting solution. We should advise the following procedure: Arrowroot, 17 gr.; sodium chloride, 16 gr.; citric acid, 5 gr.; sodium carbonate, 11 gr.; water, 1 oz. Rub the arrowroot into a cream with a little water, add the citric acid and soda to the rest of the water, and when effervescence has ceased, add the salt, and boil; stir in slowly and gradually the arrowroot cream, and boil till a clear jelly is obtained; allow to cool, and allow 20 minims for every card, and brush over with a fairly stiff hogs'-hair brush, and work the brush till surface dry; then allow to dry naturally, and paint with: Silver nitrate, 48 gr.; distilled water, 1 oz. If you want the cards to keep, add to above citric acid, 10 gr. Allow 10 minims of this solution for every card, and apply in the same way; be careful not to use brushes bound with metal. If you prefer to float, you can do so, but the solutions must then be half the above strength. Dry the cards naturally.

F. VERNON.—You can either use Conte crayons or obtain from any dealer special bromide pencils for the purpose. The only work on the subject is Johnston's "Retouching," published by Marion and Co., Soho Square.

PHOTOGRAPHS ON IVORY.—Can you give me a formula for sensitising ivory in order that a photographic print may be made direct without the intervention of a gelatine film as in the carbon process? I believe there are methods by which photographs on woodblock can be produced direct.—**MINIATRIST.**

There is no difficulty in doing this, and we would suggest painting the surface of the ivory with: Silver nitrate, 60 gr.; alcohol, $\frac{1}{2}$ oz.; water, $\frac{1}{2}$ oz. Dissolve, and add sufficient

liquid ammonia (fort. .880) to redissolve the precipitate first formed. This will dry fairly quickly, and assuming that the ivory is flat, it could be printed under a negative and toned, preferably by brushing on a strong gold or platinum bath, and then fixed by immersion in strong hypo. If nothing but a very faint image is required for subsequent painting, then the above bath may be reduced to half the strength and the toning omitted. The methods of the wood-block printer are not so suitable as the above.

H. P.—Look through the columns of the small "Business and Premises" advertisements, or insert a small advertisement yourself. This latter course would probably lead to satisfactory results.

SENSIT.—Your best plan would be to salt the paper first with a mixture of chloride and bromide of ammonia, then sensitise with silver, and again salt so as to have excess of the chloride present, and not excess of silver. If you turn up our "ALMANACS" you would find numerous formulæ, which, omitting the gelatine or collodion, would give you the quantities.

ANILINE PROCESS.—Will you kindly give formula for sensitising liquid, i.e., proportions of bichromate, acid, etc.? In what form and proportions is the aniline used—the colourless oily fluid or which of the dyes? How is the vapour produced and applied to the sensitive print?—**G. D. S.**

The formula for the aniline process is as follows:—Potassium bichromate, 1 oz.; phosphoric acid (sp. gr. 1.24), 10 oz.; water, 10 oz. Float a hard paper, such as Steinbach, on this for one minute, and dry quickly, and expose on the same or next day. The exposure in summer sunlight is about three minutes under a tracing, and the copy appears in yellow lines on a greenish ground. To develop, the print is placed on the bottom of a shallow box, to the lid of which are pinned several sheets of blotting-paper, soaked in a mixture of aniline-oil, 1 oz.; benzole, 15 oz. More aniline accelerates development. Spread the solution evenly on the blotting-paper, and leave the print in the box to develop, the image appears after a few minutes, and the final tint is influenced by the time of development. Short development gives blue-black, long, brownish-black. When intense enough the prints are washed in water and if they turn green add a little ammonia to the water. Commercially the aniline mixture is vaporised by steam. The ordinary colourless oily aniline is used. There is no work dealing specially with this process. The best book on such reproduction processes is "Ferric and Heliographic Processes," by G. E. Brown, published by Dawbarn and Ward Price 2s.

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EX CATHEDRA.

A Seasonable Business Hint. There is no question whatever as to the enormous business that is now being done in picture postcards. A question, however, arises in our minds as to whether local photographers in country places, pleasure resorts, and the like profit so much by the business as they might do, had they a little more enterprise. We ourselves receive from time to time a goodly number of these pleasing missives, and what is very notable about them is that they nearly always bear the name of one or other of the large publishing firms who make a feature of picture postcards, and not that of local photographers. We are here referring to landscapes, of course. Why should this be so? The resident photographer is better situated for securing views of this neighbourhood than is the firm that must send operators for a day or two's work in it, and have, therefore, to secure the negatives whether the conditions are the best or not. Amongst the examples we have are many that depict buildings, ancient ruins, glens, and the like, that are anything but pleasing, for the reason that they have been taken when the trees are bare of foliage, evidently with the view of showing as much of the building as possible. These pictures are more or less depressing to look at inasmuch as, being taken for the most part in winter, there are no bright high-lights and no cast shadows. Had they been taken under the aspect of Nature at the present season, with the trees just budding into foliage, the buildings, in most instances, would show just as well, while the picture would have a bright and cheerful appearance, instead of being dull and sombre: such would be much preferred by the purchasing public. Those who have pictures of the class alluded to—those

taken under wintry aspects—will do well to re-take them under bright spring conditions. But no time should now be lost in securing them, as with the present genial weather the opportunity will be of but short duration.

Postcards of the Seasons.

While on this point, it occurs to us that it might, as a matter of business, be well for local photographers to secure negatives of certain views under different seasons' conditions—say, spring, summer, autumn, and winter—and issue them in sets as Christmas and New Year cards. Just now fruit trees are coming into blossom, and orchards, such as those in the cider counties, or those in the plum districts, might well receive the attention of local photographers with a view to pictorial postcard business. It goes without saying that in this class of work backed plates are imperative for successful negatives. Many photographers sell the right to reproduce their pictures as postcards to the large publishing houses for a mere trifle, or where they have neglected to register their copyright in them they are appropriated by them without any payment. Would they not do better to publish them themselves and reap the whole of the profit of their work? Sensitised postcards are now supplied at a very small price, and the printing can be done in spare time and by artificial light, and the prints, being direct photographs, would be infinitely superior to the majority of the mechanical prints now being issued. They would be much preferred by the public, who would no doubt be pleased to pay a somewhat higher price for them. In conclusion, we may again question whether local photographers make as much out of the picture postcard business as they might do.

The Starch Mountant.

The souring and spoiling of starch paste is a phenomenon as well known as any other to the photographer, at any rate, of the older generation; there may be plenty of younger workers who have never used any paste, but one or other of the prepared compounds on the market. To them the article by Mr. J. I. Pigg, which appears on another page, will not possess the interest which it has for those who have habitually employed the home-made starch mountant. Mr. Pigg shows that starch has its special organism which gives rise to the acidity and loss of adhesiveness which render the paste useless for photographic purposes. The spores of the "paste eel" may occur anywhere, but they are pretty certain to be in the air of a room where starch paste has been allowed to "go bad." Mr. Pigg shows that they are among the most indestructible of organisms, and once a paste is infected by them its sterilisation by ordinary means is practically impossible. The moral to be drawn from the

description of the "paste-eel's" proclivities is one which we have insisted upon repeatedly, and that is to use starch paste freshly made, discarding any which may remain after each day's work.

* * *

Dr. Miethe's Colour Projection. During this last twelve months our German contemporaries have contained, at frequent intervals highly laudatory notices of the trichromatic projection of Dr. Miethe's work; it was therefore with keen expectation of seeing something far ahead of anything shown before that we visited the trade exhibition at the Portman Rooms last week, on purpose to see this particular exhibit, and we must confess that we were extremely disappointed. We certainly have seen far finer results shown by Mr. F. E. Ives, nearly ten years ago. Making all allowances for the difficulties with the current, the one thing that particularly struck us was the absence of colour. It is true that the scarlet of a somewhat ubiquitous sunshade was well rendered, but of other colours there was but little evidence. An explanation offered to us at the time, was that the filters had faded, but we think the cause of the paleness of the colours must be looked for elsewhere, and in the nature of the filters themselves, on the following grounds. Dr. Miethe states in his book "Driefarbenphotographie nach der Natur," that the filters for projection may be conveniently identical with those used for taking the negatives, and these, he says, should pass the red from λ 700— λ 600, the green from λ 600— λ 500, and the blue from λ 500— λ 400, so that he uses the whole of the spectrum. Both Ives and Sir Wm. Abney have shown us that for correct projection quite narrow spectral bands should be used, lying approximately at λ 670 in the red, λ 514 in the green, and λ 460 in the blue-violet. If the spectral bands are widened it is obvious that each colour will excite not only its own colour sensation in the retina, but also its neighbour, and the necessary result is a lightening of its hue; thus Dr. Miethe's red screen not only excites the red but a considerable proportion of green, hence the red is a whitish red, the green screen excites not only the green, but the red and blue-violet, hence it is a very pale green, and the same applies to the violet. We had no opportunity of testing the filters either spectroscopically or against a set of Mr. Ives', but we feel convinced that the latter would have given a totally different and much superior effect. We ought not to omit to mention the extremely ingenious dodge adopted by Miethe for obliterating the coloured fringes always seen with triple projection at the edge of the disc, and this was the use of a broad frame of black velvet, on which, of course, this irritating defect was not perceptible.

* * *

Photographers' Display.

With the advent of brighter weather photographers will do well to look to their display of prints, both on show tables and walls, and in the window or showcase. Specimens, which may have been looking satisfactory during the duller weather, will lack that freshness and daintiness so attractive to the prospective purchaser, and so valuable in turning the casual passer-by into a customer. In one of his books the late H. P. Robinson remarked on the tendency of the photographer to fail to notice how the familiar specimens have faded, or become soiled and discoloured. It is often an advantage to get some sympathetic but critical friend or fellow professional from a distance to offer one or two suggestions on this matter. Such a friend brings a fresh eye to the place, and sees things as they are seen by the general public. New specimens may well be mounted on new styles of mounts.

From the purely artistic point of view good plain boards of neutral tints to harmonise with the black, grey, or sepia prints are all that is necessary, but there is no doubt that some of the more varied and showy modern mounts are popular with the public generally. The American mount makers led the way in this direction but British and Continental manufacturers have risen to the occasion when shown the way, and the selection is very varied. In small businesses the modern mount may be purchased in small lots of from 100 to 250, and the name and address stamped by the photographer himself with one of the engraved steel die presses.

* * *

Factors of Success.

Is the photographic business as flourishing as some would have us believe? This question occurs to us through a conversation with a friend who, a little while ago, advertised for a first-class operator—one for the highest class of work. The replies were far beyond his expectations, and many of them were from men who had been in the leading houses of this country, and enclosed copies of excellent testimonials from them. But the significant fact about them was that a large, if not the largest, proportion of the applicants had for the last two or three years been in business for themselves, and the businesses had not proved so successful as they anticipated, hence their application for an engagement. The specimens submitted were, in most instances, quite on a par with the work turned out from the studios in which the applicants had formerly been engaged, so that the quality of the work was not the cause of their non-success in business. That may be due, possibly, to other causes, for it must not be surmised that nowadays good photography alone will make a business; it wants more than that. It requires business tact, enterprise, and a fair amount of capital to exploit the venture. It is quite conceivable that some of those referred to were lacking in some of these respects, but they are, we suspect, much the same as many others who have started photographic businesses on their own account. Be that as it may, the above tends to show that professional photography, even amongst first-rate workers, is not quite as satisfactory as might be wished.

* * *

Amateur or Professional?

The distinction between an amateur and a professional—where does the one end and the other begin—has long been a vexed question in photography. A rather amusing case that was recently tried in a provincial county court does not seem to settle the question. It was this: The plaintiff, "an amateur photographer," trading with his wife and daughters as a certain photographic company, sued the defendant for £3 for three gross of picture postcards of his house and an enlargement. The judge, looking at some of the postcards, said, "I never saw such things as these." "But I am only an amateur," replied the plaintiff. Then said the judge, "Don't you think you had better give it up altogether? You speak as though an amateur was bound to do bad work." In the end a verdict was given for the defendant. If a man with his wife and daughters trades as a photographic company and still says he is an amateur, where can the line be drawn between an amateur and a professional? Echo says, "Where?"

* * *

Industrial Alcohol.

On another page we condense the chief parts of the report published on Friday last by the committee which has had under consideration the granting of additional facilities for the use of alcohol. One common error the report contradicts, viz., as regards the employment of alcohol in Germany. It is usually asserted that German manufacturers get their pure spirit

duty free, but the sub-committee which visited Germany reports that not a single industry, except that of smokeless powders, employs pure spirit without duty, unless it is subject to a denaturing process. The recommendations of the committee are divided between the equally important questions—we write from the photographic standpoint—of quality and price, and it appears that if the Government puts them into force, the English maker will get his spirit more cheaply than the German manufacturers did when spirit was phenomenally low in price. The present “ordinary” spirit is to have its content of wood spirit halved and wood spirit itself is to be placed in a favourable position as regards duty and denaturing. As was seen by the passage from a speech by Mr. Austen Chamberlain which we quoted last week, the Government apparently take a favourable view of the committee’s recommendations.

* * *

Exactness in Formulæ. We have been privileged in our time to peruse some remarkable prescriptions, including those of “authorities” who will tell you to add ten drops of such and such a solution to one part of something else, but we do not remember to have come across quite such a gem of exact specification as one we found some time ago in a Belgian contemporary. The author, M. Maes, is giving his pet developer for lantern plates, and here is his formula:—

Rain water, 125 ccs.

Sodium sulphite (anhydrous), 1 mustard-spoonful.

Potassium carbonate (anhydrous), 1 mustard-spoonful.

Pyrogallol acid (Geka), 1 mustard-spoonful.

Potassium bromide solution (10 per cent.), 6 drops.

Glacial acetic acid, 6 drops.

We would point out that “Maes” is no misprint for Mees. If it were, any criticism of ours would be out of place, for with our own Mr. Kenneth Mees, as the author of this “formula,” the mustard-spoonful could safely be assumed to have a definite value. We cannot imagine Mr. Mees neglecting to standardise or calibrate a mustard-spoon, squeegee, niblick, garden roller, or anything that is his. In defence of the Belgian mustard-spoon as a measure of bulk, it may perhaps be urged by some that it answers the requirements of the particular case. We should not be surprised at our friend Mr. Thomas Bolas discovering wherein the mustard-spoonful surpasses the gramme and cubic centimetre as a measure. The point of view from which the difference between the litre and 1,000 ccs. (i.e. .15 c.c.), appears large enough for serious comment may perhaps disclose advantages of the mustard-spoonful, as also of the confusing English weights and measures, which we confess to be unable to discern. As another example of that looseness of diction or writing which is far too common, we noted that a writer in the “Daily Telegraph” of last Saturday says, in advising the use of the swing-back in order to get both foreground and distant objects in focus with a large aperture, that the use of the swing-back “increases the focal length.” Of course it does nothing of the kind, and although all photographers know what is meant, it is another good example of what we have been complaining of.

* * *

Enlargements. very advantageous arrangement can now be made with some of the best firms of enlargers for the supply of specimen pictures. In one case a well-known firm of carbon enlargers will supply £5 worth of pictures, which are *bona fide* approbation pictures or wall specimens, at a reduction of 20 per cent. In another case a special arrangement is made by a general enlarging firm to revise and renew specimens by arrangement at specially reduced rates. There can be little doubt that the public

taste is much better than it was, and the ordinary bromide enlargement is played out except for a cheap class of trade. Many people with money to spend in such things do not quite like to hang on their walls enlarged portraits, and we believe good business might be done in smaller enlargements rather more finely finished, and mounted as panel pictures or framed with strut backs, so as to stand on tables. Such pictures look equal to direct panels 15 by 9 or 17 by 12, and will command good prices, and frequently sell in duplicate or even more copies. We are not making the suggestion as a new one, as we believe some London photographers have done something on these lines, but we have heard of objections to enlargements on the walls, and in some provincial towns the idea might be successfully carried out. It would, at any rate, be talked about and so prove a good advertisement.

REPAIRING AND COPYING GLASS POSITIVES.

It not infrequently happens that a photographer has an old collodion glass positive brought to be copied, or to make an enlargement from. It goes without saying that a good glass positive, if in the condition it was in when first produced, is one of the easiest of all photographs to copy. But, as a rule, this is not the case. If they were good in the first instance they may have suffered through not having been varnished, or the varnish may have cracked, or they may have been injured by careless handling, or otherwise. Nevertheless they are often valued by their owners, and photographers frequently obtain substantial prices for well-executed enlargements from them. Many photographers of the present day are not familiar with the collodion positive process, or the excellent pictures that were produced by it in the “fifties”; and we have known instances where some have declined orders for enlargements on account of the state of the originals, while others have undertaken them and obtained high prices for the work, which to them has involved but little trouble.

A glass positive, it may be mentioned for the information of those who may not be aware of the fact, is, practically, a very thin negative backed up with some black material. Sometimes this was a piece of black velvet, at others it was a coating of black varnish. Sometimes the black material was applied to the film side of the plate and at others to the glass side. At times the pictures were varnished with a transparent varnish, at others they received no protection at all. In many instances when the varnishing was omitted the film became discoloured. Of course, when the picture has been backed on the glass side the image is reversed as regards right and left, as in the case of Daguerreotypes. The reason why this was done was that the image, as seen on the front of the film, was brighter than when seen from the back, or through the glass. Many of the black varnishes in use in the glass positive days would crack after a time, but the fissures are usually very fine. We will assume that a positive in this condition has to be copied.

If the varnish is on the back of the plate, the best way will be to scrape it off with a knife—it will be found to be exceedingly brittle—and apply fresh. If, however, it is on the film side his, it is manifest, cannot be done. The best procedure then is to carefully apply, with a brush, some fresh varnish, slightly diluted, over the old. This will fill up the cracks, and at the same time tend to bind the collodion film more closely to the glass, should it have a tendency to leave it. The picture may then be copied in the usual way with good results. It may, however, happen that the picture was not protected with varnish, and that the image has become discoloured to such an extent that a successful copy cannot be made in the

ordinary way. In such a case the black varnish should be removed from the back, when it will, usually, be found that the discoloration does not show by transmitted light. Then the picture should be dealt with as if it were a thin negative; but, as it is not varnished, it cannot be printed from by contact, by reason of the tenderness of the film. No attempt must be made to varnish it with the ordinary spirit varnishes, as the collodion has, in all probability, become so deteriorated that the spirit would partially dissolve it, and thus ruin the picture entirely. Even if it could be varnished the image would be too thin to yield a presentable print. The best way in such a case is to make a transparency in the copying camera, exposing and developing it so as to obtain as vigorous a result as possible, and then, from this transparency, to make a negative, again increasing the contrasts as much as may seem necessary. An alternative method, still using the picture as a negative, is to make an enlargement direct on bromide paper, work it up in black and white, and then make a negative from that. By either of these methods exceedingly good reproductions may be obtained from most unpromising originals.

In the foregoing we have assumed that the collodion has been intact so far as mechanical injury is concerned, but that is not always the case with old glass positives that have to be copied. We will here quote at some length a case that came under our notice some two or three years ago, as it may be of service to others in similar extremities. Calling one day on an old photographer, who, by the way, was quite familiar with the collodion positive process, we found him engaged on what almost appeared to be a hopeless job. He had the portraits—glass positives—of two children to make highly finished carbon enlargements from, for which some six guineas each were to be paid. The films had cracked and in some parts were detached from the glass, and they were so tender that they would be injured by anything but the most delicate treatment, yet he made light of the matter, though he said that some hours' labour would be necessary for the repairs. It may be well to explain the kind of pictures under treatment. They were of the five by four inch size, in

a double case, and had been varnished and backed with black velvet on the glass side, and were, or course, reversed with regard to left and right. They were also vignettied, a rare thing with glass positives, and evidently a good price had been paid for them in the first instance, as the case bore the name of a high-class photographer in the glass positive days. Our friend explained that the dilapidated state of the film was due to the pictures being taken on special and expensive colourless glass that was introduced for the purpose many years ago. It was, however, found, after a time, that by reason of the large amount of alkali it contained the glass "sweated" and absorbed moisture on its surface, hence the injury to the collodion film.

This is how the repairs were effected. The edges of the cracked film were carefully raised with the point of a penknife and touched with a weak solution of gum, and then pressed down again with a dry sable pencil. Detached portions were carefully matched and secured by the same means and allowed to dry. Then the fissures, and the portions from which small pieces were missing, were somewhat neatly filled in with flake white, toned down with colour to match the slightly grey or yellowish tint of the image. In applying this it was allowed to overlap to a slight extent to further secure the film to the glass. When this work was finished it looked very unpromising when seen from the film side, but on turning the pictures over so that they were seen from the glass side, the repaired injuries, and the overlapping colour, could only be detected by very close examination. A thin plate of plain glass was then bound on, round the edges, to protect the film from further injury, and the negatives made in the usual way. The pictures were returned to the case. They were, of course, reversed from what they were before, but this brought them the right way about as regards right and left (according to life), as they had previously been seen film uppermost, and the portraits still faced one another as before. The negatives when taken required but little or no retouching before they were enlarged, so adroitly had the repairs been done, yet no particular skill was involved in the work.

MICRO-ORGANISMS OF STARCH PASTE.

STARCH paste being the most popular medium for mounting photographs, the causes and effects of the decomposition of this mountant may prove interesting to photographers.

The chief objection to the use of starch paste is that it rapidly deteriorates when kept for some time, unless some disinfectant is added as a preservative. When starch has become stale a considerable portion of its adhesiveness is lost, and it becomes in course of time practically useless. On account of this objectionable feature of paste, text books always recommend the preparation of fresh mountant for each batch of prints. Other mountants besides paste turn "sour" when kept for any length of time. Gum and glue, for instance, become acid when stored in solution, but in these cases the adhesive properties of the substances remain almost, if not quite, unimpaired.

Infected Paste.

The reason of the inferior keeping qualities of paste is to be found in the fact that starch has a great attraction for certain kinds of both animal and vegetable organisms of an exceptionally destructive nature, and when a few wandering spores or germs alight on the paste, decomposition progresses very rapidly indeed, unless a preservative has been added to the mucilage.

When paste is prepared just before use, and the surplus

thrown away, no chance is afforded for the cultivation of germs. When, however, as in many business places, the paste-box is always in use, being merely replenished from time to time with fresh paste, a fine opportunity is given to study the growth of what are known to microscopists as "paste eels" and the rapidity with which they turn the fresh paste to a slimy mass with an unpleasant appearance and odour. Generally speaking, the cause of the deterioration of the paste is not known to those who use it, and they are not aware of the fact that the paste-box is thoroughly infected with the aforementioned paste eels. When the contents of such a box is examined closely it will be found, if the surface of the paste is viewed obliquely, that the whole of the mass is in constant motion, the animals themselves are too small to be seen individually with the naked eye, but the incessant activity of the mass of eels causes a slight flickering of the light that is reflected from the surface of the paste.

A very similar "eel" was formerly very commonly found in vinegar, but owing to the presence of a small percentage of sulphuric acid, and also to the absence of mucilage, in modern vinegar, this interesting animal is now rarely found. It is several years since the writer last saw some of these animals in a sample of vinegar, and several attempts to colonise some paste eels in vinegar were a complete failure, owing either to the

the fault of the animals, the vinegar, or the experimenter. The vinegar eel was the first of the order (anguillulidæ) to be discovered (in 1656), and the paste eel was found soon afterwards independently by several observers.

Paste Eels.

These animals were at first classed with the infusoria, but subsequently placed with the nematoid worms and termed

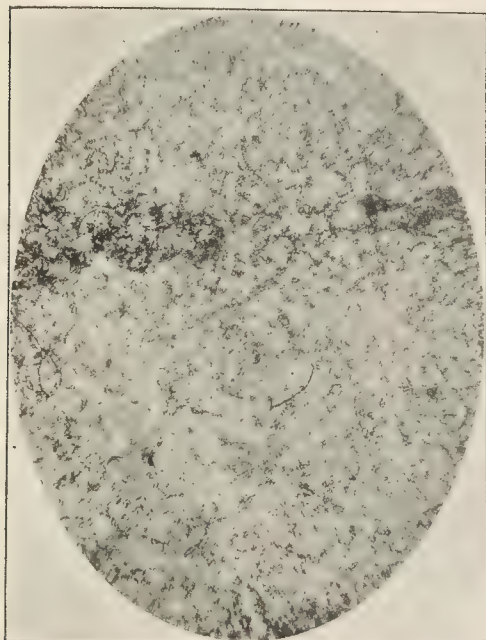


Fig. 1 ($\frac{3}{8}$ in. obj.).—Photo micrograph of eels in starch paste. Normal appearance under low power objective.

anguillulidæ. The paste eel is known as *anguillula glutinis*. The anguillulidæ are small (from 1-100th to $\frac{1}{4}$ in. in length) transparent worms, and various species are found in wheat, moss, water weeds, and damp places generally. One of the chief characteristics of these animals is that they are extremely tenacious of life. If the paste or any other substance they may inhabit is dried up, they remain dormant and apparently lifeless for several years, reviving immediately they are brought into contact with water. One observer claimed to have revived some specimens of *anguillula* after twenty-seven years quiescence.

The writer kept a piece of dried paste for three years, and the eels revived at once when a portion was placed in water; but a further trial of the same paste being made two years later, the occupants would not be resuscitated.

The word "dormant" hardly expresses the total absence of all evidence of vitality in the anguillulæ, when there is no moisture in their habitat, as that term is always associated with a continuance of the actions of the internal organs, however sluggish those actions may be; but in the anguillulæ all internal motion ceases, and organs of the animals remain in exactly the same condition during the period of quiescence, and the writer could not in the case just mentioned observe any loss of vigour or substance after a three years' desiccation. The eels are not exterminated by freezing, but become as active as ever when the temperature of their environment is raised above freezing-point. Under these circumstances, it will readily be understood that when once they have estab-

lished themselves in a paste-box they are not easily ejected, and although only an infinitesimal quantity of dried paste may remain, that is quite sufficient for all purposes, and eels will soon be wriggling over the whole surface of the paste when the box is replenished.

Preparing the Specimen for Photographing.

The paste eel is about 1-30th in. in length, the female being rather larger than the male. Being white and very transparent it is not easily seen with the naked eye, but is readily distinguished with a low power objective. Some preparation of the specimens is required before the eels can be seen to advantage under the microscope. A small portion from the surface of the infected paste should be taken on the tip of a knife and spread over a glass slip. When first inspected the result is disappointing (Fig. 1), but as the paste begins to dry the eels come to the top of the starch, and their movements can then be conveniently observed.

When the paste is quite dry the worms become motionless and appear lifeless, but if a drop of water be placed on the slide they immediately revive, and swim about with undiminished energy. As the colour, or lack of colour, of the paste is much about the same as that of the eels, very little can be seen of the actual structure of these animals by this crude form of examination; in fact, it is difficult to distinguish the head from the tail of an anguillula, and the internal organs are practically invisible.

Staining with Iodine.

Some method of staining the worms is necessary before the microscope can be used to full advantage. For the purpose

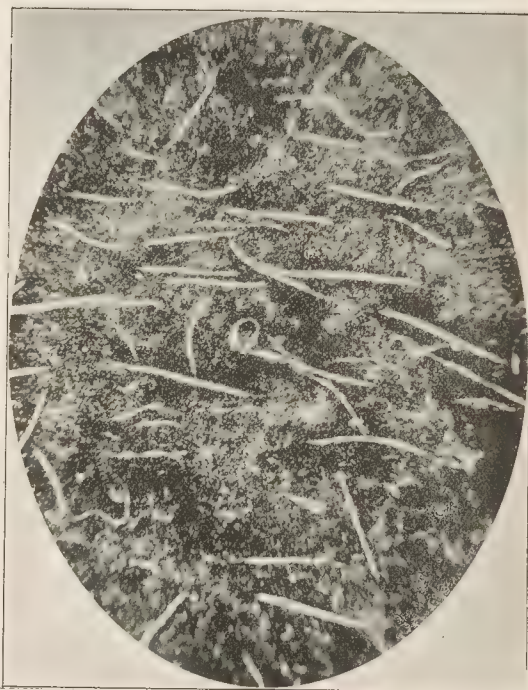


Fig. 2 ($\frac{3}{8}$ in. obj.).—Eels in starch paste. Starch stained blue with iodine, eels unstained.

of exhibiting the eels *en masse*, a great improvement is effected by adding a weak solution of iodine to the paste. This, of course, gives to the starch a deep blue colour, the anguillulæ

remaining white, or at the most being stained a light yellow colour.

Except with a very weak solution, iodine kills the anguillulæ immediately. The eels are then straightened out as seen in Fig. 2. When a colony of eels assumes this posi-

tion, it is a proof that they are dead, and not merely dormant. The effect of staining the paste with iodine is demonstrated in Fig. 2, which is a low power photograph of iodine-stained starch, the eels appearing as white threads on a dark ground. Fig. 1 shows the normal appear-

way or examined without mounting. The specimen in Fig. 3 was stained in this manner. Iodine staining, however, does not bring out the internal organs of the eels in a very satisfactory manner, as it stains all the tissues indiscriminately.

Hæmatoxylin as a Stain.

The writer found that a weak solution of hæmatoxylin did not destroy the animals, and if a small quantity of eel-infested paste is placed in that stain the worms remain alive for several days, swimming freely in the liquid. At first the exterior only of the eel is stained, but after a day or two the external stain almost disappears. By this time a considerable quantity of hæmatoxylin has been swallowed, and the internal anatomy of the animal is stained a bluish red, and is clearly visible under a high power objective. If the eels are allowed to remain too long in the staining bath they become decolorised again.

There will be numerous failures with this method before the correct strength of the stain and the time of immersion is found, and even then only a few in each batch of worms will be worth mounting. Considerably over a thousand specimens were stained and examined separately for the photographs shown here, but only three were mounted. When the staining is complete, the starch and logwood solution is transferred to methylated spirits and stirred up vigorously; in a few seconds the eels begin to settle to the bottom of the glass; the liquor is then poured away till only a few drops remain. These contain eels free from starch, and after another rinse

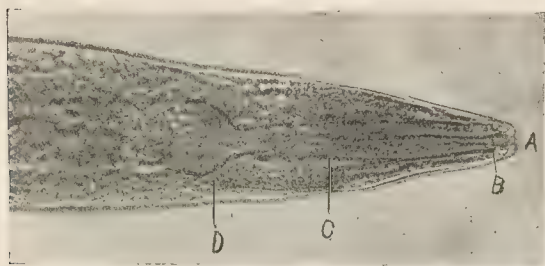


Fig. 4 ($\frac{1}{2}$ in. obj.).—Photo-micrograph of head of paste eel. Iodine-stained.

ance of the eels with the starch unstained; the eels can hardly be distinguished from the surrounding layer of paste.

In order to examine the worms with high powers they should be isolated and stained. The easiest method of separating and

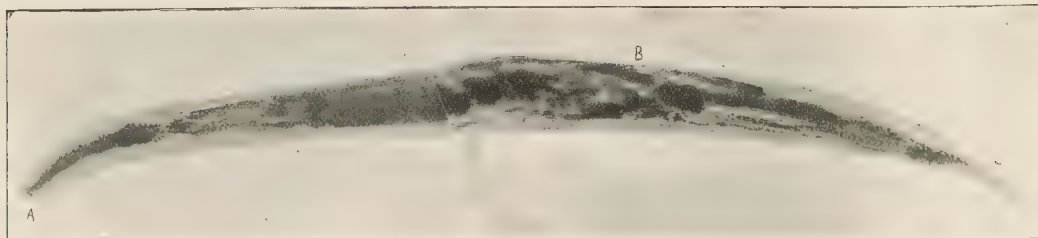


Fig. 5 ($\frac{1}{8}$ in. obj.).—Photo-micrograph of paste eel (female). Internal organs stained with hæmatoxylin. Photographed in two parts.

colouring the eels is to pour a few drops of a strong solution of iodine, dissolved in water with iodide of potassium, on a portion of paste placed on a glass slip. The eels float off clear of the starch into the iodine solution. The latter is

in spirits they are ready for mounting. This method was adopted in preparing the specimen photographed in Fig. 5. It will be noticed that the outline of the eel is transparent; the internal organs, however, are deeply stained.

When a well-stained specimen is examined with a high power, it will be found that the mouth consists of a small round orifice at the extreme end of the eel's head. From the mouth the pharynx leads into the œsophagus, which bulges out into a bulb-shaped structure; the digestive organs, etc., terminate in the anal aperture, which is situated at a little distance from the end of the tail.

Fig. 3 is a photograph of a female anguilla, showing ova in ovary.

Fig. 4 shows the head portion of an eel. The mouth A leads into the pharynx and œsophagus, B C D.

Paste eels have no eyes, but some species of the anguillulidæ possess rudimentary organs of vision.

Fig. 5 is a reproduction of a female eel stained internally with hæmatoxylin. As a 1-12 objective was used for this photograph the worm had to be taken in two parts. The two photographs, it will be noticed, are joined together for reproduction. The mouth is shown at A, the alimentary canal being well defined through nearly the whole length of the worm, terminating at the anus C. The external aperture of the ovary organs is seen at B.

A remarkable feature of these animals is that though they live in a slimy mass of paste, yet they wriggle out of the mass

without a vestige of starch adhering to them; even the iodine test gives no blue discolouration to their bodies. There is a general opinion that these worms can only exist in sour paste; as a matter of fact the sourness is the result, not the cause, of their presence, and they breed far more rapidly in fresh than in stale paste.

Although the anguillulidæ multiply at an enormous rate under favourable conditions, they do not increase with anything like the same rapidity as many of the lower orders of animal life. The female rarely produces more than ten or twelve ova at a time, often only one or two. The ova are of large size, and arranged in a single row in the ovary.

Effects on the Mountant.

The occurrence of eels in paste is accompanied with the formation of a considerable amount of acid, chiefly acetic with a trace of formic. The question as to whether the permanency of the photograph is affected by being mounted with this acid paste is an interesting one. As the acid is not of a stable nature it might cause no ill effect on the image. As previously mentioned, the chief objection to the occurrence of anguillulæ is the loss of adhesiveness in the paste caused by their presence.

J. I. PRIGG, F.R.M.S., F.R.P.S.

PHOTOGRAPHERS' ADVERTISEMENTS.

SOME NOTES BY AN OUTSIDER

[The following paragraphs complete the comments of last week Mr. Casey's articles to which they refer appeared in the *BRITISH JOURNAL OF PHOTOGRAPHY* for March 24 and 31, and April 7.—Eds., B.J.P.]

Windows; 'M, Yes, but Postcards.

MR. CASEY rightly enough urges making the window attractive. "Show a view of the local footballers winning the goal," he urges. 'M, yes, certainly, but why not on sensitised postcards? Every postcard your own advertisement; not obtrusively, but necessarily.

My friend Mr. G. A. Atkinson, of Ulverton, photographed the train blown on to its side on the viaduct crossing the sands near Ulverston. The train was righted before another camera man came along. It paid splendidly. Atkinson sold thousands altogether. A very great many were sold at 4½d. each, I believe.

I am writing this note on April 8. Snow is here. It has come to make a sort of April fool of the spring. I looked out on early budding trees, full of small, bright, yellow-green leaves, with plenty of snow still remaining on palings and roofs. April snow is unusual. April snow has a selling and an advertising value. Did any reader of these notes recognise this? Did he photograph some interesting familiar spot in its April snow garb, and make some dated photographic postcards? Could an easier opportunity have come, both to rake in pence, and to stamp oneself with the character of uptaking alertness?

Photographer-Journalist.

Wanted in the photographer—something of the journalistic instinct. The Atkinson case illustrates this. 'But you can't always arrange for trains being blown over. Smaller affairs may serve. By keeping a sort of forward diary one can often tell what will be engaging the local mind next week or the week after. What faces will be in evidence. Be prepared. Be systematic in diary and other entries. Order makes for orders.

That Amateur.

Now just here I'm more diffident than usual. An unfeeling

editor has given me away as an outsider. And, anyway, I am not venturing to do more than suggest. But—but—why not specifically advertise for amateurs' work to be finished in your studio. Let them roll up with their films. Let them know that you do not give them away. You have a real dark room.

A catch wheeze for them occurs. Advertise that you serve amateurs, even very amateurs; that it is your pleasure. You will be getting a bit of your own back in advance.

Mr. Casey's Advertisements

Are well-panelled out, and illustrate the wisdom of white spacing. I think they are a bit too much alike. Avoid the monumental mason style, certainly. But there are various ways of doing this. Wording reaching across the column and then tapering away in an inverted pyramid would be one variant, having plenty of white and standing out from other advertisements.

Size of Advertisement.

"Ads" need not be large, and therefore can be inexpensive. But go in for two inches double column, as against four inches single column. If the advertisement is very small, have a block made. Say, a half-tone of open screen.

Two inches double column of a striking and original advertisement may pull far more business than a column, which is both commonplace in wording and indistinguishable from advertisements surrounding; I mean which is not easily picked out by the eye.

Change your Advertisements.

Some years ago I met a photographer thirty miles from London who was slack, slack, slack. Yet he had been established thirty years, and had done good work. He used to say in confiding moments, "I am glad I made my bit when I *could* in years gone by. I could not make it now." And that man did advertise to some extent, but he scarcely ever changed his advertisement, year in, year out.

Mounting.

The profit may come to the mounting, possibly either through

the interest created and extra value due to the adhesive dry mounting, or to your use of special cover papers. Get your printer to show you the cover papers of Lindenmeyer's or some like house. Lindenmeyer's would break a ream and supply a few sheets.

Railway Advertising

Will, I think, only be of much good if there are constant changes.

Town Improvement Associations

Can be promoted by a newspaper man, a photographer, an hotel-keeper and a few 'cute friends and neighbours getting

together, and they do good in all ways. They certainly must mean a good deal of photographing.

Finally there is the fake photograph. I do not know that that is not the best wine kept to the last. Get out a little booklet, entitled, "The Camera Cannot Lie;" and fill it with half-tones of local photographs, every one of which is an obvious lie; or if it be not obvious, let the letterpress explain the joke. Your advertisement would be in everybody's mouth; and after all that is a very large part of the art of advertising. We want to be *talked of*, and favourably; some people whom no one has anything against, are not talked of at all.

FRANK COLEBROOK.

THE WEEK IN HISTORY.

Fifty Years of Roll-film Photography.

THE junior in photography will no doubt take exception to my title of this paragraph, and he will not be very wrong in doing so. Historically and academically, the roll-holder celebrates a jubilee to-day, inasmuch as, on April 21, 1855, appeared in "Notes and Queries" the first description of an apparatus of this kind, devised by Captain Barr. The paper was printed in the first place in the "Journal" of the Photographic Society of Bombay, and was written by Captain Barr, in January, 1855. The apparatus is quite the counterpart of the modern roll-holder, yet nobody will be justified in dating the era of film photography back to this period or any further than about the year 1834, when the Eastman Dry Plate and Film Company, Ltd. (now Kodak, Ltd.) put the first "roll-holder" on the market and advertised it in THE BRITISH JOURNAL ALMANACK for 1835. Nevertheless, it is interesting to note in how many points the modern roll-holder tallies with Captain Barr's experimental "dark slide for the paper process," as he himself called it.

Describing his apparatus as a box containing two vertical rollers which can be wound by a key, thereby drawing the paper across a glass plate between them, he goes on:—"After the slide has been put into its place in the camera, the key for revolving the upper roller and the short roller are introduced in their places. The rollers are both fitted into the dark slide so as to be removable at pleasure. To use this dark slide, prepare your sensitive paper, say ten or twelve sheets; have a piece of thin black calico, a little longer, say, twelve inches longer than your twelve sheets of paper; and upon this band of black calico place your sheets of prepared paper, leaving intervals of about two inches between each two papers, and attach the papers in any convenient manner by their upper and lower edges to the calico. Now attach the one end of the calico to the lower roller of the slide and roll it up, leaving just sufficient of it unrolled to reach the upper roller; pass this unrolled end over the glass plate I have referred to, and then attach it to the upper roller. Shut down the sliding door, and place the slide in the camera; fit the key to the upper roller as directed, and the short outer roller to the lower one; over this short roller wind a piece of tape to the same number of times as the calico inside is wound, and you are then ready to proceed to work."

Captain Barr then directs the employment of the index tape to bring No. 1 of the sensitive papers into position. "The index tape," he says, "is of exactly the same length as the calico band carrying the paper, and, being placed alongside the band in the dark room, after the papers have been attached, it is marked off to correspond with the papers and

the position of each paper may be conveniently noted on it, as 1st, 2nd, 3rd, etc., thus:—

Black Calico Carrying the Prepared Paper.

Paper.	Paper.	Paper.	Paper.
Index Tape.			
4th.	3rd.	2nd.	1st.

"As a further precaution against light, and to guard against the evil effects of air upon the prepared paper, I leave the calico band a foot longer than is necessary to carry all the papers. So that, when all are wound round the roller, the last five or six folds are plain calico, thus excluding light. I take the roller thus prepared out of the dark slide, and place it in a round metal case, which has a top which screws on airtight. In the centre of this top is a short tube, opened and shut airtight at pleasure by a small stop-cock. To this tube I attach a small suction-pump, and, after all is thus prepared, I introduce the roller with the prepared paper into the metal tube, screw on the top, and exhaust the air. . . . As a precaution against heat I cover the metal tube in a case of damp cotton cloth covered over with a dry piece of woollen cloth or flannel."

A year later, on the same date, April 21, on which Barr's roller-slide was described in "Notes and Queries," a similar apparatus was the subject of a letter, in "The Photographic Journal," from A. J. Melhuish, who three years previously had patented a type of roller-slide very similar to Captain Barr's, and, like his, provided for daylight changing. "The object of the slide," writes Melhuish, "is to enable a person to carry any number of sheets of sensitive paper and change them conveniently in the open light. The slide is fitted up with two rollers, and the sensitive sheets are gummed together, making one long band, the ends of which are gummed to pieces of paper always kept on the rollers." The sensitive sheets are wound off the left or reserve roller on to the right or exposed roller until all are exposed. . . . There are doors by opening which the operator can see (through the yellow glass) to adjust the position of the sensitive sheets when changing them.

Fox-Talbot's Photogravure.

Forty-seven years ago to-day Fox-Talbot took out the second patent for the process to which he gave the name of "photographic engraving,"—which process was photogravure in almost

exactly its present form. His patent specification, No. 875, 1858, is quite a small treatise on the process. It explains how the image on bichromated gelatine is etched into the metal plate without first washing the exposed plate in water or alcohol and it further sets forth the formation of an aquatint ground of resin on the gelatine surface, not on the uncoated metal plate:—"When the plate bearing the photographic image is removed from the copying frame, I spread over its surface, carefully, and very evenly, a little finely powdered gum copal (in default of which common resin may be employed). It is much easier to spread this resinous powder evenly upon the surface of the gelatine than it is to do so upon the naked surface of the metal plate. The chief error the operator has to guard against is that of putting on too much of the powder. The best results are obtained by using a very thin layer of it, provided it is uniformly distributed. If too much of the powder is laid on, it impedes the action of the etching liquid. When the plate has been thus very thinly powdered with copal, it is held horizontally over a spirit-lamp in order to melt the copal. This requires a considerable heat. It might be supposed that this heating of the plate, after the formation of a delicate photographic image upon it, would disturb and injure that image, but it has no such effect; the melting of the copal is known by its change of colour; the plate should then be withdrawn from the lamp and suffered to cool. This process may be called relaying an aquatint ground upon the gelatine, and I believe it to be a new process."

Talbot also claimed the use of perchloride of iron as an etching solution to be new, and he directed the use of several baths for the etching of a single plate, as is now the practice of photogravure plate-makers.

Progress in Wet Collodion.

The wet-collodion process as worked out by Scott Archer has already been recorded in this series of retrospectives ("The Week in History," February 24), and I have also referred to the efforts made to permit of the sensitive plate being kept for a considerable time before exposure. Girod and Gaudin, in France, tried cumbrous mechanical means of arresting the eva-

poration of the liquid on the plate ("The Week in History," March 17), but a year later, and fifty-one years ago to-morrow, Gaudin described in "La Lumière" (of April 22, 1854) how he found it possible to prolong the life of the plate by washing in distilled water after sensitising. He claimed to find no difference in sensitiveness between the two halves of a sensitised plate from one of which the silver nitrate had been got rid of by washing in distilled water, and the absence of the silver salt made it possible for the plate to be kept for twenty-four hours between sensitising and exposure. Gaudin attributed the loss of sensitiveness in the ordinary process to the change of the silver nitrate, the solution of which on the plate becomes more concentrated by evaporation of moisture, and thus dissolves the silver iodide. Gaudin likewise turned to sugar and other substances for preserving the collodion plate in such a state of semi-dampness that the silver nitrate would not crystallise, and here we see the beginnings of the endless dry-plate bath processes for which "preservatives" were taken from the most motley collection of substances—isinglass, albumen, gum in fact, any innocuous substance which would dry without crystallising, and would serve as the vehicle of the silver nitrate. A process by John Spiller and William Crookes was prominent at this time, and will come up for mention shortly.

Fixing with Cyanide.

Who first used potassium cyanide as a "fixer" of plate or print? Was it M. Gaudin who recommends it as an improvement on hypo in "La Lumière" of April 23, 1853? He is writing of the best way to obtain a brilliant white deposit of silver in making the direct collodion positive, which at that time was a very popular form of "print," and he favours the addition to the iron developer of potassium cyanide in minute proportions. He then proceeds: "Negatives for printing on paper are usually fixed in hyposulphite of soda in a way that leaves a faint opalescence in the high-lights. It is said that they print better when of this character, but I am by no means convinced that this is so; and if, as I suspect is the case, it is not correct, a solution of cyanide, one part in a thousand, will be more convenient and economical."

HISTORICUS.

INDUSTRIAL ALCOHOL.

The Report of the Government Committee.

On Friday last, April 14, the Committee appointed by the Chancellor of the Exchequer to inquire into the use of alcohol for industrial purpose free of duty published its report. (Wyman and Sons, London, E.C., 3d.) The Committee had instructions:—

(1) To inquire into the existing facilities for the use, without payment of duty, of spirits in arts and manufacture.

(2) To report whether the powers given to the Commissioners of Inland Revenue by Section 8 of the Finance Act, 1902, provides the necessary facilities for the use of spirit in manufacture.

(3) To advise further measures (if such should be necessary) without prejudice to revenue from spirits, and with regard to the interests of producers of spirits in the United Kingdom.

Existing Legislation.

Under the present law (Spirits Act, 1880, Customs and Inland Revenue Act, 1890, and Section 8 of Finance Act, 1902) the administration as to the use of spirit in industry is as follows:—

Manufacturers can use, under Excise supervision, and in large quantities, spirit mixed with one-ninth its bulk of wood naphtha (i.e., "ordinary" methylated spirit).

Since 1902 manufacturers have also had the privilege of themselves "denaturing" (or rendering unfit for human consumption) spirit em-

ployed for a particular process, in a way suitable to the particular purpose, should the Board of Inland Revenue consider such a course necessary.

"Ordinary" methylated spirit, plus .375 mineral naphtha (petroleum) and known as "mineralised" methylated spirit, is the only spirit which can be supplied retail.

Variable "Denaturing" since 1902.

Properties and price are the two objections to the "ordinary" methylated spirit. The 10 per cent. of wood naphtha is unsuitable for many purposes, and its cost is more than double that of the alcohol which it replaces. The Committee claim that the provisions of Section 8 of the Finance Act of 1902 removes the first of these objections and mitigates the second, inasmuch as it provides for denaturing by special agents which commonly cost less and permit also of the production of denatured spirit fit for any manufacturing process. The provisions of the Act, it is thought, are very imperfectly appreciated.

The question of price is viewed by the Committee as far more serious than that of quality, and it is shown that under the conditions under which spirit is made and taxed, the price of a bulk gallon of spirit is 5d. more than it would be were there no Excise restrictions, to which 3d. or 4d. has to be added for methylating, so that of the 20d. or 22d. paid per bulk gallon at wholesale price, 8d. is Revenue charge.

Alcohol and Crippled Industries.

From the evidence before it, the Committee finds the commonly-repeated assertion, that the coal and tar colour industry has been lost to the country through obstacles to the use of alcohol, to be destitute of substantial foundation, though two members dissent from this view. Yet they recognise the difference in the colour industry to-day, and conclude that greater licence is needed in the use of spirit, more so for methyl alcohol (wood spirit) than for ethyl alcohol.

In other branches of manufacture, fine chemicals, smokeless powders, lacquers, varnishes, and artificial silk, the restrictions on the use of spirit are such that the manufacture is commercially impossible.

Recommendations.

The general conclusions of the Committee can be summarised as follows:—

For general public use the present "mineralised" spirit cannot be improved. The regulations as to the stock which may be kept by retailers or quantity which may be sold at one time to a customer may be relaxed.

For industrial purposes the Finance Act gives every facility in respect of producing spirit suitable for any industrial purpose.

In the matter of price, the Finance Act does not bring the cost of "denatured spirit" within possible limits. The way in which the Excise restrictions can be modified is by neutralising, for industrial spirit, the enhanced cost of production, due to Excise control, as is done for export—viz., by granting an allowance on such spirit at such rate as may from time to time be taken as the increase in cost of production due to Revenue restrictions. At present the rate is 3d. per proof gallon for plain spirits. The manufacturer should bear the cost of denaturing to the extent of providing the agents and mixing them with the spirit.

"Ordinary" methylated spirit may be modified to consist of 95 volumes of spirit to 5 of wood-naphtha. This will cheapen it, while still "ear-mark" it for Excise supervision.

Methyl-alcohol may be exempted from the surtax of the proviso to Section 8 of the 1902 Act, whilst being denatured so as not to impair its purity.

Special denaturing agents for use in particular industries should be subject to official test.

These regulations should give manufacturers spirit at a price as low as the minimum price in Germany during 1902, when spirit was abnormally low.

German Conditions.

A sub-committee (Dr. Thorpe and H. W. Primrose) visited Germany in the interests of the inquiry, and their lengthy report is interesting as showing that no duty-free spirit is used in manufactures in Germany without undergoing some process of denaturing, except in the case of smokeless powder. The methods of "complete" and "incomplete" denaturing are stated as follows in the report, and the

details may serve to remind manufacturers of the facilities granted to them under the Finance Act.

The processes authorised for "complete denaturing" are two, viz.:—

(a) An admixture with every 100 litres of spirit of $2\frac{1}{2}$ litres of a mixture containing 4 parts of wood naphtha and 1 part of pyridine bases. (To this mixture 50 grams of lavender or rosemary oil may be added optionally, to counteract the smell of the pyridine bases. But the addition is seldom made.) Spirit thus denatured is what is used for domestic purposes—heating, lighting, and cooking. It is seldom used for industrial purposes. The only purpose of that kind for which its employment is considerable is the manufacture of cheap varnish.

(b) An admixture with the spirit of half the quantity (viz., $\frac{1}{2}$ litres per 100 litres of spirit) of the above denaturing mixture, together with an addition of $\frac{1}{4}$ litre of a solution of methyl violet dye and of benzol in quantities that may range from 2 to 20 litres to every 100 litres of spirit.

The spirit thus denatured is used in practice almost entirely for agricultural engines, as no satisfactory solution has yet been found of certain difficulties which beset the use of spirit for motor cars.

The processes authorised for "incomplete denaturing" are numerous. They consist:—(a) Of two alternative processes of general application, viz.:—The addition to every 100 litres of spirit of either 5 litres of wood naphtha, or $\frac{1}{2}$ litre of pyridine bases. (b) Of numerous processes of special application. But the processes applicable to the most numerous and most important industries including coal tar colours and chemical preparations, are the four alternatives of:—An addition to every 100 litres of spirit of 10 litres of sulphuric ether, or 1 litre of benzol, or $\frac{1}{2}$ litre of turpentine, or .025 litre of animal oil.

We may observe that the above regulations are applicable only to ethyl alcohol. Methyl alcohol does not fall within the charge to spirit duty in Germany, and may be used freely for industrial purposes, without control by the Revenue authorities.

The schedule of authorised denaturing agents cannot be varied by the Executive. Any amendment of it, or addition to it, must be sanctioned by the Bundesrath, or Federal Council of the Empire; and the procedure for obtaining such sanction occupies many months, probably never less than six.

The Revenue authorities regard them as being as little stringent as is compatible with the safety of the spirit revenue, even with the present low duty on spirit. They considered that, if the duties were ever to be raised, it would be necessary to revise the regulations, and to make them less lenient in certain directions.

For lacquer-making a considerable quantity of wood naphtha denatured spirit is used in Nuremberg, Baden, and Bavaria. Elsewhere turpentine is almost universally employed as the denaturing agent. No lacquers, polishes, or varnishes can be made in Germany with pure duty-free spirit, or with admixture only of shellac.

Photographic Collodion.—It is the common opinion in Germany that the British-made collodion is better than the German.

THE writer on photographic topics in the "Morning Post" decided last Saturday that our reference a month ago to certain dangers which rumour had associated with the mercury-vapour lamp, is the discovery of a mare's nest. Appreciation like this from an authority is inexpressibly gratifying. Are we to understand that the writer is now so certain of his facts—which, by the way, he presumably obtained from our own pages—that he is ready to stand alongside an active mercury-vapour lamp and let somebody smash it? Should the experiment be made, and further confirm the assurances of safety put

forward by Mr. Bastian and the Westinghouse Company, the "Morning Post" may be certain that our regret for our wrong statement will be deeper still.

"LIZARS' Magazine" (J. Lizars, 71, Bold Street, Liverpool) makes its appearance from the Liverpool house of the well-known Glasgow firm, and will frame its monthly programme more particularly with regard to the interests of amateur and professional photographers in that district. The first number foreshadows a cordial reception for the little journal, which is sent free on application.

Photo-Mechanical Notes.

The Debt of Three-colour to the Fine etcher.

At the recent exhibition at the Portman Rooms an opportunity was afforded of seeing projected some of Dr. Mithé's three-colour studies. The projection method with suitable apparatus such as was used, probably offers the ideal method of showing as favourably as possible the value of any set of three-colour negatives. Several of the subjects shown are quite familiar from half-tone reproductions issued as supplements to photographic and other magazines, and sold as post-cards, and to the mind of the writer, in every case the three-colour block was superior to the three-colour projection. The reason for this can only be that the block reproducers have had the opportunity at many stages (but perhaps chiefly in the fine etching) to manipulate the work until the colour rendering was correct, or at least extremely pleasing, an opportunity that does not occur, in such a practical way, in the projection method.

A Point About the Mercury Vapour Lamp.

The mercury vapour lamp is now being introduced for photo-engraving purposes, but even its advocates admit that it is no good for colour work. Yet, in effect, all half-tone reproduction is colour work, inasmuch as it should mean the rendering from a printing surface of the tones of the copy as seen by the eye. But the photography of these tones with a mercury lamp is effected by the ultra-violet light, to which the plate is specially sensitive, but to which the eye is blind, so that unless the absorption and reflection of ultra-violet light from the various tones of the original happens to correspond with that of homogeneous white light as perceived by the eye, the photograph will not be truthful. It is very seldom that this is likely to be true. In the case of bluish originals, more ultra-violet light will be reflected, and they will then reproduce flatter than they appear to the eye; in the case of greenish or reddish originals, more of such light will be absorbed, and they will probably appear more contrasted.

In the case of the ordinary arc lamp it is possible to make compensation by the use of a colour filter, but if the more refrangible rays are cut off from the mercury vapour light, it could probably make exposures so long as to be impracticable. For black and white line work these objections do not apply, but already exposures are so short in line work as to embarrass the operator with the small latitude for error, and most firms could not care to instal these lamps for line work only. Where, however, large line work has to be photographed, as in the reproductions of maps and plans, where hitherto there has been distinct difficulty encountered in securing even illumination, it would seem that the mercury vapour lamp would satisfy the long-felt want."

M.P.S.

"Our Navy and our Army" is the title of an interesting little pamphlet sent to us by Mr. Drinkwater Butt, F.R.P.S. It deals with the popular cinematograph entertainments organised by Mr. J. West, of Cinthesa, and known as West's "Our Navy." This well-known exhibition of life in the Services has probably done more for this country to quicken the interest of the public in the welfare of our "lads in blue" than any other conceivable method of illustrating the life of the man behind the gun, to save nothing of his brother the stoke-hold. Mr. Drinkwater Butt informs us that he is now attached to the staff of "Our Navy" for the purpose of doing special photographic and literary work in connection with the forthcoming Naval Exhibition at Earl's Court, and with the Nelson Centenary, which takes place this year.

Exhibition.

BRIGHTON CORPORATION EXHIBITION OF BRITISH PICTORIAL PHOTOGRAPHY.

THIS exhibition, to which we referred a few weeks ago, was opened by the Mayor of Brighton on Monday, April 17, and will remain open free to the public till June 3. There will be, therefore, plenty of opportunity for every one to visit what is undoubtedly a very fine collection of photographs. It is contained in the Corporation's new art galleries in Church Street, which, being spacious and well lighted, are admirably adapted for the purpose. The Fine Arts Committee of the Corporation secured the assistance of the Hove Camera Club and appointed a sub-committee, consisting of Messrs. G. de Paris, W. Clarkson Wallis, E. Davey (representing the Corporation), and Charles Job and A. R. Sargeant (representing the Camera Club) to carry out the arrangements.

It will not be necessary for us to attempt here a criticism of the pictures, as practically all have been exhibited in London previously. In looking through the list of exhibitors, we find few of the prominent exhibitors' names absent, and we are asked to give the thanks of the committee to all who have so generously lent examples of their work in reply to the invitation sent.

A. Horsley Hinton has sent five large landscapes, including "Fleet- ing and Far" and "To the Hills." J. Craig Annan, five portraits, including "Frau Muthasius" and "E. J. Frampton, R.A." A large birch and bracken subject, "Autumn," by W. Thomas, centres the left wall in the first room, with two splendid gum prints by Charles Moss close by. E. R. Ashton has five of his well-known Indian scenes. J. C. S. Mummery, four small gum prints, of which "Near Amberley" holds its own with anything in the exhibition. Mrs. E. H. Barton, several of her figure studies; and F. J. Mortimer five seascapes. J. C. Warburg and Miss Warburg are both represented; and Mrs. Carine Cadby, Reginald Craigie W. Crooke, Charles Job, and F. H. Evans have sent some of their best work. We might continue, but so much will prove that the dwellers in the south will be well repaid by a visit to the Brighton Exhibition during the next six weeks. It would appear that a good many sales will be effected, as four pictures were sold before the doors were actually opened. We congratulate the Corporation of Brighton on their enterprise.

New Materials.

The "Ideal" Plates and Papers. Sold by O. Sichel and Co., 32, Bunhill Row, London, E.C.

The "Ideal" plates are made in two rapidities. The Ordinary are recommended for all work where rapidity is not essential, while the Special Rapid, a sample of which has been sent to us, is quick enough for all instantaneous work and rapid exposure in the studio. They develop readily and without fog with any of the usual developers, and density is easily obtainable. The "Ideal" Collodio Chloride Paper (matt) is admirably adapted for obtaining sepia and red chalk tones, while the "Ideal" P.O.P. and post-cards are likewise reliable products of this firm.

Other papers of equal merit supplied by Messrs. Sichel and Co. are "Ideal" glossy and matt bromide papers, and "Ideal" gaslight papers.

The "Lisle" P.O.P. Sold by A. Curtis, 1, Meadowcourt Road, Lee, S.E.

A sample of this new P.O.P. has been sent to us, and it appears to sustain all that the maker claims for it. The paper is extremely white, and the whites remain pure throughout the subsequent operations. It prints quickly, and tones readily in the usual sulphocyanide and gold bath. In the phosphate borax bath it yields good rich brown tones, with no indication of double toning.

New Books.

"The Barnet Book of Photography." Eighth edition. Price 1s. 6d.
Published by Messrs. Elliott and Sons, Limited, Barnet, Herts.

A great army of photographers must exist to-day who owe Messrs. Elliott and Sons a debt of gratitude, apart from whatever satisfaction the employment of Barnet plates and papers has conferred. It does not need the assurance of the famous Hertfordshire firm that "the seven previous editions of the 'Barnet Book' have met with an unprecedented sale" to persuade us that in the eighth and present edition full value for money is being given. That the book is ostensibly produced as an advertisement does not detract from its value one iota, but rather is something for its readers to be thankful for, otherwise it would probably never have been produced at all, or, at least, not at the price at which it has been offered to the public during the past eight years. The present edition, styled the "twentieth century edition," is in every respect an entirely new work. New articles, new authors, and new pictures are presented in the manner made familiar by the previous editions, but the whole book has been recast and reprinted in a style worthy of a firm that has always been to the fore in tasteful representation where publicity is concerned. For the modest outlay of eighteenpence every photographer can now make an addition to his library that is not only a presentable and well-gotten-up volume, but is a work that forms a valuable addition to, instead of a substitute for, the previous editions of the "Barnet Book." Three hundred and twelve well-printed pages are occupied with practical and informative articles on photographic methods and matters. A. Horsley Hinton treats of "Negative Making" and "Pictorial Photography," subjects on which he is well qualified to speak. "Orthochromatic Plates and Colour Screens" find a capable exponent in John McIntosh. Percy G. R. Wright discourses on "Film Photography," and S. L. Coulthurst applies his practical experience in an article on "Lantern Slide Making." C. Winthrop Somerville and Thomas Manly deal with the subjects they have made their own—viz., "Bromide Printing" and "Ozotype" respectively; while "Hints on Amateur Portraiture" is in the Rev. F. C. Lambert's best style. Edgar H. Carpenter descants upon "The Hand Camera" and its manipulation, and Henry W. Bennett leaves very little to learn regarding "Carbon Printing." "Photographic Lenses" are fully dealt with in a practical manner by C. Welborne Piper, and the heart of the anti-fuzzite will rejoice at the concise pronouncements of W. E. A. Drinkwater on "P. O. P." Ten pages of useful formulæ help to swell the assemblage of good things provided, and the well-arranged index will assist in finding them. Not the least attractive feature of the new "Barnet Book" is the illustrations. They are not only good pictorially, but they are excellent examples of the process man's art, and do full justice to the pictures reproduced.

The praiseworthy modesty displayed by Messrs. Elliott in the production of the book is meritorious under the circumstances. Beyond an occasional inset and the usual space at the end of the volume, the temptation has been withstood to take advantage of a unique opportunity for "booming" Barnet goods. That this reticence will be appreciated and bring its own reward we are fully convinced, and cannot do better than quote from the firm's own words, contained in the preface:—

"We want the 'Barnet Book' to remind photographers throughout the world of our readiness to realise their needs, and to afford them help and advice in a manner not perhaps usual with a commercial firm; moreover, this book should keep in remembrance that vast and growing industry whence plates, films, papers, carbon tissues, etc., bearing the name of 'Barnet' are sent forth."

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between April 3-8, 1905:—

PRINTING APPARATUS.—No. 7,200. "Improvements in apparatus for printing photographic papers, opals, and the like." Scott's Studios, Ltd., and Charles Townsend Fox, 37, King Street, Covent Garden, London.

CAMERAS.—No. 7,202. "A collapsible photographic camera for use as hand or stand with either glass plates, roll or cut films." William John Robert Butler, 36, Tranton Road, Bermondsey, London.

CAMERAS.—No. 7,262. "Improvements in or relating to photographic cameras." George Wishart, 96, Buchanan Street, Glasgow.

DEVELOPING WITHOUT DARK ROOM.—No. 7,319. "Improvements in or in connection with developing or otherwise treating photographic plates and the like, without the use of dark rooms." George Edward Hawkes Rawlins, 6, Lord Street, Liverpool.

PIGMENT PAPER.—No. 7,341. "Improvements in and relating to the manufacture of photographic pigment paper." Thomas Walter Harding Jones, 7, St. Augustine's Road, Edgaston, Birmingham.

MAGIC LANTERNS.—No. 7,388. "Improvements in magic lantern apparatus." Thomas Edwin Bownes, 15, St. James' Row, Sheffield.

CINEMATOGRAPH APPARATUS.—No. 7,482. "Improvements in cinematograph apparatus." Claude Kennedy Mills, 23, Southampton Buildings, Chancery Lane, London. (Société Anonyme des Plaques et Papiers Photographiques, A Lumière ses fils, France.)

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

CAMERAS.—No. 4,298, 1904. Relates to improvements in and connected with photographic cameras. A folding camera on the mirror or reflex principle in which the mirror and ground glass are folded back against the shutter of the dark slide within the camera bellows, which are collapsible. The bellows are kept rigid, when open, by an articulated folding spring, which also holds the apparatus closed. Further a metal blind shutter, with aperture capable of regulation outside, with two rollers, which are placed at the rear of the apparatus with a space in between them for a film or plate magazine, which allows of the passage of the blind in very close proximity to the sensitive surface. Félicien Blanpain, 11, Rue Dumonceau, Brussels.

LIGHTING.—No. 18,099, 1904. An improved method of lighting for photographic purposes. This invention is intended to ensure uniform lighting of objects to be copied, and in his preamble the inventor states that "considerable difficulty has been experienced hitherto in uniformly lighting large surfaces such as drawings, wall-coverings, reliefs, etc., for the purpose of photographing them. This uniform lighting has been impossible particularly in studios, the side towards the upper or side lights being always more fully lighted than the side towards the floor or the wall. Moreover it has been found impossible to ensure uniform lighting by means of sources of

light or reflectors arranged near to or behind the photographic camera. According to the present invention uniform lighting is ensured by the employment of a method which consists in a precisely determined movement of the source of light." One or more sources of light which are shut off in the direction of the objective are moved over the object between the object and the objective, that is, through the space which is formed by lines supposed to be drawn from the objective to the limits of the object so that all parts of the object are not photographed simultaneously but the different parts thereof in succession. For illuminating transparent surfaces, one or more sources of light pass with a certain regulated movement behind the transparent surfaces so that the different parts of the surface are photographed successively. Further, the alteration in movement is replaced or supplemented by alteration of the intensity of the light during exposure. Objects may be placed concentrically around a panoramic camera and the lights and slit of the camera be synchronously moved over the sensitive surface, or the object and sensitive film may be moved, whilst the objective and light remain stationary; further, the slit may pass in front of the sensitive surface instead of the object. Dr. Eduard Mertens, 7, Kleistrasse, Charlottenburg, Berlin.

WE have received the current wholesale price-list of chemicals and photographic solutions of Messrs. Harrington Bros., 4, Oliver's Yard, City Road, London, E.C.

PHOTOGRAPHIC Beauty Spots.—A writer in the "Newcastle Chronicle" observes:—"I think the English Lakes the ideal photographic district in the country, and there is no more suitable time for a short sojourn in the land of the poets than Easter. Ambleside is about the best centre, as coaches run to all parts, and it lies in the heart of a choice photographic locality. For wilder and perhaps grander scenery the Borrowdale end of Derwentwater is very hard to beat. Patterdale on Ulleswater (the English Lucerne) is also noted far and wide. For those who cannot get so far away at Easter, there are many places within easy reach of Newcastle well famed as photographic districts. The North Tyne about Chollerford is certainly worth visiting. Brampton, with Naworth Castle, Lanercost Abbey, Tarn and woods in the immediate neighbourhood offers good opportunities for picture-making. A few days could be spent to good advantage at Barnard Castle, or the Tees Valley. To photographers gifted with a little superfluous energy and desirous of combining their hobby with a little walking exercise, I cannot recommend anything better than Blanchland. By raining to Shotley Bridge and walking across the moors to Blanchland (ten miles), and putting up at this very quaint old village for a few days, a capital holiday can be spent. The return journey should be done via Riding Mill, also a ten-miles' walk. I know from experience the above places to be suitable for photographic work."

A copy of the thirty-ninth volume of the "Homeland Handbooks" series has reached us from the publishers, The Homeland Association, Ltd., 22, Bride Lane, Fleet Street, E.C. Seaford and Newhaven is the district dealt with, and in a chatty, instructive way the beauties and places of interest in the locality are brought to the attention of the reader. This series of books is an admirable one for the photographic tourist to possess, and they are not dear at all, each.

New Society.—It has been decided to form a photographic society at Eccleshill, to be known as the Eccleshill and District Camera Club.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
21.....	Stirling and Dis. Photo. Club...	Exhibition Opens. Competitions:—Prints—Indoor Portraits, Outdoor Portraits, Bromide Prints Direct Enlargements, Mounting, Methods of Control, Pictorial Postcards; Decorative Photography; Slides—Architectural Detail, Agriculture, Clouds, Sea Shore, Still Life, Telephotography, any other subject, Natural History.
21.....	Aberdeen Photographic Assn....	Fourth Annual General Meeting. Some New Printing Processes. Demonstrated. Mr. A. Mackenzie. Beginners' Night.
25.....	Glasgow Southern Photo. Assn.	Westminster Abbey. Mr. H. W. Fincham.
25.....	Perthshire Soc. of Nat. Science	Photography 1904 Prize Slides.
26.....	Sefton Park Photo. Society.....	Exhibition Opens.
26.....	North Middlesex Photo. Soc.	Exhibition Opens.
26.....	Cricklewood Photo. Society.....	Annual Meeting.
26.....	Larktail Camera Club.....	
26.....	Barnhead Amateur Art Club ..	
26.....	G.E.R. Mechanics' Institution	

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the general committee was held at 51, Baker Street, W., on Friday, April 14. Present, Messrs. F. A. Bridge, E. C. Elliott, S. H. Fry, William Grove, H. E. Hall, M. Jacollette, A. Mackie, H. S. Mendelssohn, D. Prodder, E. Scamell, H. C. Spink (Brighton), Lang Sims, and Fellows Willson. Mr. E. C. Elliott in the chair. The hon. secretary was desired to express the regret of the meeting at the absence of Mr. Alfred Ellis through indisposition. A discussion took place on the desirability and best method to be adopted of notifying members of the proceedings of the committee, and the work being done by the association. It was pointed out that the report of the committee meetings, which THE BRITISH JOURNAL OF PHOTOGRAPHY was good enough to insert, was necessarily brief, and could not include many items which it was desirable that members should be acquainted with, but which, for obvious reasons, could not be published to the world. A suggestion was made of the issue to members of a quarterly circular, to contain, as well as full reports of meetings, particulars of cases and other matters likely to be interesting or instructive. Further consideration of the matter was deferred to the next meeting. Further discussion took place on the suggestion to institute associateships for assistants holding certificates. The general principle was agreed to that they should be granted the privileges enjoyed by members except the right to vote or otherwise take part in the management of the association. As the matter would entail an alteration of the rules, and would have to wait, therefore, for the annual general meeting, it was agreed to bring the matter up from time to time for the consideration of details. Attention was directed to letters which had appeared in the correspondence columns of THE BRITISH JOURNAL OF PHOTOGRAPHY respecting assistants' certificates, and the hon. secretary was desired to reply as occasion required. An application from the Artistic Copyright Society for the subscriptions of the three members representing the Association was deferred for information as to the work of that Society. Several letters from members, and other correspondence was dealt with, and routine business was transacted.

MANCHESTER AMATEUR PHOTOGRAPHIC SOCIETY.—The monthly meeting of this society on Tuesday last at the Manchester Athenæum was arranged as an exhibition of hand cameras and hand camera work. The President, Mr. S. L. Coulthurst, had got together an excellent collection of examples by many prominent hand camera workers, and enforced the display by a paper on the subject. His preference was for the old-fashioned box-form of camera, which, although clumsy-looking, yet for serious work was unrivalled, although its possibilities were not so great as the many elaborately

fitted folding instruments now in the market. A series of demonstrations, particularly intended for beginners, has been arranged to take place at the society's rooms during the summer season. One of the series was given on Saturday, the 8th inst., by Mr. T. Longworth Cooper on "Photography in the Studio," and was followed with great interest by a large audience.

STANLEY CAMERA CLUB.—A lecture and demonstration on the Watkins' system of time development was given before the members of this society on Tuesday of last week by Mr. W. Peacock.

BATH Y.M.C.A. CAMERA CLUB.—This club held an exhibition of members' work at the Jubilee Hall, Bath, last week. There were 350 exhibits in competition. Mr. Hellis Davies was the judge.

HILLSBRO' AND DISTRICT PHOTOGRAPHIC SOCIETY.—The annual social of the above society was held on Wednesday, April 12, in Wycliffe Hall, Channing Street, Sheffield. A very pleasant evening was spent.

COVENTRY PHOTOGRAPHIC CLUB.—The annual meeting of this club was held on Wednesday evening of last week. A very satisfactory report and balance-sheet were presented, and great satisfaction was expressed that the recent exhibition of members' work had proved successful, financially and otherwise. The following officers for the ensuing year were appointed: President, H. D. Waters; vice-presidents, E. F. Peirson, J. I. Bates, B.Sc., W. H. Clarke, and E. H. Cooke; hon. vice-presidents, H. Rotherham, A. Seymour, F. T. Mercer, and A. L. Bill; committee, A. W. Hoare, H. J. Goodwin, M. W. Danks, and W. Riley; treasurer, A. B. Clarke; secretary, W. H. McLauchlan; auditors, W. Nelson and W. R. Harris.

SHEFFIELD PHOTO COMPANY.—The fourth annual exhibition and conversazione promoted by this company was held at Cutlers' Hall, Sheffield, on April 12 and 13.

NEWCASTLE AND NORTHERN COUNTIES' PHOTOGRAPHIC ASSOCIATION.—"Photomicrography" was the subject of a lecture delivered to the members of this association on Tuesday last by Mr. T. L. Hughes at the Y.M.C.A. Buildings, Newcastle.

COATBRIDGE PHOTOGRAPHIC ASSOCIATION.—At the annual general meeting of this association, held in the Photographic Institute, Wood Street, Coatbridge, on Thursday of last week, satisfactory reports were presented by the Hon. Sec. and Hon. Treasurer, and the former (Mr. G. W. Campbell) stated that they could offer facilities for photography which no society outside of London could give. The office-bearers for the ensuing year were elected as follows:—Hon. President, Bailie George Neilson; President, Mr. J. B. Bell; Vice-President, Mr. John McGregor; Librarian, Mr. William Caldwell; Lanternist, Mr. Kelly; Treasurer, Mr. J. Leonard Evans; Secretary, Mr. George W. Campbell; Committee, Messrs. Peter Dawson, William Pettigrew, W. S. Wilson, S. H. Wood, R. H. Hobbs, T. King, William Wilson, Baxter, Learmonth, John Brown, and A. Hamilton; Auditors, Messrs. William M'Trusty and R. Cameron. In the Record and Survey Branch the office-bearers elected were:—President, Mr. J. C. Bishop; Curator, Mr. William Caldwell; Secretary, Mr. George Campbell; Committee, Messrs. S. H. Wood, M. Philip, John Martin, and J. B. Bell.

ULSTER AMATEUR PHOTOGRAPHIC SOCIETY.—The last meeting of the winter session of this society was held in the club rooms, The Museum, College Square North, on April 10. The "Photographic News" prize slides were shown, and a series of slides made by the Hon. Sec. (T. N. Murray) from negatives taken in the Irish Bronté district (vicinity of Banbridge and Loughbrickland, Co. Down) were also exhibited. Mr. Murray suggested that members of the U.A.P.S. might send in slides to form a set of Irish sub-

jects suitable to circulate through the photographic societies in Great Britain. The Watkins pinhole lens was then shown and described. The W.P. number marked on it is 6, and this multiplied by the focal distance gives the diaphragm value. Thus at 8 in. it would be F. 48, and if the exposure is calculated with this stop by the Bee or any other meter, and the calculated time is given in minutes instead of seconds, it will be right. It can be used for wide or narrow-angle views on the same size plate.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—At the annual general meeting of the above society Mr. J. T. French was elected President for the ensuing year. The Secretary's report showed that the society now consisted of 193 members, and several more were up for election. The financial condition of the society was a strong one, as after writing off some heavy expenses for screens, tables, etc., in connection with the 1904 exhibition the actual cash in hand amounted to £97. Excursions had been better attended than for some years previously, and the portfolio section was flourishing. The Secretary (Mr. H. Creighton Beckett) and the Committee are to be congratulated on the year's working.

HULL PHOTOGRAPHIC SOCIETY.—The twenty-second annual general meeting of this society was held in the society's rooms, Grey Street, Hull, on Thursday, April 8. The Secretary's report showed that not only had a very satisfactory year been passed, but that the financial condition of the society was quite sound. A good summer syllabus has been arranged. The officers for the ensuing year are as follows:—President, G. F. Bristow; Vice-Presidents, W. T. Parrish and Rev. C. D. Stewart; Treasurer, D. L. Cockcroft; Hon. Solicitor, R. E. Johnson; Hon. Lanternists, W. Dalton and T. Frazer; Hon. Editor and Librarian, W. Gilleard, 11, Clumber Street; Hon. Curator of Enlarging Apparatus, H. Strong; Hon. Secretary, A. E. Hindson, 104, Blenheim Street; Council, F. Atkins, son, Hewart Fraser, F. Woolions, J. T. Dyson, and R. Clark.

EXHIBITION AT CHESTER.—The Sheriff of Chester (Dr. Mann) opened on Thursday evening last the second annual exhibition of the Photographic Section of the Chester Society of Natural Science in the Art Room of the Grosvenor Museum, Chester.

CROYDON CAMERA CLUB.—Mr. Manly demonstrated the "Ozotype" process to the members of this club on April 12. In addition to developing several carbon prints of first-rate quality, Mr. Manly showed and explained the method of working "Gum Ozotype." This possesses the usual flexibility, together with a range of gradation, and capacity for rendering detail, far beyond what is usually seen.

ACTON PHOTOGRAPHIC SOCIETY.—On April 12 a demonstration of the carbon process by single and double transfer was given by Mr. H. G. Green to the members of this society. The president, Mr. H. E. Burn, in his concluding address of the session, gave an interesting sketch of the origin and progress of commercial photography. The first of the summer outings will take place early in May—to Uxbridge.

DUNDEE AND EAST OF SCOTLAND PHOTOGRAPHIC ASSOCIATION.—At the general meeting of this association, Mr. J. H. Williamson, Kirkcaldy, gave a demonstration of the Blake Smith iodine toning process. Among the prints used in the demonstration was a 15 by 12 print on Royal Bromide. This had been toned in a hypo-alum bath, but the colour not being satisfactory, a fresh bath had been made up, and the print left in it for a week, the bath being occasionally shaken up during that time. The print was found to have gone back to its original black colour. This print was then bleached at the meeting in the iodine solution, and passed direct into the sulphide bath, the result being a very fine brown colour. Mr. Macdougald, the president, exhibited some experiments he had made in a printing process, which was an adaptation of Woodburytype. He coated a glass plate

thickly with a solution of bichromated gelatine, which, when dry, was printed under a transparency. The plate was then placed in cold water, the result being that the parts unacted on by light began to swell up, thus giving an image in relief. While wet, a mixture of plaster of Paris and water is poured on the plate and spread over it with a camel-hair brush very gently to remove any air-bells which may have formed. When the cast had set, it was lifted off the gelatine relief, and others could be made. When the cast was dry, the face was dipped into melted beeswax, and then polished with oil. To make a print from the cast, a weak solution of gelatine and water was made, to which a little suitable colour from a tube of moist water-colour was added. This solution is melted and a little spread on a piece of paper, the plaster cast is then pressed on the inked paper, and left with a weight on it till the gelatinised ink has set. The first results were very promising, and should furnish a field for further experiments.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—On April 13, Mr. G. E. Rawlins demonstrated "The Oil Process" to a large number of the members. The flexibility of this process was shown by the demonstrator, who removed completely certain parts of the picture, and then as easily replaced the obliterated portions. This was done over and over again without leaving any traces. Prepared paper is now on the market, and can be obtained from Messrs. Elliott and Sons, Barnet; this paper, to be made ready for use, has merely to be dipped into a solution of one part of saturated solution of bichromate of potassium, with one part of water, and allowed to dry. This formula for sensitising the paper is the only "formula" in the entire process. Mr. Rawlins claimed for the process this, "That it allows a worker to stamp his own personality on the resulting prints to an extent which is impossible with any other process, not even excepting gum-bichromate."

Commercial & Legal Intelligence

At the offices of the Official Receiver for Leeds (Mr. John Bowling) yesterday a meeting was held of the creditors of Cecil Montague Stafford, residing at 5, Nassau Place, Leopold Street, Leeds, and carrying on business as a photographer under the style of Cawkwell and Stafford at 2, Commercial Street, Leeds. His liabilities were stated to be £634, and assets nil. The debtor attributed his failure to excessive price of businesses purchased and bad trade.

At the Birmingham Bankruptcy Court, last week, Marcus Bennett, formerly residing at 12, John Bright Street, Birmingham, appeared for his public examination. The statement of affairs filed by the debtor disclosed liabilities amounting to £160, and a deficiency of £135. The debtor had devoted himself to the business of a travelling photographer, visiting barracks and military depots.

A FOUR YEARS' OLD CLAIM.—At the Burton County Court on April 12, before his honour Judge Lindley, an action was brought by George Renwick, photographer, of Station Street, to recover the sum of £2 3s. from Arthur Holmes for a number of group photographs taken four years ago. It was contended in defence that the proofs submitted were unsatisfactory, and that orders had been given not to proceed. This was denied, but the judge said he did not think the completed order for 12 was given, and there would therefore be judgment for 10s., without costs.

At the Manchester County Court on Monday of last week an action was heard in which Messrs. E. Hulton and Co., Ltd., newspaper proprietors, sought to recover 10 guineas for breach of contract from the Palatine Press, Ltd., of Manchester. Two portraits

had appeared in one of the plaintiff's newspapers, and the zincograph blocks, from which they were printed, were afterwards sold to Mr. Brettelle, of the Palatine Press Co., on the understanding, so the plaintiffs alleged that they should not be reproduced without the permission of the photographer, who held the copyright. They were, however, reproduced in the defendants' paper, the "Stage and Field," without permission having been obtained, with the result that the photographer had obtained £10 from Messrs. Hulton for breach of contract in allowing someone else to reproduce them without his permission. The defendants stated that nothing was said to Mr. Brettelle about the necessity for obtaining the photographer's permission before making use of the blocks, and there was, therefore, no breach of contract. His Honour gave judgment for the plaintiffs for five guineas with costs.

A DEED of Assignment Sustained.—At the Manchester County Court on Friday last his Honor Judge Parry gave judgment in an application made by the Official Receiver at a sitting of the Court on April 5 for an order to set aside an assignment of property by Mr. Franz Baum, a Manchester photographer living at Bowden, to his wife. The application was dismissed with costs.

NEW COMPANIES.

CHESTER'S Agency, Limited.—Registered April 7, by Jordan and Sons, Limited, 120, Chancery Lane, W.C. Capital, £5,000 in £1 shares. Object, to take over the business of a variety and dramatic agent, photographic produce, and picture frame maker and dealer, etc., carried on by P. L. Cobé, at 13, Oxford Street, Manchester, as Chesters and Co. Registered office: 13, Oxford Street, Manchester.

PORTLAND Photographic Company, Ltd.—The above-named company has been registered with a capital of £1,000 in £1 shares. Object, to adopt an agreement for the acquisition of the business carried on by A. Coop and co-partners at 135, Regent Street, London, and to carry on the business of photographic artists in all its branches.

New styles in enlargements are set forth in a most attractive folder from Messrs. Elliott and Sons, Ltd., Barnet. The "Greuse" (bromide water-colour), the "Brunette" (toned bromide), the "Marquise" (carbon water-colour), and the "Velvetone" (finished bromide) are the distinctive names, and if the enlargements are only half as nicely turned out as the booklet describing them no photographer in the land should have cause to be ashamed of them. And we have confidence in Messrs. Elliott's consistency in such a matter. Their advertisement literature is in accord with their goods.

The prize camera for the current Austin-Edwards' Monthly Film Negative Competition has been awarded to Fred Cathery, St. Cecilia, Parkstone, Dorset, for his negative, "Study of Silver Birch and Grass."

LECTURE on Ely Cathedral.—Members of the Ipswich Camera Club, the Scientific, and the Archaeological Societies of Ipswich assembled at Ipswich Museum on Thursday evening of last week to hear a lecture by Mr. E. W. Harvey Piper, who has made the study of English cathedrals a main theme in his life, and has lectured upon them before many important societies in London and the provinces. The title of the lecture was "A Queenly Marshland Minster," and the beauties of Ely Cathedral were demonstrated in a masterly fashion.

"STAMP-PHOTO" Specialties.—Messrs. Sharp and Hitchmough have ready a new list of their varied accessories for the making and printing of photographs in stamp and midget sizes. They will send it free from 101 and 103, Dale Street, Liverpool.

Correspondence.

- * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE P.P.A. ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I must confess to being rather apathetic as regards the present arrangements, which seem to give for the fee merely a classified résumé of one's references.

Might I suggest that the various grades be sub-divided into first second, and third divisions and "honours," in addition to the extra first suggested by "Scot"? Also, I think there should be a "general assistant's" certificate, arranged for the convenience of both parties in advertising or applying for situations.

I give here a rough sketch of the idea as it struck me:—

ASSISTANT'S CERTIFICATE.

(Replies to questions now classified as "General.")

	Grade.	Division.
Operating—In studio	2	1
Operating—Out-door, etc.	2	2
Operating—Copying	2	2
Retouching	2	Honours.
Black and white	—	—
Printing in P.O.P.	1	3

etc., etc.

When advertising or replying to advertisements this method would supersede such expressions as "knowledge of retouching," which may mean anything or nothing, and tabulated forms might be supplied to assistants on which they could fill in the particulars of their certificates when applying for a berth. I beg to think this method would soon eliminate the "mere hangers on," and would save much time in wading through letters.

Still, until a practical examination is obtainable, I consider the fees too high. I enclose my card.—Yours faithfully,

ASSISTANT.

To the Editors.

Gentlemen,—May I plead the importance of the subject as an excuse for troubling you again?

Your correspondent "Compulsory Retired," who, as you suggest, does not express himself very lucidly, appears to have made a bullseye on a target he was not aiming at. If an unskilled labourer asks skilled bricklayer's wages, it is not likely he will get a job. The skilled bricklayer who is in want of a job, when he applies for one does not expect his mere statement to be taken that he is a skilled workman and not a labourer only, but produces credentials of some kind. It is to provide credentials of skill for the photographic assistant that the certificate system has been instituted. When an assistant is seeking a new situation he is asked, the first thing, for his references, and he has to produce them. The best of references cannot be better than our certificate, for that will embody all that his employers, present and past, can say in his favour, with the advantageous addition that an impartial body has investigated the claims made as far as they can, and has been convinced that they are substantial.

Perhaps this explanation of what a certificate means will satisfy "Pound-a-Week." May I put his question in another form and leave

it without further answer? Is any employer who considers ability rather than cheapness of labour likely to disregard the proof of ability which a certificate will afford?

Mr. J. Patterson seems to have overlooked the specification of the abilities, necessary or desirable, of candidates for the different grades, which are stated at length. It is not to be supposed that a good man is likely to be refused a certificate because he has had but little experience at some one or other of the details of photographic work enumerated. It is quite likely, for instance, that a good studio operator may never have made a "gaslight" print or have varnished a large negative, and yet be abundantly worthy of his certificate. His certificate simply will not state those, or whatever the particular items may be, among his qualifications. The examiners will judge of each candidate's capabilities in a broad-minded way. They will not expect a specialist's expertness at every branch of work pertaining to a photographic establishment, but they will expect expertness in some directions, and a general knowledge of most of the kinds of photographic work usually practised in the ordinary course of business.

We are not at all despondent of the success of the scheme because its aims have not been recognised by assistants at once. We shall be quite content to wait a few years for this recognition. Competent assistants will not fear the test, and will be gathered into our fold in a manner we are now providing.—I am, etc.,

WILLIAM GROVE, Hon. Secretary.

51, Baker Street, W.

April 17, 1905.

[See report of P.P.A. Committee meeting p. 313. —Eds., B. J. P.]

To the Editors.

Gentlemen,—With reference to Mr. Groves' statement concerning the probable alteration of the conditions of the P.P.A. assistants' certificates scheme, I regret that any change is not possible until the probationary year has passed.

He has been good enough to accept my criticism of the grading for operating assistants in the P.P.A. prospectus, and in doing so admits a weakness in its application and a failing in comprehensiveness that, in view of my previous letter, might bid fair to destroy a certain amount of the operative usefulness of the scheme. I can conceive, to some extent, the difficulties that are presented to his committee in formulating a prospectus that would apply even in broad terms to the organisation of a sadly disordered trade, but I beg to submit that unless such a scheme is, in general lines, satisfactory in comprehensive application, it must necessarily fall short of an essential standard of authoritativeness.

The first notice of the present scheme is now about two months old. There is rather less than ten months to run to the end of the trial, and, I am afraid, as matters stand, the apathy and silence that is complained of will continue in some degree until the time when some revision must take place. Meantime, it is difficult to say what may be done in remedy. Reforms come about slowly, and it would never do to try to cut and carve the P.P.A. duckling into a swan right away. Discussion would do a world of good, and the endeavour of the Association is worthy of every commendation and aid. The objects and issues of the scheme are plain and beneficial to employer and employee, and it is a pity that indifference or "dourness" has prevented the ventilation of views of master and servant alike from reaching print ere this.

In so far as we assistants are concerned, we should owe much to the Association for the step they have taken towards the solution of a great difficulty. If it is met in the right spirit, and with the support it deserves, conditions of labour in our trade would speedily fall in

line with those enjoyed in other industries. It could lead the way to the formation of an assistants' association harmonious in interests with the P.P.A. interest that would strengthen the hands of master and servant mutually, and be of great service to the trade as a trade. The possibilities within easy view are many, and all advantageous, but, even as matters stand, we have a scheme offered to us which would, were it once established and generally accepted, grade us into standards of efficiency that would give a self respect, and compel from employers a respect that could only lead to general betterment. Photography in all its latter-day applications is an important and steadily-growing art and industry, and its best interests are only served by co-operation and efficiency in the ranks of its followers.—

Yours faithfully,
April 17, 1905.

Scot.

To the Editors.

Gentlemen,—I have read your "leaders" and the correspondence on the P.P.A. certificate scheme with interest. When the draft appeared in the B.J. it seemed too vague to be taken seriously, which perhaps accounts for the lack of criticism the committee asked for. In the first place, one would think that a person who serves an apprenticeship over two years ought to be able to earn £1 a week in all conscience. His indentures would prove that without a First Grade certificate at all. Secondly, a man's character is almost as essential as his abilities, especially in a small place, and this fact the scheme cannot meet at all. Logically, an honest man does not ask for 30s. a week if he cannot earn it. Thirdly, what master would think of taking an operator under twenty-two, however good his character or abilities may be. Age seems a most important factor for or against "merit." I agree that "merit" is most essential; then why limit it to any fixed wage? "Scot" is right. There ought to be no limit. A man gains experience, his work improves, he expects more money; in other words, he does not jump from 30s. to £3—the process is gradual. I argue that these very elect "operators" are no cleverer in their sphere than we in ours—in fact, some of them were 25s. a week men once, but given apparatus and sitters whose very walk suggests a picture, they have risen to their present positions. Even we have "red-letter days" in our little lives. An angel face, perfect negatives, and a good order. What rot to limit art to a select few because others pay 30s. for midgets or something of that sort!

Leaving the scheme as it stands, may I briefly point out some omissions? There is no provision made for the man who works a studio quite alone! Would an operator's certificate (Second or Third Grade) include retouching—in fact, everything? Will female assistants be paid the same wage as males if their work merits it, for work which is looked upon more as belonging to men? Will employers be prepared to submit a fee corresponding to the one an assistant pays? Being mutual, they ought to. Will the "elect" accept the services of a person if his or her work merits it, although they may not have been apprenticed with, say, a member of the P.P.A. Committee? What difference will be made between a two, three, five, or seven years' apprenticeship? Will certificated assistants be preferred by the members of the P.P.A.?

I should like to see what other assistants think of the scheme! I thank you, Sirs, for the interest you are taking in the matter.—Yours faithfully,
R. RUSSELL.
Windsor.

To the Editors.

Gentlemen,—I have read with much interest the correspondence appearing during the past week or two in the B.J. respecting assistants' certificates, and the assurance given by Mr. Grove in your last issue regarding fees is, I think, a step in the right direction for

extending the popularity of the movement. It is hoped that now an official admission has been published that the Committee is open to consider and act upon suggestions from the assistants themselves, many assistants will come forward and express, through the columns of your valuable paper, their views on the subject.

I think that one of the objections to the certificates is the terms adopted for the description of the three different classes. These appear to be somewhat unfortunate. The construction I have heard put upon "First Grade," "Second Grade," and "Third Grade" has been "first-rate," "second-rate," and "third-rate"—a very natural conclusion to arrive at.

If the employer has not carefully studied the matter, or knows nothing of the P.P.A., the production of a "Third Grade" certificate is likely to be prejudicial and stamp the applicant as "third-rate."

That this is not really the case is, of course, obvious to anyone who has seen the qualifications necessary for obtaining the certificates, but unfortunately this knowledge is not so universal among photographers as it might be.

Call the certificates "A," "B," and "C," or "First Class," "High Grade," and "Special," or some other terms that will not upset the tender susceptibilities of the sensitive assistants, jealous of their own abilities, or mislead the employer, and another step in the right direction will have been accomplished.—Yours faithfully,

PEMBURY WARD.

Birmingham, April 15.

MAKERS' FORMULÆ.

To the Editors.

Gentlemen,—Probably the subject of this complaint is not new to your pages, but I cannot recall anything within recent years bearing on the subject, and I should like to have the opinions of others on the points that I now raise.

Let me first premise that Messrs. Hurter and Driffield adopted as their standard pyro soda developer, one which was very simple, and as this has been accepted by nearly all plate makers as a standard, why do they give in the working instructions for their plates such complicated formulæ as they do? For instance, we are told to make up a stock solution of pyro, which is not a 10 per cent. solution, and then dilute part of this with water and mix with the alkali. If I have not got this particular stock solution made up, I have to sit down with pencil and paper and calculate out, as well as I can, how many grains of pyro the plate maker thinks the best for his plates.

Some makers give "water to x oz.," others merely say "water, x oz.," and the result is hard thoughts, if not hard words. Let me take two formulæ, hypothetical ones, because I am attacking no one in particular:—

A	
Pyro	1 oz.
Sodium sulphite	4 oz.
Citric acid	50 gr.
Water to	10 oz.
B.	
Pyro	1 oz.
Sodium sulphite	4 oz.
Citric acid	30 gr.
Water	10 oz.

What is the total volume of B, and how many grains of pyro are contained in an ounce?

Is A a 10 per cent. solution, or is "pyro 1 oz." = 437.5 grains.

Why cannot makers give us a typical formula, such as the following?—"A developer suitable for these plates is one containing 3 grains of pyro to the ounce."

What is a 10 per cent. solution?

You sometimes give metric and English weights and measures together (see the B.J.A.); how do you get at the results given? Will you, or some one kindly tell me, and to bring things to a focus I will take a concrete example. Here is a particular formula, which, according to the International Congress of Photography, means that the total bulk must measure 1000 ccs. What is the translation if I want to make up a pint?

Hypo	400 g.
Sodium chloride	20 g.
Lead acetate	10 g.
Gold chloride (1 p. c. sol.)	100 ccs.
Water	1000 ccs.

I hope some one will answer me.—Yours faithfully,

ARTHUR PEAKE.

London, E.C

FERROTYPE SLOT-MACHINES.

To the Editors.

Gentlemen,—Having all kinds of automatic machines along the Reef, I wish to find out the makers of the automatic ferrotype machines to work with a coin; the machines should be of iron to stand the weather, and operate with a threepenny piece.

I should like to have the price of new or secondhand, the price of plates, and all details about the apparatus.—Yours faithfully,

VERNON G. HOOREY.

Opposite Railway Station,

Mayfair, Johannesburg, S.A.

March 27, 1905.

[Although automatic and semi-automatic ferrotype slot-machines are made, it is not within our knowledge that they are at present on the market.—Eds., B.J.P.]

THE INVENTOR OF GUM.

To the Editors.

Gentlemen,—I note in your last you raise the question once more as to my father inventing the gum bichromate process of printing direct on paper. It would, I fear, take up too much time and space to discuss that at length at this date. There is one fact that is rather stubborn, that though theories had been advanced, no proof was ever given of prints so produced until my father did them in 1858. In those early days, no sooner had any one an idea than he rushed off to the patent office to protect it, and Mr. Sutton at that date was inclined to think "that Poitevin patented an idea rather than a process he had actually tried and found to answer. Besides, his patent includes the experiment made by Mr. Mungo Ponton in 1838 with bichromate of potass. and Saxony blue." My personal impression is that both he and my father were working in this direction quite independently and unknown to the other—the one more in the direction of press printing, the other direct on paper. Let us recognise both as co-workers towards that end which permits us now to have photographs of our friends and copies of our great Masters in a form that is enduring. Both of them were recognised by the French Society, and received medals under the Duc de Luyne's prize commission. I do not wish to say a word to detract from the work M. Poitevin did in his special direction.

W. POUNCEY.

Dorchester, April 11, 1905.

[Mr. Pouncey also sends us extracts from correspondence proving that at the time of the 1898 Exhibition of the Royal Photographic Society at the Crystal Palace a reproduction of an oil painting by his late father's process was delivered by mistake to an exhibition of oil paintings also being held at the Palace, an accidental proof of the facsimile effects obtained by the process.—Eds., B.J.P.]

Answers to Correspondents.

- * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
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PHOTOGRAPHS REGISTERED :—

- R. C. E. Nissen, Tudor Chambers, Church Street, Pretoria, South Africa. Two Photographs of the Cullinan Diamond.
- W. H. Brison, 65, Thompson Street, Barry Dock, Glamorganshire. Photograph of the Post Office, Barry Dock.
- J. Dunsdale, 12, New Station Street, Leeds. Photograph entitled, "The Quickstep Train in Europe."
- G. Cross, 173, Lord Street, Southport. Two Photographs of the Southport Cleveley.
- C. J. Atkinson, Beech Mount, Marple, Cheshire. Photograph of the Rev. Reginald S. Adams, M.A., Vicar of Marple.
- E. R. Yerbury, 1, Hanover Street, Edinburgh. Photograph Study, "Springtime."

GELATINE AND SPIRIT.—In some experiments I have in hand I wish to treat a gelatine film with a strong spirit, but do not want it to penetrate the film, as it is necessary that it should not soak it. Is there any method by which I can prevent it?—A. R.

Gelatine is insoluble in alcohol, and will not absorb it, therefore there is no need to treat it in any way. The stronger the spirit—and we presume by this alcohol is meant—the less likely is it to be absorbed.

STRIPPING NEGATIVES.—I have some negatives and want to transfer the films to another glass. Would you kindly inform me how it can be done?—POSITIVE.

A very good method is that of Middleton and Holcroft described in "The Figures, Facts, and Formulae of Photography," as follows:—Stock Solution: Methylated spirit 25 oz.; water, 1 oz.; glycerine, 1 oz. Cut through film all round about $\frac{1}{8}$ in. from edge and set plate level. Pour on stock solution plus hydrofluoric acid—6 to 30 drops per oz. Spread with a bit of paper and remove strips when loose—i.e., in four to six minutes. Next see that main film is loose by running a white silk thread stretched on a cane bow underneath. The turn off solution and twice pour over plain stock solution (without acid). Coat glass plate with thin gum solution so as to get a film so thin as to show only on applying a moist finger to one corner. Apply a "paraffine sheet" (see below) to the negative, and squeegee lightly. Remove film and sheet together by inserting a knife under the former, and apply the gummed plate after flowing with stock solution. Lightly squeegee and remove the sheet. The "paraffine sheets" are made by soaking thin paper, not highly sized, in hot melted paraffine wax for half an hour or so; they are better than paper, as they do not buckle.

JAMES HORNER.—We believe the firm is no longer in existence. Any practical optician, such as Perken and Co., Hatton Garden, London, W., would do the job for you.

MARK MITCHELL AND CO.—Harold Hood and Co., St. Bride Works, Middlesborough, Percy Lund, Humphries and Co., The Country Press, Bradford, are two such firms.

POST-CARD FRAMES.—The Makers are J. and A. Wilkinson, 6, St. Oswald Street, London, W.C.

H. A.—We do not know of a firm which is likely to take up the business, you making the prints. Firms such as the Autotype Co. might consider the issue of prints made by themselves. The royalty on sales is a matter for arrangement.

ARTIFICIAL LIGHT.—I am about to open another photo. business, and the only shop that seems in a suitable position, and that will suit in other respects, has not any room for studio. There is, however, a good room, big enough for such. What I want to learn is: Would it be worth while having this room fitted up as a studio and using *artificial light only*, and if so, what light would you recommend? My work is of the "middle-class" quality. I should be glad of your advice on this, as I would sooner wait for another suitable place if I thought this would not answer satisfactorily. I might say I have used the electric light with fair results after daylight has gone.—**ARCADE.**

There are several good gas and magnesium lights, and, except for very large groups, it will not be necessary to pay a heavy price for a suitable installation. You will see announcements of apparatus in our advertisement pages. We think you will be wise to fit up with one or other of these lamps.

TRouble IN CARBON PRINTING.—In carbon printing I have been induced to purchase some of —'s tissue. Used in the same way as Autotype and Illingworth's, I get very different results. I sensitise myself, and, while with the three makes of tissue, sensitised, dried, printed, and developed, under exactly the same conditions. I obtain pure whites with Illingworth's and Autotype; with —'s I am always troubled with fogged whites, an effect equivalent to slightly tinting the paper before printing. Is this characteristic of —'s tissue, or does that make of tissue require a different sensitising formula? There being no printed instructions sent out with the tissue, I am puzzled as to the reason.—**SENLIN.**

We have used the foreign tissue named, and have not experienced the trouble mentioned, though it has been dealt with in precisely the same way as English tissues have been. We suspect that in the drying the tissue has been exposed to some noxious fumes, such as those from burning gas, for example. Under such conditions any make of tissue would suffer. Why not stick to the tissues you name, as you say you meet with no trouble with them?

STONE.—If you consult the advertisement pages of the B.J. you will see the names of one or two firms that do this work cheaply and well.

COPYRIGHT.—A friend of mine, an American residing in Boston, U.S.A., wants a photograph he has taken in America copyrighted here. How can he proceed? I presume that once the photograph is copyrighted here no one would be permitted to copy the same photograph if they received one from U.S.A.?—**BOSTON.**

Unless your friend is a British subject he cannot obtain copyright here. See the letter from the Copyright Union in our last issue.

FINNEY AND OTHERS.—In our next.

RETOUCHING AND OPERATING.—I am sending some samples of my work, and would be obliged to you for an opinion both on the retouching and the operating. The time I took to do the retouching I have marked. Could you also give me an idea of the salary such work would command?—**ESSEX.**

(1) Your retouching is fair only, and your work generally calls for much better modelling. The freckled faces are not near fine enough in the finishing, and you should double-work them if you cannot get better results on the one surface. Use a good retouching medium on the film; work out softly the main defects, and then varnish with a good hard negative varnish; when cool, again mediumise and retouch to a finish. You must look to the blending of your touches more, and try to get fineness without so much effort. The time taken on each sample sent is excessive. The large half-retouched face is about your best effort, but is too formal and hard in the touch, and the high lights should have been considerably increased. Follow the correct grain of the skin more, and do not retouch on the wrong slant. Three hours should have seen the whole face finished. (2) The operating, like the retouching, is fair only. One or two of the subjects would have been better had they received a longer exposure, they would then not have been so crude as they are. (3) Your work as operator and retoucher should command about 35s. to £2 per week, but it is always difficult to estimate probable wages. What a man wants and what he may get depends greatly upon where he applies and his own personality.

RETOUCHING.—I should be glad if you would criticise my retouching, and state what I ought to receive for my work (done at home). I enclose five photographs.—**A. T. M.**

(1) Your retouching is of the very poorest quality, and is not properly smoothed over, without taking into account an utter want of modelling and gradation of tones. With regard to the preservation of the likeness, it is impossible for us to judge, inasmuch that no proofs before retouching are sent. You are evidently a beginner, or of very short experience, and your work is of little commercial value—except to those as inexperienced as yourself. We are apparently cruel only to be kind, and strongly advise you to at once take lessons from an expert teacher of retouching, under whose guidance you might in a few months entirely reverse our verdict upon your work. Our advertisement columns usually name several teachers of this art. (2) Working at home you may get orders from local amateurs, and even professionals, at low rates, but you should certainly aim higher before expecting or deserving success.

ENLARGING.—(1) From quarter-plate negatives I want to make rough-and-ready enlargements on drawing paper 24 by 20 in. for the purpose of finishing in water colours. I want the enlargement simply as a sketch and guide for the painting; and I desire to know of the best and easiest method of preparing surface of paper for producing such a sketch apart from the gelatine-bromide process. Kindly observe that I require neither fine results nor the greatest rapidity, as the enlargement is only a means to an end, and I can always use good daylight for the work. I believe enlargements on paper were made before the introduction of the present rapid trade bromide, etc., paper. Will you kindly give me particulars of that ancient process, which our forefathers seem to have been able to carry through from beginning to end in their own home. Perhaps it would prove satisfactory for my purpose mentioned above.—**FRED.**

The old calotype process should suit our querist, and the following is a brief synopsis of it: Immerse paper in the following for one hour: potassium iodide, 1,000gr.; potassium bromide, 300 gr.; distilled water, 40 oz.; add enough iodine to give a dark claret colour. When the sheets are dry, sensi-

tise by floating on silver nitrate $2\frac{1}{2}$ oz., glacial acetic acid $2\frac{1}{2}$ oz., distilled water 40 oz., until the surface is pure yellow, then allow to remain for one minute, lift, and immerse for three minutes in distilled water, and dry. After exposure, develop with: gallic acid 200 gr., distilled water 40 oz., to every 5 oz. of which is added: nitrate of silver 30 gr., glacial acetic acid $\frac{3}{4}$ dr., distilled water 1 oz., then well wash and fix.

NATURAL COLOUR PHOTOGRAPHY.—Can you please tell me of any works on "Natural Colour Photography" and the publishers?
—J. C. R.

The following is a list of the books, placed in order of merit:—"Three-Colour Photography," by von Hübl, published by Penrose and Co., price 7s. 6d.; "Photography in Colours," by Bolas, Tallent and Senior, Marion and Co., 5s.; "Colour Photography," Photo-Miniature series, Dawbarn and Ward, 6d.; "Colour Photography," A. E. Smith, Hazell, Watson, and Viney, 1s.

SENSITISING POST-CARDS.—Could you give me instructions, or refer me to any book, for method of sensitising post-cards with glossy surface preferred?—H. WILLIAMS.

Formulae for gelatino-chloride emulsions will be found in the "British Journal Almanac" for any year during the last ten, and any of these may be used. It would be as well to point out that unless the cards are bought in the sheet the labour involved in coating each one separately, and the chance of spoils, is enormous. Further, unless the cards are made of good stuff they will spoil any sensitising solution. Considering the price that these can be obtained wholesale it is not worth while to prepare them at home, and it certainly is not cheaper.

CARBON TISSUE.—(a) Would you please inform me if it is possible to get a formulae for making carbon tissue. I am doing a little experimenting, and am anxious to make a little tissue. (b) Is it possible to prevent a carbon print from peeling when exposed to heat?—C. D.

(a) Full instructions will be found in "A Practical Guide to Photographic and Photomechanical Printing Processes," published by Marion and Co., price 4s. (b) We do not quite understand from what the print peels; if the surface to which it is applied has been properly prepared by a chrome-gelatine substratum it will not strip.

RESIDUES.—Would you kindly say if the usual iron solution, as used for precipitating the gold in ordinary spent toning baths, is equally efficacious in a combined bath, where prints have received no washing previous to immersion?—BRIDGE.

Yes, but a good deal of other matter, carbonate and sulphide of iron, is thrown down; the precipitate must be digested in aqua-regia, and the gold, in the resulting diluted and slightly acid solution, again precipitated by ferrous sulphate.

MANCHESTER MAN.—Search can be made at Stationers' Hall (Ludgate Hill, London, E.C.) on payment of a small fee.

BOOK ON INTENSIFICATION.—Is there any book devoted entirely to the intensification and reduction of the negative? If so, will you please give me name and price?—L. B.

"Finishing the Negative," published by Messrs. Dawbarn and Ward, price 2s. 6d.

LAINER'S REDUCER.—Have you ever heard of a reducer of this name? I do not find it mentioned in any of the text books; but a

customer has asked me to make it up for him, so I shall be glad if you can tell me of what it is made, and the formula.—LANCASTER.

Hypo solution (1 in 4), 20 ounces; potass iodide, 90 grains. The solution acts extremely slowly, so slowly as to render it of very little practical use. You had better tell your client to use very weak Farmer's reducer.

STAIN REMOVER.—I read some time ago, but where I cannot recollect, that hypochlorite of soda is a good chemical to use for taking the stain out of a negative. Can you tell me where I can get this chemical, as my chemist is not able to supply it?—MARCHANT.

You had best prepare a solution of the hypochlorite yourself from bleaching powder, as the hypochlorite itself does not keep at all well. Shake up one part of bleaching powder with $1\frac{1}{2}$ parts of soda carbonate cryst., previously dissolved in water, and, after a little time, filter. Shake up again with a little water, and again filter. Repeat a third time, and you will now have a fairly strong solution of sodium hypochlorite. It should be alkaline. If it is made acid with a drop or two of hydrochloric acid, it is a still more active anti-stain, but it is then very liable to remove the silver image also.

SURVEY and Record of Surrey.—The Report of the Council of the Photographic Survey and Record of Surrey has been sent us, and, as already mentioned in our note on the annual meeting, presided over by Viscount Midleton, a satisfactory result for the past year is shown. A total of 1,272 prints have been received up to date. The architectural prints number 455, of which 367 represent churches and church monuments. Excluding the Metropolitan area and the more populous districts of Surrey, the portion of the county to the east of Reigate may be said to have been thoroughly surveyed as regards its churches. It is remarkable, considering the number of workers in the town, that the survey and record of Croydon is far from complete.

PRESENTATION to a Photographer.—At Clarence House, Hereford, on Wednesday evening, April 12, Mr. A. R. Osborne, who is leaving Hereford, was made the recipient of a handsome present from the members of the Herefordshire Photographic Society as a slight recognition of the many valuable services rendered by him to the society and of the great esteem in which he is held personally. The gift consisted of a combination French cylinder clock, barometer, thermometer, and compass, on a stand, with glass cover. Mr. Osborne is going to manage a photographic depot for Mr. Ralph Cuthbert at Huddersfield.

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EX CATHEDRA.

The Amateur Question again. The perennial query as to what constitutes an amateur photographer or rather, by what means does he relinquish a right to that appellation, has been exercising the minds of the committee of the recent Art and Industry Exhibition at Eastbourne. It appears that a well-known local amateur photographer, and a Town Councillor to boot, was disqualified in the amateur section of the exhibition on the ground that he was a professional, because he had received fees for the reproduction of some of his photographs in the illustrated press. Apart from the fact that the Town Councillor would have been very stupid if he had not received fees for his pictures, we wonder what the effect would be of this decision on the part of the committee was made in arbitrary law at all exhibitions. What a flutter among the gentle amateurs of England it would cause, to be sure. How many proficient amateur photographers are there in this country who have not at one time or another sent a print or two to an illustrated paper and pocketed the resultant half-guineas without a qualm? Not a great number we venture to think, and by amateur we mean the individual who regards photography as a hobby, not as a business.

Copyright in South Africa. Our South African colonies stand in particular need of definite legislation as to copyright, for, obscure as artistic copyright law is in many parts of the Empire, in South Africa its character has been nebulous up to the point of invisibility, and for practical purposes no protection could be obtained. However, a Bill is to be brought before the Cape Parliament this session, in which copyright in "works of art" is to be dealt with, "works of

art" including photographs. The chief provision of the Bill appears to be that the duration of copyright in photographs is thirty years after the end of the year in which they or any copies may have been first offered for sale or otherwise exposed or advertised as purchasable by the public. To paintings and sculpture it is proposed to grant copyright for the lifetime of the author and thirty years after his death. Another provision is that when a work of art is sold the copyright becomes the purchaser's, unless it is expressly reserved in writing to the author or vendor. We do not know whether the proposed Bill is put forward as applying to the whole of British South Africa, but it is to be hoped that it is, for the present doubt and confusion should then be removed. Cape Colony, it would seem, can obtain no protection for artistic works from the Copyright Act (South African) of 1873, though designs can obtain copyright, under an Act of 1894, for five years from registration. There is, or was, no copyright law in the Orange River Colony, and in the Transvaal the Act of 1887 is cumbrous and costly, as a correspondent pointed out in our columns some few weeks ago.

Lines of Drapery.

One of the difficulties we have often noticed in handling portraits of ladies —three-quarter and full lengths more particularly—is the breaking of many of the flowing lines of draperies by the arm of a chair or the end of a settee. Of course, the fashion in skirts largely affects this matter, it being much easier to get good, flowing curves with a full than with a tight skirt. After a few years' experience in the studio, too, the operator knows pretty well the sort of chair to select; but a capital plan is to get the sitter to sit on the edge of the chair or other seat as much as possible. By this means the lines are not nearly so broken and in very few cases, if the thing is done properly, is it in the slightest degree apparent that such a dodge has been resorted to. Another point of advantage is that with stuffed-over furniture, the centre of the seat is so sprung and stuffed that it is a good deal lower than the edge when being sat upon. This tends to make the figure appear dumpy, and the dumpiness is accentuated by the broken curves of the dress. The sitter may not feel quite so comfortable as if sitting well into the chair, but we believe the final effect will amply compensate for any little disadvantage of this kind.

Dr. Hartmann's Method of Lens Testing. Mr. S. D. Chalmers' paper, which appears on another page, will, doubtless, receive much attention from all interested in optics. His description of the manner of applying the Hartmann method for the purpose of accurately determining and critically measuring the aberration of a lens requires no amplification, but it may

be useful to point out that this system of testing also affords an invaluable means of studying the aberrations. With a simple reading lens fitted with a few cardboard discs perforated in zones and radii, and the aid of a small source of light, the structure of an aberrated light-pencil can be studied, and, what is much more, *understood*, with facility. An hour's work with this simple outfit will teach the student more about the structure of a light-pencil than many hours spent over text-books, with their wholly inadequate diagrams, and too often imperfect, and even incorrect, explanations. The image projected may be received on a card, and, if each point is carefully recorded and perforated, the card and its corresponding disc may afterwards be mounted in the proper relative positions and the corresponding perforations connected by threads. The result is a permanent model, and from personal knowledge we can say that such practice may be of the utmost value to students. It will be remembered that a model constructed in this way was shown by Prof. Sylvanus Thompson in his Traill Taylor Memorial Lecture of 1902. The system of demonstration adopted by him was practically the Hartmann method on a big scale.

* * *

Dr. Zschohke's Method.

The second method of testing described by Mr. Chalmers, and introduced by Dr. Zschohke in 1896, is also an interesting one. It may fairly be described as a method analogous to that introduced by M. Baille-Lemaire in 1892. In the earlier method, an inclined plane object-diagram is photographed on a normally situated plate; in the later one a normally situated diagram is photographed on an inclined plate. The arrangement in the earlier method conforms more closely to the usual disposition of subject and plate, but it appears to have been superseded by the Zschohke method, probably because with the latter it is easier to trace the lines and curves of equal definition. A comparative study of the two methods should be interesting. Both have the defect of recording the behaviour of the lens upon an object at a nearer distance than that at which the lens will usually be required to work, but the Hartmann method is, of course, free from this defect.

* * *

Poisoning by Cyanide of Potassium.

It is not often at the present time that we hear of poisoning by cyanide of potassium, but three deaths from it have occurred within the past few weeks. Last week an inquest was held on the body of a lady of title who had, during temporary insanity, swallowed some of the poison. The husband, in his evidence at the inquest, said that he had bought the cyanide quite thirty years ago for photographic purposes, and the bottle had never been opened, but the lady knew of its poisonous nature. It had always been kept in a locked-up cupboard, but on this occasion the key had inadvertently been left in the lock, and provided the disastrous opportunity. In the days of the wet collodion process, when cyanide of potassium was the almost universal fixing agent, poisoning by it not infrequently happened, either by accident or design. Of late years, when death has occurred from this salt it has generally been obtained in connection with electro-plating, gilding, or metallurgy, in which work it is largely employed. It may be remembered that the man Sarti, charged with receiving stolen ingots of silver, poisoned himself with cyanide of potassium, as did also Whitaker Wright after his conviction. Unfortunately, for this poison no successful antidote is known; probably the best thing, if administered at once, would be a salt of iron. But the action of the poison, like that of hydrocyanic acid, is so rapid, especially if swallowed on an empty stomach, that

no antidote, unless it were administered immediately, we fear, would be of any avail. An iron salt would combine with the cyanide, and forming a possibly inert insoluble cyanide of iron; but to be of real use, as we have just said, an antidote must be taken immediately after the poison is swallowed.

* * *

Expression in Portraits.

The question as to whether a long or a short exposure is better for the securing of characteristic expression is one which has often been discussed, and it is perhaps inevitable that no definite decision has been arrived at, either for general use, or for the constant practice of any individual worker. The fact, of course, is that each sitter requires individual and sympathetic handling, and sympathetic handling means in some cases a very brief exposure of which the sitter is unaware, and in others the more prolonged exposure which produces a blending of several slightly varying expressions. With restless children, and with very animated sitters of larger growth, the contrast between the usual state of conversational animation and the collapse to "flatness" when asked to "keep still" for the exposure, is so great, that no method is really practical, except a rapid plate and the silent shutter inside the camera. We are inclined to think, however, that more phlegmatic sitters, whose expression is fairly equable, are better photographed with the longer exposures. Any very marked or distinct expression is unusual, and this is what is most likely to be obtained with a rapid exposure, particularly if a thoughtless operator endeavours to "brighten up" such a sitter with some of the infelicitous remarks sometimes used.

* * *

More Picturesque Spots on the Thames Threatened.

One by one the beauty spots on the Thames, of which there are none too many, are threatened with extinction. Most who are familiar with the picturesque little islands at Kingston, known as Stevens' Aits, will regret to learn that the stream, for want of proper care, is gradually washing them away. The Kingston Corporation, it appears, has written to the Thames Conservancy offering to take the sole responsibility for the future condition of the Aits if the latter would contribute one-half the expense of camp-shedding them. The cold reply of the Conservancy is that it is prepared to give a twenty-one years' lease to the Corporation, at a nominal rent of one pound per annum, on condition that it protects the islands at its own expense, and preserves them for the free use of the public as heretofore. To this the Kingston Corporation demurs, in face of the fact that the Aits are more largely used by strangers than they are by the residents of Kingston. Therefore, it considers that the Conservancy's terms are unreasonable, and it is very doubtful if they will be accepted. The deadlock is a matter for regret by every lover of the Thames, and, meanwhile, for every month the settlement stands in abeyance, the islands are steadily being removed.

In a recent criticism on an exhibition of miniatures, the "Times" says: "'Killed by collodion' was all that could be said for a good many years of the art of miniature painting in England. Not that miniature painters ever wholly ceased out of the land, but when the public came to prefer the apparently infallible results, and the prices, of photography, the descendants of Cooper and Cosway found their occupation practically gone. It is to be feared, too, that in their struggles for life some of them actually enlisted the services of photography, an insidious handmaid, and incurred the suspicion that their work was not much better, after all, than a coloured photograph."

PRINTING PROCESSES. — I.

PLAIN OR SALTED PAPER.

WITHOUT entering into historical details, it may be pointed out that this is the oldest of all printing-out processes, and, though it has fallen into considerable disuse, it is still looked upon with favour by many, and deserves more attention from the ever-increasing army of those who prefer matt or plain surfaces. It possesses, too, this feature, that one can sensitise almost any paper, thick or thin, smooth, rough, or extra rough nor is there any difficulty, provided ordinary care and cleanliness be observed.

There is, however, one point which should not be overlooked, and that is that plain paper is not suitable for every kind of negative; a thin, flat negative gives nothing but a flat sunken-in print, whilst a harsh negative causes the shadows to block up too much; this not being the case, or so apparent, when a paper with a glaze, such as albumen, P.O.P., or collodio-chloride is used. On the other hand, as the paper is prepared at home, considerable modification may be obtained by variation of the salting solution, as will be seen later. Another advantage which plain paper possesses is that it so readily gives the sepia and warm blacks, which are at the present time so much in favour for large prints.

As regards the choice of paper, the surface will naturally determine this to some extent, but it is important to obtain paper that is free from wood-pulp, as this very quickly yellows on exposure to light. For smooth surfaces, the well-known raw papers of Rives and Saxe may be used, and for the rougher surfaces any good drawing paper; as most of the drawing papers are gelatine-sized, it is important that they should not be kept long after sensitising and before printing, as otherwise the free silver nitrate can be partially decomposed, and a permanent yellowness be the result. Some years ago one well-known worker used to invariably soak such paper in successive baths of hot water till the whole of the size was removed, and then resize; this, however, is hardly necessary if the paper is used soon after sensitising.

Whilst the beauty of a salted paper print lies in the absence of glaze, it is essential that the image should be kept as much as possible on the surface of the paper, and therefore a size is generally used; but if a preliminary test is made with a small piece of paper, and the image is found to lie sufficiently on the surface, the sizing may be omitted. As, however, the use of a size does not impart a gloss, and keeps the image on the surface, it is as well to always use one.

Gelatine has been frequently recommended, but it will not give the best results if platinum is used for toning, as it nearly always has a yellowing effect. Of course, if toned papers are used, this is not of much moment.

The best substances for sizing are undoubtedly arrowroot and agar-agar. The latter is not so easy of application as the former, but is preferable for extremely rough and absorbent papers, as it remains absolutely on the surface. Taking all things into consideration, arrowroot is to be preferred, though an excellent size is to be made with a mixture of albumen and arrowroot, as suggested by Baron von Hübl, and such paper has a somewhat greater latitude in the character of negative required than a plain arrowroot paper.

It has often been suggested that the paper should be floated on the sizing and sensitising solutions, but we consider it far preferable, though possibly a little more trouble, to use the brushing-on method, and it is this which we shall proceed to describe.

The actual material required, beyond the chemicals, is small. A drawing board or sheet of plate glass of convenient size, two brushes for sizing, and two for sensitising, a wooden clip or two, and the outfit is complete, except, of course, the ordinary dark-room appliances, measures, etc. First as regards the brushes. Two should be long-haired, flat sable brushes, the hairs at least one and a half inches long and not bound with metal. Two may be short-haired, stiffer brushes, round, and about one inch in length. Hog-hair stippling brushes are useful. One of each must be kept for sizing and for silvering and those for the latter work should be immediately after use well washed in very weak ammonia water and afterwards in clean water till they are absolutely clean.

In order to keep the paper flat, a drawing-board may be used, and the paper pinned down to it; but there is one danger in this method and that is the metal of the pins may cause marks if accidentally touched with the silver solution. To prevent this is fairly easy; all that one requires is the lid of a small pill-box, place this face downwards on the paper and drive the drawing-pin through the middle; the edge of the lid absolutely prevents any actual contact with the pin. Another objection to the use of the board is that it is impossible to size and sensitise right up to the edge evenly without touching the board, and this may cause stains on the back of the paper in subsequent use. Then, again, when the paper is wetted, it at once begins to cockle, and unless stretched, there is a chance of unequal application of the solutions. The remedies are obvious. First, cut the paper larger than is required, and sacrifice half an inch all round; and secondly, as soon as the paper is damp, remove the pins from two opposite corners and again strain the paper and again fasten down.

Another very good plan to keep the paper flat is to use plate glass, and to cut the paper an inch or two longer and wider than the sheet of glass and pin it down at one end, slip the glass underneath and then strain it down and pin down at the other end. One thus has a raised surface to work on, and after damping, the paper can be readily strained taut by lifting one end and pulling.

The actual size is most conveniently combined with the salting solution, but before we proceed to give actual working formulæ, it may be as well to point out that modification of results may be obtained by variation of the salting solution. It is customary to use not only silver chloride, but also an organic salt of silver, and the most convenient is the citrate. The use of the latter lowers the sensitiveness of the paper, and also, within certain limits, affects the gradation, but the most important point is the amount of the chloride used. If but little chloride is used, it is impossible to obtain rich juicy shadows, and the lower the proportion of chloride to the surface, not to the citrate, the weaker and flatter the print, and obviously vice versâ. Then if to the above-named salts we add silver chromate, we can, by increasing this, so shorten the scale of gradation as to obtain a brilliant print from even the flattest and thinnest negative. It is, of course, impossible to give exact formulæ for every class of negative, but our experience is that with the average gelatine negative of the present day, the addition of silver chromate is always advisable, if rich prints are required.

The next point we have to consider is the amount of chloride to be used, assuming that a sheet of paper of 480 square inches, that is, 20 by 24, is to be sensitised. We shall roughly require half an ounce, or 240 minims, for the area, and assuming that arrowroot is used, the correct amount of chloride is about 8 grains, or practically a 3 per cent. solution. The amount of citrate should never be

more than one-fourth to one-third of this. The amount of arrowroot may be 4 or 5 per cent., so that our sizing and salting solution will have the following composition:—

Arrowroot	384 grains	40 grammes
Ammonium chloride ...	288	30
Citric acid	30	3
Sodium carbonate ...	60	6
Water to	20 ounces	1,000 ccs.

To make this, the proper way is to rub the arrowroot up into a fine cream with about 3 ounces of water, bring 12 ounces of water to the boil and gradually pour the arrowroot cream into the boiling water stirring continuously, and then boil for ten minutes, stirring all the time; dissolve the salts in the remaining 5 ounces of water and add to the arrowroot paste, allow to cool, filtering whilst warm if necessary, though this should not be required if the above instructions are properly carried out. Then measure out the quantity required for the area of paper, which can be easily calculated from what has been said above, and pour the solution on to the middle of the paper. Spread quickly

over the surface with the flat brush, passing this to and fro lengthwise, then up and down. Now abandon this brush, take up the round one, and with small circular strokes even the size all over, working with overlapping strokes, till the whole surface of the paper is covered. Continue this process until the paper begins to appear surface dry when it may be hung up by means of wooden clips to dry. This is practically the method of working with all the sizes, and although it may seem difficult at first, it is actually more formidable in the reading than in the performance.

With regard to the above formula, it will be noted that we have suggested that citric acid and carbonate of soda be used. Naturally the actual sodium citrate may be obtained, or potassium citrate used instead, but we have preferred to recommend the above because we have assumed that citric acid and soda are in everyone's dark-room, and further that the two citrates are so deliquescent as to be a trouble to keep.

In our next article we shall proceed to consider the other sizing solutions, the silvering, and operations subsequent to printing.

PAPERS ON PRACTICAL PHOTOGRAPHIC OPTICS.

I.

The following article on "Focussing Scales and Depths of Field," by J. H. Taylor, is the first of a short series by different writers, who will concern themselves with certain practical questions which interest the user of a lens. Subjects of the further articles are:—"Lens Calculations Without Arithmetic," by A. Lockett; "Discs of Confusion, and Distances Beyond which all Objects are in Focus," by the Rev. T. Perkins, M.A.; and "The Speed of Telephoto Lenses when Employed on Near Objects," by Chas. Louis Hett.—Eps.

PROBABLY most hand-cameras are not provided with a ground-glass focussing screen, and have to be focussed by means of a scale and pointer, and frequently when our tour with such a camera I have wanted to know several particulars which could only be known by calculation. For instance—How much of some view will be in good focus with a certain stop? or, again, if the weather is dull, as I expose by hand without using a tripod, I want to know the largest stop which will give fine detail over the desired area. Again, I often wish a moderate diffusion of focus for the unimportant objects, while keeping the principal object sharp, but, as I object to excessive fuzziness, I want to know what stop will give the required slight diffusion. The Cornex Index largely meets these requirements, though the divisions on it are somewhat minute. Messrs. Welborne Piper and Bolas have suggested a magnified scale and have designed a sort of circular meter for the same purpose on which the consecutive depths of field are marked. The idea is a most excellent one, the only objection being that a separate meter is required for each lens. This objection, of course, cannot be quite overcome, but the diagram which I have designed and append is so compact that all the information required can be obtained from it almost at a glance for any lens and any stop ever used in hand-cameras, and by a simple process of proportionate interpolation for other lenses not given in the diagram.

A Focussing Indicator.

This diagram replaces long and elaborate tables of consecutive depths of field, on which of course it has been founded. It is drawn accurately to scale, and consists of two parts—first, the scales of distances at their proper intervals apart for each lens, and secondly the indicator on which the stop

numbers are marked: To use it the indicator should be cut out along the dotted lines or else carefully traced; its upper edge should then be placed along the line of the scale belonging to the particular lens in use, and the arrow pointed to any distance marked on the scale; then the stop numbers on each side of the arrow point to the extreme distances between which all is in focus, allowing 1-100th of an inch for diffusion of disc. Examples will make this more clear. Suppose we are using a lens of 6 in. equivalent focus, and the principal object on which we sharply focus is 12 ft. distant; we require to know how much beyond and how much nearer will be in good focus if we use F.11.3 stop. We therefore place the arrow to 12 on the scale for a 6 in. lens and find that the F.11 marks on the indicator point to about 8½ and 22. This means that by focussing on 12 ft. all objects will be in focus from about 8 to 22 ft., using F.11.3 stop. If we had used F.4, only objects from 10 to 14 ft. would be in focus, while with F.32 all would be in focus from 5½ ft. to infinity.

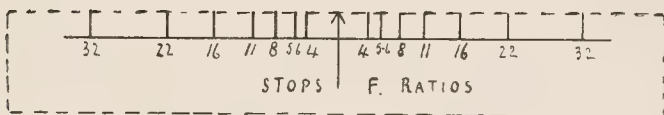
In Practical Work.

Again: suppose we are working with a 5½ in. lens and wish to photograph a group, the nearest of which is 10 ft. away and the furthest 30 ft., what stop must be used to get both extremes in focus, and on what distance must we focus, it being understood that we want to give as rapid an exposure as possible. Now it would not be correct to focus on 20 ft., that is, halfway between 10 and 30, for if we did so, and used F.8, we should find on developing that the near person was out of focus though the person at 30 ft. was in good focus. This follows from the fact that the far depth of field is always greater than the near depth; in other words, sharpness of focus extends much further beyond the point focussed than it does on the near side. If now we use the diagram and place the arrow so that it points halfway between 10 and 30 on the scale for a 5½ in. lens, we shall find it pointing to about 15 ft., which may be called the optical mean between 10 and 30, and which is the point on which we must sharply focus. We shall also see that 10 and 30 are not well included between the two F.8 marks, so that F.8 cannot be used; whereas the two F.11 marks do include 10 and 30, showing that F.11 is the largest stop that will give all the group in good focus.

DEPTH OF FIELD SCALES



INDICATOR



COPYRIGHT.

(Cut out Indicator along dotted lines.)

To Control Diffusion.

A final example will show how the scales can be used to get artistic results with the hand-camera. We wish to have a figure at 20 ft. distance sharply focussed, but for some bushes only 12 ft. away we want a slight diffusion of focus, sufficient not to attract attention from the figure, but not so much as to be utterly blurred. What stop of our 6 in. lens must we use? On applying the indicator arrow to the 20 ft. mark, we find that the F.11 marks include 12 ft., so that if we use F.11 the bushes at 12 ft. will be sharply defined. On the other hand, the F.4 marks fail by a long way to include 12 ft., so that with F.4 the bushes would be unpleasantly blurred. The F.8 marks, however, only just fail to include the 12 ft., and thus by using F.8 we shall get the desired slight diffusion of focus for the bushes.

A Scale for any Lens

Incidentally it may be mentioned that the form of scale as given has the advantage that, by ruling lines at proportionate distances from those given, we can quickly get a scale for other lenses, e.g., required a scale for a lens of $5\frac{1}{2}$ in. focus; rule a line parallel to and half way between the lines for 5 in. and $5\frac{1}{2}$ in. lenses; draw cross lines connecting the respective feet marks, and where these cut the new line, mark in the distances. This is much shorter than calculating out the consecutive depths of field for each lens and each stop, and is quite accurate enough for all practical purposes.

For general use, the diagram in the form given is sufficiently convenient as it can be copied to scale and then easily carried in a pocket book; but for those who desire a circular-revolving form, I have devised one which shows readily the depth of field for lenses of from $4\frac{1}{2}$ in. to 9 in. focus. J. H. TAYLOR.

SCOTTISH NATIONAL PHOTOGRAPHIC SALON.—The forthcoming Third Annual Scottish Photographic Salon will be held in Dundee, the previous exhibitions having taken place in Perth and Glasgow respectively. Since the institution of the Federation in the beginning of 1903 great strides have been made in adding to the strength of the forward movement, and now some thirty-six societies have joined hands for mutual support and encouragement. The Salon is the outcome of

this combination of interests, and arrangements for the meeting of 1906 are already being made. The Committee have secured the Victoria Art Galleries in Dundee for the hanging of a representative collection of Scotland's photographic work of the year. The opening date has been fixed for Saturday, January 13, 1906. Scottish workers everywhere please note. Mr. V. C. Baird, Broughty Ferry, is Hon. Secretary, to whom all communications should be addressed.

FINISHING ENLARGEMENTS IN COLOURED PASTELS.

Of all the methods of finishing enlargements, perhaps the one about to be described is the most neglected. And yet, holding as it does an intermediate position between finishing in water-colour and oils, it has much of the delicacy of the former combined with the solidity of the latter, resembling very closely work done in flatted oils. Moreover, with it, it is not only possible to give the correct tint of human flesh, but also to obtain an ideal representation of it. Undoubtedly, the reputation of pictures in coloured pastel has been damaged by their being done in vivid inartistic colours, owing either to the proper pastels not being at hand, or to the poor judgment of the artist in selecting them. But this should not deter photographers from using the method any more than the common "club" oil paintings should keep them from reproducing photographs in oils. All that is necessary is sound judgment combined with suitable materials and artistic skill. Broadly speaking, the work is similar to finishing enlargements in monochrome pastel, only decidedly more difficult to accomplish, inasmuch as the original tone of the photograph has to be obliterated by opaque colours.

Materials Required.

An adequate supply of soft French pastels is necessary, and as it is difficult to choose the most useful tints, especially as they are listed in the catalogues by numbers instead of names, I give the following list as comprising the most essential shades:—

Reds and Pinks.—Serie A, ochre clair No. 9; serie B, laque carminée No. 25; serie F, laque carminée No. 21.

Browns.—Serie A, gris feutre No. 75; serie A, T. de sienne arinée No. 5.

Yellow.—Serie A, jaune de chrome No. 39.

Greens.—Serie B, vert feuille No. 163; serie B, vert anglais No. 156.

Blue.—Serie A, bleu indigo No. 36.

Neutral.—Serie B, brun feuille No. 166.

Blacks.—Serie C, noir No. 27; serie B, brun noir.

The description given above is sufficient for the purposes of ordering, the general price of each pastel being twopence, and a few of the more expensive shades costing double or treble that sum.

In addition to the above, an assortment of semi-hard pastels would be an advantage, but is not absolutely necessary at first; also additional shades of some of the soft pastels would be useful, but as it is possible to blend the colours together, most of the ordinary tints required can be readily made. The mixing is easily done with the aid of a palette knife on a chamois leather pastel board, or more perfectly in a little glass mortar with the aid of a pestle. In addition to one or two pastel boards, a piece of soft velvet rubber, some pumice powder, cotton wool, a piece of putty rubber, and a retoucher's knife or artist's scalpel will be needed.

How to Begin.

Enlargements to be finished in the pastel must be made upon rough surfaced paper; the smooth varieties yield very disappointing results. And if they are to appear similar to oil paintings, they should be mounted upon linen canvas on a stretcher.

Almost any portion of the picture (except the flesh) may be commenced first, but it is better to attend to the background before the accessories, and do the flesh work last of

all. When a tint is to be laid on heavily the pastel is applied with a hatching movement over the part direct, and then rubbed over smoothly with the finger tips. A stump, or piece of cotton wool can be used, but nothing, in my experience, equals the direct application of some portion of the hand. Should the artist's hands be naturally inclined to be damp, the inconvenience may be obviated by rubbing powdered pumice over them.

When only a medium depth of tint is required it is best to charge the fingers with powdered colour by applying them to the pastel pad, and then work them over the picture, instead of applying the pastel direct. For lighter shades the fingers may be less heavily charged with colour, or a charged stump or cotton wool can be substituted. In pastel work the rule is to put on the necessary depths of tint *at first*, for should the attempt be made to do it by successive applications, it will probably be impossible to obtain the maximum intensity required, as each time one covers the same part with colour the more the surface refuses to take it. Soon after commencing, the beginner will observe the necessity for shading the parts coloured. This is done by applying darker tints of the same colour mixed with a neutral tone to subdue its brilliancy. Should any error of judgment have crept in, the work may be removed with pumice powder applied on the fingers or on cotton wool, although if the tint has been laid on heavily it may be necessary to use either the velvet rubber, or putty rubber charged with pumice powder, care being taken in either case not to abrade the delicate surface of the paper.

Colouring the Flesh.

After the background and accessories have been done, the draperies and hair should be coloured, and finally the flesh, which is by far the most difficult to do. A duplicate photograph must always be used as a guide in keeping the likeness, for since the colours are opaque, it is easily lost, and a few brief touches will cause the features to lose all likeness to the original. My own method is to do the eyes first, together with the shadows under and above, and then the forehead and brows. In working, bring the eyes out more boldly than appears (at this stage) to be correct, otherwise, when all the other parts are coloured the picture will appear insipid and flat. It is, indeed, a nice point for judgment, and the way it is done will decide the vigour of the finished whole, for naturally the rest of the features will be brought out to such a depth as to harmonise with the part coloured first.

In working small parts like the eyes, the occasional use of putty rubber will help, as also will the retoucher's knife.

Attend next to tinting the rest of the flesh, and then the colour on the cheeks and the shadows should be worked in. When colouring the lips, take care to keep the shadow upon the upper lip in "statu quo," and let the light upon the lower one be properly centralised. It may be done by erasing the colour where necessary with rubber or knife. It is useful during the work to occasionally walk back a few paces and view the picture from a little distance. Defects unnoticeable close at hand will readily be noticed there, and one should not be satisfied until the picture appears satisfactory, both upon close inspection and with more distant observation. When well done, the life-like charm about it will amply repay the artist for the labour bestowed thereon.

ARTHUR WHITING.

A MANAGER of a laundry at Hayward's Heath, named Alfred Hassan Medina, committed suicide on Saturday by taking cyanide of potassium. In response to his wife's request that he should come in to dinner he said he would do so presently. He then went into a

room where he kept his photographic chemicals, drank the poison, and went in to dinner. His wife was about to leave the room, when he said: "Don't go, I have taken something," and shortly afterwards expired.

THE WEEK IN HISTORY.

The First Practicable Photo-etching.

FIFTY-TWO years ago on Sunday next—in the *Athenæum* for April 30, 1853—Fox-Talbot was describing in detail the process of photographic engraving invented by him, and patented in 1852. The process was the forerunner of the one described last week in this column; the later modification embodied certain radical improvements. Both are intaglio methods, allied to our modern photogravure, and the first is interesting from the historical standpoint, because it establishes Fox-Talbot as the discoverer of the sensitiveness to light of a mixture of gelatine and potassium bichromate, and of the difference, in certain ways, between the exposed and unexposed mixture. His photo-engraving process appears to have been the outcome of troubles in making perfectly permanent "photographic" prints. The proper use of the fixing-bath was not understood in Talbot's early days, and he himself preferred to take refuge in his salt or iodide methods of fixing to trusting in hyposulphite, with all its vagaries. A mechanical reproduction process would absolve him from these difficulties, and the process which he thus devised was briefly as follows:—A coating of bichromated gelatine was applied to a steel plate, dried, and the plate exposed to light under a positive until a visible image—yellow on a brown ground—was produced. The plate was then placed in cold water for a short time, dipped in alcohol, dried, and etched. As an etching agent, Talbot used first platinic chloride, applying it with a camel-hair brush, and afterwards washing the plate in water, and removing the gelatine coating.

In order to break up the tones, Talbot devised the screen of gauze or net, which he termed a "photographic veil," and he impressed it upon the sensitised steel plate by a preliminary exposure. This method, as I mentioned last week, he further developed in his patent of 1858.

Stripping with Hydrofluoric Acid.

IF I am not mistaken, the use of hydrofluoric acid for removing the films of gelatine negatives is exactly twenty-three years old to-day, for its first publication was on April 28, 1882 in "The Photographic News." There it was stated, in an editorial article, that Herr Joseph Plener had discovered the ability of hydrofluoric acid to loosen a gelatine film from its glass, and I cannot find an earlier note of the fact in photographic periodicals or text-books. Plener used the acid dissolved in water, and therefore obtained enlargement of the film; but he mentions the use of spirit to bring the gelatine afterwards to its original size. The suggestion is made that by squeegeeing a sheet of gelatine on to the film, and removing the two together, a negative would be stripped in the course of twenty minutes or so. That is longer than need be taken at the present time by the method of Middleton and Holcroft, which I see the editors gave

last week in reply to a correspondent, and a very reliable and rapid method it is—to that I can testify.

Moist Collodion.

The process which for some years was largely worked in preference to the orthodox wet-collodion was that of Crookes and Spiller, first published fifty-one years ago in the "Philosophical Magazine" for May, 1854 (p. 349). I have referred already to the way in which wet-collodion progressed to a dry process by the use of substances which would keep the sensitive film in a slightly moist condition. The first agent which Crookes and Spiller used for this purpose was nitrate of zinc. After the usual silver nitrate bath of 30 grains to the ounce, they immersed the plate in:

Nitrate of zinc	2 ounces
Nitrate of silver	35 grains
Water	6 ounces

for five minutes or more until the film of collodion was saturated, and then took it out and allowed it to drain upright on blotting-paper until all the surface moisture had been absorbed. The plates could thus be kept in their sensitive condition for a number of days without suffering in sensitiveness. Before development they were plunged for a few seconds into the original silver bath. Crookes and Spiller afterwards substituted nitrate of magnesium for that of zinc, and they also used potassium acetate for the same purpose. The "Liverpool Photographic Journal," afterwards *THE BRITISH JOURNAL OF PHOTOGRAPHY*, for the year 1854, shows that this process was much discussed at this time; but many other workers appeared to perfect these "dry-plate" processes with the bath, and experiments in this field cannot be said to have ceased until gelatine dry plates came into use.

Auto-Development.

The idea of a plate or paper, self-contained, as it were, is one to which inventors have returned again and again. The notion is probably a legacy from the calotype process, the sensitiser of which—silver nitrate and gallic acid—was almost identical with the developer, and under certain conditions the picture might develop without the after application of a separate solution. I hear that there is on the German market a gelatine plate which contains its own developer within itself, so I am interested in looking back fifty-five years to May 1, 1850, when poor Scott Archer, who a year before had worked out the wet-collodion process, was writing in "The Chemist" of pyrogalllic acid as a developer in the albumen process of that time. He applied pyrogalllic acid, silver nitrate, and acetic acid to the paper, and he writes:—"There is one advantage in the above preparations, that no second wash is necessary to bring out the picture."

HISTORICS.

PROCESS Instruction at Manchester.—Two series of lectures commence on May 1 in the Photography and Printing Crafts Department of the Municipal School of Technology, Manchester. The first, on "Collodion Emulsion," is by Mr. Charles W. Gamble, and is based on a syllabus as follows:—Outline of the method of preparation of a collodion emulsion. Commercial emulsions. The preparation of glass. Coating plates. Exposure and development of plates. Sensitising collodion emulsion for orthochromatic work. Photographing coloured objects. Screen negative-making with emulsion for process block work. The second, on "Process Block Making," by Mr. R. B. Fisherden is to deal with the line and half-tone processes; character of the originals suitable for photographic repro-

duction; limitations of the processes; the relation of the fineness of screen used in half-tone block-making to the method of printing; negative-making and etching for line and half-tone blocks; essential characteristics of a good printing block; mounting the etched plates, and the appliances used for the purpose in modern practice; mechanical overlays; the tri-colour process applied to letterpress printing.

AN attractive exhibition of photographs is on view in the windows of Houghtons, Ltd., 88 and 89, High Holborn. The pictures consist of a selection from the winning prints in the recent Barnet competition. They are tastefully arranged on screens, and with a display of other Barnet products afford a striking example of successful window dressing. As an advertisement it should prove quite satisfactory to all concerned.

SOME RESULTS OF LENS TESTING.

[A Paper read before the Royal Photographic Society.]

THIS paper should, I think, have been described as "The expression of results of lens testing," as it is concerned with a method of expressing results of tests quite as much as with actual results.

The best test, and the one by which all lenses must be finally tested, is their capacity for giving a good picture under the varied conditions which may arise in practice, but it is not very pleasant, if we discover that the lens is unsatisfactory only after many plates have been wasted.

A Photographic Test.

We want a simple test, which will give us, with one exposure, the information which it would cost many plates and much labour to obtain in the ordinary manner. There are, it is true, many visual tests which will give a great deal of valuable information, but they all suffer from the defect that the observations are not made with the light to which the photographic plate is most sensitive, so that a photographic test is to be preferred if it gives the desired information with anything like the same labour; but it is still important to compare the positions of the best visual and best photographic focus.

In addition to this test of the actual value of a lens system, it is frequently most important to determine the aberrations of a lens with a view to subsequent modifications of the design in order to give better results.

The Hartmann Method.

I propose to describe two photographic methods, one for each of these two distinct purposes, one making use of a photograph of a definite, external object, and the other of a representation of the beams of light that pass through the lens.

In Professor Hartmann's method a small, bright light, at as great a distance as is convenient, is used; and a diaphragm, with small circular apertures in it, is placed in front of the lens, so that small isolated beams of light may pass right through the lens system. If these beams were examined at the focus of the lens, an image of the source would be observed, but at any point inside or outside the focus a number of small circular spots of light, corresponding almost exactly to the diaphragm, would be seen; and the centres of these spots may be taken to be points on the rays from the centre of the source to the centres of the apertures in the diaphragm. In order to completely define these rays, another photograph, at a measured distance from the first, is required; and for ease and accuracy of

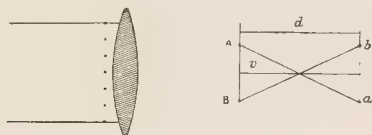


Fig. 1.

measurement, it is necessary that one of the photographs should be taken inside and the other outside of the focus, and, as nearly as possible, equidistant from it.

In the diagram two apertures, symmetrically placed with regard to the axis, are represented; and the corresponding spots, A B and a b, are shown in the figure. It is evident that by connecting A B and a b, the exact crossing point of the rays may be determined, and thus the aberrations of any portion of the lens, compared with the other portions, may be obtained. It is customary to arrange that the diaphragm shall have apertures in vertical and horizontal lines, so that the various rays of light will cross over at one particular spot, and according as they do so or not the lens is good or inferior.

I have here a diaphragm, with five apertures, one central, and the other four symmetrically arranged, so as to form vertical and hori-

zontal lines crossing one another and the images formed on the plates are represented in the diagram. It is evident, from the figure, that there is a considerable amount of aberration.

Arrangement for Practice.

The information given by the method may be made as complete as is desired by placing a number of bright sources of light at regular intervals in a line at right angles to the axis of the lens; but I have

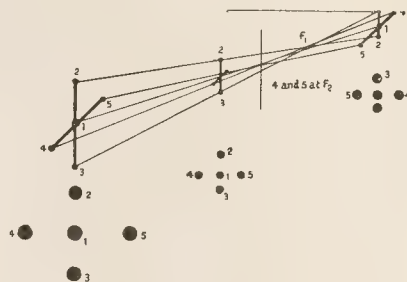


Fig. 2.

found it more convenient in practice to arrange so that the lens will swing about a vertical axis, approximately through the back nodal point, exposing, with the one light, the various portions of the plate in succession. In practice it is found desirable to take the two photographs at a distance of 15 mm. inside and the same distance outside the focus; or at a greater distance in the case of very bad lenses. The illumination employed in making these tests was an electric arc light,



Fig. 3.

condensed on a small aperture of about 2 mm. diameter, placed at a distance of 9 metres; the exposures were varied between 1 and 6 seconds, the shorter exposure giving the best results, although the diffraction rings surrounding the dots enabled measurements to be made even when the plates were very much over-exposed. Figs. 3 and 4 give the actual photographs in the cases of a single achromatic lens and a well-corrected anastigmat, the photographs were taken,

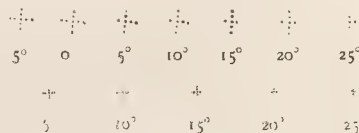


Fig. 4.

intentionally, farther from the focus than would be the case in actual practice. The diaphragm is placed as nearly as possible in the position of the iris of the lens system, partly because this indicates the cutting off of the lens for different angles, but principally in order that the actual results obtained should conform to the usual nomenclature of aberrations. For example, the position of the focal lines, as distinguished from the effect of coma, are obtained from the inter-

sections of rays equidistant from the centre of the stop, while the value of the coma is obtained from the distance between the central line and the intersection of these two outer beams.

The point F (Fig. 2) would denote the focal line, any focussing at the intersection of the lines 1 and 2 or 3 being attributed to coma.

It is characteristic of this method as distinguished from all other methods that the aberration of coma is shown as a definite measurable quantity, and all the defects of a lens can be measured or, when they exceed a certain amount, easily seen.

Dr. Hartmann used this method with the idea of obtaining the longitudinal aberrations, especially of telescope objectives. He measures the positions of the centres of the various apertures and calculates the crossing point of two rays as in Fig. 1. But the method seems specially applicable to the accurate testing of photographic lenses because it is possible to express the results in the same form as the results of calculations, while the various oblique rays can be tested more easily than by calculation. For this purpose I propose in future to use additional apertures on diagonal lines.

The labour of taking the photographs is much reduced by swinging the camera about the nodal point of the lens, but the labour of measuring the photographs is very great. For simplification I use a drawing camera, the microscope magnifying 50 to 75 times; it is then possible to draw the centres of the various spots with an accuracy of 1 mm., i.e., 1-50th mm. to 1-75th mm. on the original plate. The various points in one diagram are joined up to the corresponding points in the other, and any variation made by the lines in crossing gives the longitudinal aberrations.

But in interpreting the photographs I prefer to express the results as lateral aberrations. Referring to Fig. 1, if the images are equidistant from the focus, the lateral aberrations of the rays A B are expressed by

$$\frac{CA - ca}{2} \text{ and } \frac{BC - bc}{2}$$

If the distances be not exactly equal, the aberrations will be expressed in the same form by enlarging or reducing one of the photographs. In using the drawing camera, a drawing is made of the positions of the centres of the spots in the photograph taken inside the focus. The magnification is then adjusted till the central figure in the diagram outside the focus is made to coincide as nearly as possible with the corresponding figure inside the focus, and with this magnification the remaining figures are drawn off.

Fig. 5 represents the drawing for a lens, the spots being from the inside focus diagram and the crosses from that outside the focus. Where no cross appears, the error on the photograph was less than 1-50th mm., corresponding to a lateral aberration of .01 mm.

The lateral aberrations in the other cases are expressed by the distance between the dot and the corresponding cross on the scale shown.

Small alterations in the magnification of one of the diagrams correspond to slightly different positions of the focal plane, and the accuracy with which the two magnifications agree gives the accuracy with which the focus was determined visually. The diagram shows not only the lateral aberrations, but also the cutting off by the lens mount, and it is remarkable, in some cases, how the cutting off coincides with a marked improvement in the astigmatism.

The distance between the two photographs should be recorded, as this enables the aperture ratio corresponding to each opening of the diaphragm to be subsequently calculated.

A Standard of Correction.

A photographic lens may be regarded as perfectly corrected when no aberration exceeds 1 mm., i.e., when no error of 10 mm. is shown in the drawing, when each photograph is magnified fifty times.*

The diagram of a good lens shows that this standard is hardly obtained throughout the whole field; but an error of 2 mm. would not produce any noticeable effect on an actual photograph, unless it were magnified for use in telephotography.

Zschokke's Method.

There is one other test to which I wish to refer, because it is within the power of any amateur, and probably it is the best simple test which expresses directly the various defects of a lens. The test is, I believe, due to Dr. Zschokke. It uses the light to which the photographic plate is most sensitive, and the results are obtained in a single ordinary photograph. The object chosen is a flat object with sufficient detail, generally, either in series of horizontal and vertical

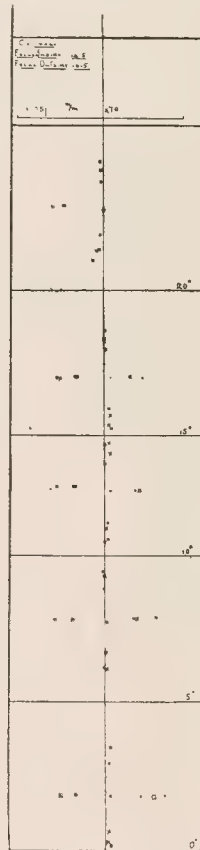


Fig. 5.

lines, or a series of circles and radii; and either the object or plate must be set at an angle to the axis of the lens. The camera for the purpose of the test is constructed to carry a plate, inclined to the axis of the lens. The centre of the object is focussed on the ground glass, as nearly as possible, and an exposure is then made, under what might be considered the best conditions for the object, but of course using the aperture which it is desired to test. The resulting negative will obviously show a falling off at the top and bottom; and, if the lens were perfect, the best definition would be along one horizontal line. Any defect in the nature of spherical aberration is shown by the absence of good definition at any point, while the amounts of astigmatism and curvature of field can be charted out and numerical

* We are unable to reconcile these figures. Apparently 10 mm. should read 50 mm.—EDS., B.J.P.

estimates obtained if the points at which the horizontal and vertical lines appear sharpest be marked on the plate.

The anastigmat curves can be drawn, and these curves have their

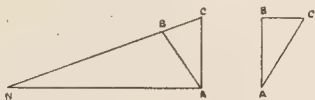


Fig. 6.

ordinates magnified in the ratio of 4:1 (Fig. 6). This specially constructed camera shows all aberrations on the same scale. For ordinary purposes, however, it would be sufficient to use a camera with a swing back, tilting the plate to an angle of 10 deg. or 15 deg. if

possible; and instead of a series of horizontal and vertical lines, or circles and radii, as object, a sheet of well-printed matter might be used. This method has the advantage of supplying a permanent record of the defects of the lens. It is used, I have been informed, by one of the largest manufacturing firms. The method is subject to the possible defects of bad exposure or development, but if these processes are satisfactorily carried out, the results of the test will be perfectly satisfactory.

To obtain the scale of the aberration curves, it is necessary to have a true square or circle in the centre of the field; this will reproduce as an oblong or an ellipse, the greater length being vertical, and thus the scale can be obtained; if AC and AB (Fig. 6) are the two dimensions of this rectangle, the magnification is AC:BC.

S. D. CHALMERS, M.A.

INDUSTRIAL ALCOHOL. THE PHOTOGRAPHIC QUESTION.

LAST week we summarised the report of the Lord Chancellor's Committee on Industrial Alcohol, and gave the general conclusions to which the members of the Committee were led. In forming an opinion on the importance of pure alcohol in British manufacture, the Committee did not lose sight of the photographic craft and industry, and several witnesses were called solely with the object of stating the case for photographers, photo-engravers, and photographic manufacturers. Their evidence is now published in the bulky "Minutes of Evidence Taken Before the Departmental Committee on Industrial Alcohol" (Wyman and Sons, Limited, Fetter Lane, London, E.C. 2s. 4d.). The chief photographic applications of a possible untaxed spirit to come before the Committee were:—

- (1.) Collodion, for the wet collodion process.
- (2.) Collodion emulsion, for negatives.
- (3.) Collodio-chloride print-out emulsion.

The witnesses giving evidence on the needs of the craft or industry in the matter of pure alcohol were:—

Mr. Harry Entwistle, representing the Association of Manchester Process and Wood Engravers.

Mr. Albert Thomas Clarke, representing the Hentschel Colour-type Co., Limited.

Mr. T. Macwalter, representing Messrs. Elliott and Sons, Limited, Barnet.

These gentlemen may be said to speak for process and other workers of the wet collodion process, for users and makers of collodion emulsion, and for makers of collodio-chloride paper.

In Wet Collodion.

The statements to the Committee that methylated spirit was unsuitable for the preparation of collodion intended for the wet-collodion process was actively combated by Dr. T. E. Thorpe, who, examining Mr. Entwistle, asked:—

Are you not aware that large quantities of photographic collodion are made with methylated spirit?—Yes, I am quite aware of that.

And a good collodion, too?—It is not good-keeping collodion.

I have used such collodion frequently. What happens to it?—You get organic impurities in the silver bath.

What do you mean by "organic impurities in the silver bath"? What are they?—So far as I understand, in methyl alcohol there are oily impurities from the crude wood spirit. I take it that it is crude wood spirit in the methylated alcohol.

There is no oily matter in it?—Not from the tarry distillate of the wood?

No, there is nothing oily in it at all—not what we chemists would call oily.—There is acetone, is there not?

There is. And acetic acid?

No.—Of course, I am not a chemist; I am only a photographer.

But the witness maintained that the presence of methylated spirit was responsible for uncertainties and vagaries in the working of wet-collodion; although he admitted that, owing to insurance difficulties, his firm used mineralised spirit, since the "ordinary" spirit had to be purchased and stored in quantities of not less than five gallons.

Mr. Clarke spoke strongly to the same effect in stating that he made collodion for his firm with absolute alcohol, as he found a collodion made with methylated spirit fouled the silver bath and yielded an inferior class of half-tone negative. The dot in the half-tone process had ragged edges, instead of cleanly and sharply defined edges.

And Collodion Emulsion.

A suggestion of Mr. Clarke's to the Committee was that collodion should be made in bond, and from that connection it transpired that the present restrictions on the use of pure alcohol prohibited the manufacture for re-sale of the collodion emulsion made for their own use by the Hentschel Colourtype Co. It was stated that the present conditions prevented competition with German makers of the collodion. If made in bond under Excise supervision, the manufacture of collodion emulsion would be commercially practicable, if on a scale as large as would be necessary for distribution through the trade; but the witness thought it would not be worth the while of a photo-engraving firm only to pay for that supervision.

Denaturants for Collodion Emulsion.

Mr. Clarke put forward pure methyl alcohol as a possible denaturant of spirit for the manufacture of collodion emulsion, and it was thought that a high-grade wood naphtha might be used. Both suggestions, however, arose without any preliminary experiment, and Mr. Clarke's mention of a pure methyl alcohol appeared to have been made on the assumption that the wood spirit used for methylating alcohol was a crude, impure product, and on Dr. Thorpe pointing out that the added wood spirit is a fairly pure article, Mr. Clarke apparently withdrew his opinion that denaturing with pure methyl-alcohol would be any improvement.

Collodio-chloride Print-out Emulsion.

Mr. Macwalter described the drawbacks of both mineralised and "ordinary" (or "manufacturer's") spirit. Both produced certain different, but distinct, defects in collodion papers. In his opinion a manufacturer would willingly pay double the price for a spirit with-

out these disadvantages. As one possible, but inadvisable denaturant, ether was named, but Mr. Macwalter reminded the Committee that it interfered with the usual practice of soaking the pyroxyline in the alcohol alone for twenty-four hours before adding the ether. He thought, however, that 10 per cent. of ether might be added. Other denaturants, suggested by the Committee and dismissed by the witness as unsuitable were animal oil and turpentine. Benzole might possibly be employed.

In Dry-plate Manufacture.

Methylated spirit, said Mr. Macwalter, in the course of examination, was suitable for use in the manufacture of dry plates, except that it was difficult to obtain it of sufficient strength. He would like spirit of .807 sp. gr., and stated, on the authority of spirit vendors, that the Excise regulations made it impossible to supply that strength. Dr. Thorpe asserted that 97 per cent. alcohol was obtainable in any quantity, and that, it was thought, would be as strong as necessary.

BLUE FOCUSING SCREENS.

THE advantages of using a piece of blue glass as a view finder have been long recognised by landscape and other outdoor photographers, but the fact that the view on the focussing screen will also give a much nearer approximation to the resultant monochromatic version of the scene portrayed, if the ground glass is coloured a blue tint, appears not to be so generally known as its usefulness warrants. The reason the scene appears apparently in monochrome when viewed through a blue screen is because the blue colour subdues much of the yellow and orange rays, which have the highest visual intensity in nature, although unfortunately their action on the ordinary plate is considerably less than that of the blue rays, freely passed by the coloured glass, but visually much darker in tone.

For Outdoor Photography.

The blue focussing screen is obviously more likely to be of use and assistance to landscape photographers than to those who essay portraiture or architectural work. In the two latter cases the photographer will probably find that unless the light is particularly good the image on the screen will be somewhat dark. The landscapeist, on the contrary, usually has plenty of light, and his subjects, moreover, are such that the monochromatic effect gained is likely to be more useful in the estimation of correct exposure consequent on the suppression of brilliant, but misleading colours.

Expedients for Indoor Use.

It is recommended, therefore, that the photographer should give the blue focussing screen a trial, if much outdoor work is being done, while if it commends itself also to the studio or indoor worker, seeing and composing the image on the screen, can be materially assisted by the adoption of the well-known method of aerial focussing by cementing pieces of microscopic cover glass on to the rough side of the screen with Canada balsam, thus rendering the grain invisible but retaining the blue colour. In focussing by the aerial method, the rays pass through the clear glass thus obtained, without being scattered or obstructed. It is quite possible to serve the image by the unaided eye, but it is not possible to tell when the front surface of the screen is exactly at the focal point of the lens. A focussing glass will, therefore be necessary, and one of the Ramsden type will be found most useful, as it can be set to suit the eye. Pencil marks or crosses should be made on the screen before cementing on the thin pieces of glass, and then the pieces of the focussing glass adjusted until the mark or scratch on the image are both perfectly well defined, otherwise the accommodating power of the eye will permit the racking in or out of the screen quite a perceptible distance without apparently affecting the definition of the aerial image. As finely ground blues will be found difficult to obtain commercially, methods for its preparation will be found useful.

How to make the Blue Focussing Screen.

Undoubtedly the best way to prepare the glass is to etch it with hydrofluoric acid. A piece of pale blue glass should be obtained, cut to the required size. The kind known as "pot" is preferable to "flushed" glass, which is coloured only on the surface. Make a solution of gelatine in water 20 grains to the ounce. Add 20 to 30 grains of sodium or potassium fluoride to each ounce of the solution, and coat your glass as when varnishing a negative, leaving as much gelatine on the plate as in coating a dry plate. Place on a levelling stand; and allow to set. Then rear up to dry. When dry, but not before, immerse the plate in a solution of hydrochloric acid $\frac{1}{2}$ oz., water 8 oz., allow to remain 30 seconds, and again rear up to dry. This latter operation may be advantageously varied by pouring on enough of the dilute acid to cover the plate and allowing it to soak into the gelatine. After a minute or two the surface will be dry enough to rear up to thoroughly dry slowly. When this is the case, clean off the gelatine, and the glass will be found to have an exceedingly fine matt surface, much finer than ordinary ground glass, and eminently suitable for camera work. If, however, this process is thought too tedious or complicated, the surface of the glass can be ground in the ordinary way by means of fine emery powder. The plate to be ground should be placed on a flat table on a pad of newspaper. A small pile of the powder (the finest obtainable) should be placed in the middle and moistened with a little dilute sulphuric acid. If a small piece of thick plate glass is now worked carefully over the surface, with a circular motion, it will be found that the emery ground between the two surfaces has covered them with minute scratches. If the process is continued—adding more emery, acid, and water as required, the entire surface of the glass will soon become obscured with these fine scratches, and a finely-ground screen remains.

An Alternative Method.

An alternative method of preparing a blue focussing screen may also be found useful if the etching or grinding is considered troublesome; but it does not give a surface that can be regarded as permanent, although the fact that ordinary white glass can be used is in its favour. Take any ordinary dry plate of the required size and purposely fog it by striking a wax match and holding it about a foot or two away from the plate for, say, five to ten seconds. Develop the fogged plate, until all the surface appears one uniform grey of thin half-tone. Now fix and wash in the usual way. After thorough washing, bleach this grey veil to white in the ordinary intensification bath of mercuric chloride. Again wash fairly well. Dissolve in, say, 6 oz. of water a penny packet of blue dye, making it a fairly strong, i.e., dark solution. Soak the bleached plate in the blue dye when in a very short time the gelatine will become stained. Having stained the gelatine not quite so dark as it is wished to appear when dry, give the film a quick rinse under the tap, shake off all superfluous water, and set up on edge to dry.

COLLOTYPE WITH MERCUROUS OXALATE.

In the current number of the official organ of the Italian Photographic Society, Dr. Luigi Castellani gives the results of his experiments in the application of mercury salts to the production of a grain in the making of colotype plates.

Both Namias and Lüppo-Cramer have emulsified mercurous sulphide and oxide, but the emulsions were useless, and in the case of mercurous oxalate it was found impossible to emulsify this. Many mercury salts are decomposed in contact with gelatine with the evolution of heat, and such emulsions rapidly turn grey, in consequence of the liberation of metallic mercury and its oxides. The emulsion of mercurous oxalate and linseed oil suggested by Namias is useless, particularly on account of its very slow drying.

Unstable Mercury Emulsions.

If a solution of Winterthur colotype gelatine is prepared as follows:—

Gelatine	8 g.
Water	50 ccs.

and to it whilst warm is added

Oxalic acid	2 g.
Water	25 ccs.

a gelatinous solution is obtained, which is turbid probably on account of the formation of calcium oxalate, due to the hard water used. If to this solution now the following is added:—

Mercurous nitrate	8 g.
Water	25 ccs.

a homogeneous white emulsion with very fine grain is produced, which does not set, even after a long time. Assuming that this want of setting power* to be due to excess of acidity, as many acids prevent gelatine solutions from setting, another experiment was made replacing the oxalic acid by ammonium oxalate, the above given solutions of gelatine and mercurous nitrate being used, and

Ammonium oxalate	8 g.
Water	25 ccs.

The oxalate solution made warm was added to the gelatine, and then the mercury solution also heated, and an extremely fine grained homogeneous emulsion was formed, but which immediately turned grey through reduction of the mercury salt.

Another experiment with the first formula and an increased quantity of gelatine, set firm, but turned grey, thus proving that gelatine in the presence of oxalic acid does not decompose the mercury salt, but that as soon as an excess of gelatine is used, decomposition sets in, metallic mercury, mercurous oxide, and mercurous hydrate being formed. If the mercury salt is separately prepared and mixed with gelatine decomposition also sets in, and to prevent this the author tried the addition of a little sodium chloride, which would form mercurous chloride, with the nascent mercury, and thus prevent further decomposition.

A Stable Mercurous Oxalate Emulsion.

In order to prevent the formation of mercurous chloride instead of oxalate, the latter was prepared first by adding 200 ccs. of a hot 1 per cent. solution of oxalic acid to 50 ccs. of a 16 per cent. solution of mercurous nitrate, collecting and washing the precipitated oxalate

* Oxalic acid entirely prevents the setting of weak gelatine solutions, and advantage is taken of this property in the preparation of platinotype paper.—E.L.S. B.J.P.

NINE Hundred Dollars in Cash for Eighteen Prints.—The rumour is going about that a prominent photo-secessionist has received this amount of money from a well-known New York financier for eighteen photographic prints. If this is so—and the rumour bears traces of authenticity—it is up to the professional photographer to get busy

till there was no longer any acid reaction. To the thin paste thus obtained was added by degrees, and with constant stirring—

Gelatine	10 g.
Water	50 ccs.
Sodium chloride	5 g.

heated to 40 degrees C. A good homogeneous emulsion was obtained without any sign of decomposition. Equally satisfactory results may be obtained by using ammonium oxalate instead of oxalic acid.

If this emulsion be coated on glass in the usual way it will set in about a quarter of an hour, and the plates may then be set up to dry. On drying, however, crystals of oxalic acid or ammonium oxalate appeared, due to the emulsion not being washed.

Preparing the Fine-grained Emulsion.

The best method of making a fine grained emulsion is as follows:—

A. Gelatine	36 g.
Sodium chloride	18 g.
Water	360 ccs.
B. Mercurous nitrate (Merck)	24 g.
Water	250 ccs.
C. Oxalic acid	6 g.
Water	250 ccs.

B. and C. were mixed at 80 degrees C., and the oxalate allowed to settle, and then washed several times by decantation, and then placed on a filter and washed until there was no longer any acid reaction. Washing with hot water would certainly remove the acid more quickly but it cannot be used, because it decomposes the mercurous oxalate. Thorough washing is most important, or else the oxalic acid will crystallise out on the film. The warm gelatine was poured on to the damp oxalate a little at a time and thoroughly stirred and the mixture poured into a porcelain dish, metal must not be used, and left for several days, and then broken up by pressing it through mosquito netting and washed for six hours. The shreds of emulsion were then collected, melted in a water bath, and rapidly cooled. This is important, otherwise some of the mercurous oxalate separates out.

Employment in Colotype.

Glass coated with a substratum of potassium silicate and beer, as generally used in colotype, was coated with this emulsion, and a perfectly homogeneous film with a fine grain was obtained, when the drying was rapid. They were then sensitised in a 3 per cent. solution of potassium bichromate for three minutes.

Superb relief and very fine grain can be obtained with only a few minutes exposure on these plates to direct sunlight or diffused light, and they must then be washed with water and treated with a 5 per cent. solution of glycerine in water.

Ordinary colotype ink can be used, but the plates must be repeatedly inked and pulled before good proofs are obtained. An important point is that a plate which has been used can, after ten months, be again swollen in glycerine and again used; and, further, the author states that he thinks that if the process can be improved, it will be possible to obviate the usual heating for obtaining the grain.

The mercurous oxalate emulsion has been kept by the author for ten months in the dark without any sign of decomposition or fermentation. The oxalates of barium and calcium and the tungstate of mercury have also been tried, but all give a coarse grain.

or to admit that his non-professional brother is the better money maker, to say the least. Why is it that the big money in photography seems to be going to the men outside the profession? It is time that a record were made by those who have devoted a life study to photography and that the laurels be kept within the fold.

PROFESSIONAL PHOTOGRAPHERS' SOCIETY OF NEW YORK.

We gather from our American contemporaries that the New York photographers are forming a body with aims very similar to those of the Professional Photographers' Association. A meeting held recently in New York lays forth the activities of the Society, and we may quote the Secretary's invitation to attend for an outline of the programme which the members set before themselves. The officers of the Society are:—President: Pirie MacDonald, 141, Broadway, New York; First Vice-president: Theo. C. Marceau, 258, Fifth Avenue, New York; Second Vice-president: Dudley Hoyt, 23, East Ave., Rochester, N.Y.; Secretary: Walter E. Talbot, Schenectady, N.Y.; Treasurer: Joseph Byron, 53, W. Thirty-second Street, New York.

"On this occasion the Society will take up the question of laying before the Board of Underwriters reasons for a reduction of rates of insurance on photographic galleries.

It is obvious that a large membership will give power to the society in its representation to the underwriters. You will be helping the cause by sending in your application for membership at once. The committee is formulating a report on the copyright situation, as it is to-day, which will be discussed thoroughly at the meeting.

If there is any topic you would like to have debated, or suggestion along practical lines you would like to make, please send the facts concisely stated to the President, and if it is possible the matter will be worked up prior to the time for the meeting. Suggestions will be welcome.

An exhibit of photographs will be arranged and hung by a Committee of Selection" with a view to showing only unique and helpful works. A suitable certificate will be issued to those who are fortunate enough to have any of their pictures hung, and as the works will be very carefully judged, the certificates will have an unquestionable value. No more than six pictures by any one person will be hung.

We want you to be represented. If you care only to send one or two, let them be pieces that you are willing to fight for. Inform the President if you intend sending an exhibit, so that arrangements can be made. Labels and blanks will be sent on application."

Photo-Mechanical Notes.

The Kaiser and Process.

It really looks as if royalty will be showing processmen the way. Last week we read in the "Express" another instance of the Kaiser's versatility, provided by an incident at a recent reception by his majesty of a number of people who had received decorations. Among those received was the managing director of a lithographic firm, with whom the Emperor at once entered into conversation, mentioning a new invention which had already been adopted in England. The director confessed his ignorance of the value of the invention, although he had heard of it, whereupon the Kaiser expressed great astonishment, and recommended the introduction of the patent into German works." The process which the Kaiser recommended, we have been told, was Photo-stone, a method of reducing lithographic labour at the hands of artists' end by aid of the camera, whilst retaining the fidelity to the original.

Perchloride of Iron Solutions.

The following useful table is given in last month's issue of "Le Procédé," by means of which when one has a solution of perchloride

of iron of known strength, according to Baumé's hydrometer, the method of using this is simple. In the first column find the number corresponding to the Baumé hydrometer reading of the strong solution, and follow the horizontal line till it cuts the vertical column at the top of which is the desired hydrometer reading, the number then found will show the number of volumes of the stock solution, which must be mixed with sufficient water to make 100 volumes in all to give the weaker solution of the desired strength:—

44	88	96	100	104	108	112	116	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192	196	200																			
43	86	92	96	100	104	108	112	116	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192	196	200																		
42	83	88	92	96	100	104	108	112	116	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192	196	200																	
41	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200																
40	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200															
39	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200															
38	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200														
37	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200														
36	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200													
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34	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200												
33	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200												
32	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200											
31	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200											
30	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200										
29	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200										
28	55	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200									
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26	51	55	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200								
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24	47	51	55	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200							
23	45	49	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200							
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12	23	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200	
11	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200	
10	19	23	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131	135	139	143	147	151	155	159	163	167	171	175	179	183	187	191	195	199	200
9	17	21	25	29	33	37	41	45	49	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141	145	149	153	157	161	165	169	173	177	181	185	189	193	197	200
8	15	19	23	27																																											

which are several apertures of different sizes, the novel feature claimed being the small apertures symmetrically disposed round a central opening. Figure 1 shows one form of the diaphragm. Of the seven apertures, *a*, *b*, *c*, *d*, *e*¹, *e*², *e*³, four, *a*, *b*, *c*, and *d* are circular, and the others segments of a circle. The areas of these apertures are as 5 : 4 : 3 : 2 : 1 : 1 : 1, and all the openings lie within a hexagon, which corresponds to the hexagon marked

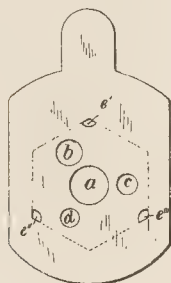


Fig. 1.

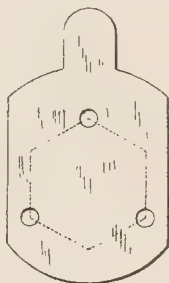


Fig. 2.

out by the apertures of the focussing diaphragm with a symmetrical point taken between each (Fig. 2). The lens and screen are adjusted by aid of this diaphragm so that the images of the three openings formed by adjacent openings in the screen fall two and two together, and thus a system of evenly distributed dots results. The stop (Fig. 1) is then inserted, and exposure made.

PHOTO-MECHANICAL PATENTS.

Application for Patent.

PRINTING TEXTILE FABRICS (No. 8,046).—Improvements in the production of photo-engraved surfaces for printing textile fabrics. Cyril Joseph Atkinson and the Calico Printers' Association, Ltd., 17, St. Ann's Square, Manchester.

Exhibition.

STIRLING.—The following are the successful exhibitors at the Photographic Exhibition which opened on Tuesday in connection with the Stirling Photographic Club at the Club Rooms, Corn Exchange Square, Stirling:—Champion Class: A. Chapel Milne, Brechin, "The Spate." River, landscape, scenery, etc.: (1) W. S. Crockett, Glasgow, "Twixt Spring and Summer"; (2) Robert Marshall, Grangemouth, "The Sun sinks in the West"; (3) A. W. Hill, Shotts, "Winter Landscape." Portraiture and Genre: (1) P. D. Nairn, Perth, "Auld Sandy"; (2) Robert Thomson, Edinburgh, "The Colourman"; (3) G. L. A. Blair, Paisley, "Portrait of a Painter"; (4) A. W. Hill, Shotts, "The Bo's'n." Lantern Slides: (1) Graystone Hird, Bath, "Landscape"; (2) James A. Taylor, Paisley; (3) Dan. Dunlop, Motherwell. Federation Societies' Exhibits: Brechin No. 2. "Plaque." Landscape, Seascape, and River Scenery (members): (1) John Walker, "The Brook"; (2) Alfred Mathers, "Approaching Winter"; (3) H. S. Turnbull, "A Woodland Glade." Portraiture and Genre (members): (1) J. G. Bowie, "A Reverie." Two prints from photos taken at club outings (members): S. Goudie, "Drip Bridge" and "Alva Glen." Lantern Slides (members): (1) J. J. Munro, Stirling; (2) F. Humphreys, Stirling; (3) J. G. Bowie, Bridge of Allan.

FORTHCOMING EXHIBITIONS.

April 7-May 8.—International Artistic Exhibition, Berlin. Director, Herr Franz Goerke, Maassenstrasse 32, Berlin, W.

April 24-29.—Redcar and Coatham Literary Institute Photographic Society. Secretary, W. Hildrith, 42, Newcomen Street, Redcar, Yorks.

April 27-29.—Southend-on-Sea Photographic Society. Hon. Sec., J. Archer, 24, Ashburnham Road, Southend-on-Sea.

April 28-29.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen Ashcroft, Bushey Hall Road, Watford.

May 1-31.—International Exhibition of Photographic Picture Postcards, concurrently with the 10th Salon. M. le Secrétaire-Général du Photo Club de Paris, 44, Rue des Mathurins, Paris

May 9-10.—Ballarat Camera Club. Hon. Secretary, G. Montgomery, 201, Sturt Street, Ballarat.

May 9-13.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

May 10 to June 19.—Salon of the Photo Club de Paris. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris

May 18-24.—Coatbridge Photographic Association. Hon. Sec., Geo. W. Campbell, Carnegie Library, Coatbridge.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

September.—Royal Photographic Society, New Gallery, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield and James W. Wright, 62, Vale Road, Sheffield.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargent, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton 5, Pembroke Road, Portsmouth.

FORTHCOMING COMPETITIONS.

May 15.—Burrongs, Wellcome, and Co. Money prize for negatives developed with Tabloid Pyro-Metol developer.

May 15.—Warwick Dry Plate Co. Money prizes for prints from negatives on Warwick plates. Open to members of Photographic Societies only.

September.—Kodak. £400 in prizes for results on Kodak products Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

THE New English Art Club, forced by the demolition of the Dudley Gallery to abandon the quarters which it has occupied for many years, is holding its spring exhibition at Liverpool. The change of locality has not, we understand, affected either the character or the quality of the show. Most of the regular contributors are well represented, and there are works by Mr. J. S. Sargent, Mr. W. W. Russell, Mr. J. L. Henry, Mr. A. S. Hartick, Professor Brown, Mr. Muirhead Bone, and other capable artists which are quite in accordance with the best traditions of the club. The members are decidedly making a bold experiment in going to the provinces after having been established in London for such a long period, but the experiment is by no means unlikely to be justified by its results.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between April 10 and 15.

COLOUR PHOTOGRAPHY.—No. 7,557. "Improved manufacture of coloured photographic images." Oliver Imray, Birkbeck Bank Chambers, Southampton Buildings, London, for Meister Lucius and Brünig, Germany.

CAMERAS.—No. 7,626. "Improvements in magazine cameras." Charles Fielding, 81, Lodge Lane, Flowery Field, Cheshire.

CINEMATOPHGRAPHS.—No. 7,556. "Improvements." Harry Hamilton Moon, 18, Southampton Buildings, Chancery Lane, London.

PRINTING PAPERS.—No. 7,693. "Improvements in and relating to the manufacture of gelatine emulsion papers." Ludwig Robicsek, 7, Southampton Buildings, Chancery Lane, London.

APPARATUS.—No. 7,900. "Improvements in photographic apparatus." A. J. Boulton, 111, Hatton Garden, London, for Abbé Antoine, Cardon, France.

COLOURED PHOTOGRAPHS.—No. 7967. "Improvements in coloured photographs and methods of producing same." John Edward Thornton, Altrincham, Cheshire.

MERCURY LAMPS.—No. 7994. "Improvements." Hans Vizgo Siim-Jensen, 7, Southampton Buildings, Chancery Lane, London.

DARK ROOM.—No. 8,017. "An improved portable and folding dark chamber for photographic purposes." Louis Navarre, 6, Lord Street, Liverpool.

WASHING PLATES AND PRINTS.—No. 8,054. "New and improved apparatus for washing and fixing photographic plates and prints." William Hibbert, 139, Dale Street, Liverpool.

ROLL FILM CAMERAS.—"An improvement in or relating to roll film cameras." Leonard Ewart Littlewood, 306, High Holborn, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

COLOUR SCREENS FOR FILMS.—No. 10,951, 1904. The claim is for a packet of three flat films, each with a colour filter of stained gelatine or collodion before it, as required for the three-colour process. The filter is affixed to the film, so that when the latter is changed by any suitable plan, such as that of the "Prenio film pack," the next film is ready for exposure behind its filter. Register marks, for the purpose of readily determining the correct superposition of the pigment prints to be made from the three negatives, may be provided by notches upon the margin of the exposure aperture of the carrier. These notches will naturally be reproduced upon the developed films in exactly the same position relatively to the images projected thereupon by the lens. Or, for the same purpose, perforations, such as punctures with a needle, may be made through the entire series of films, after they are in position in the pack. Joseph Thatcher Clarke, Gayton Corner, Harrow.

FOCAL PLANE SHUTTER.—No. 12,003, 1904. The claims are for a focal plane shutter or other roller blind shutter, the size of aperture of which is altered from the outside of the camera. The specification needs the diagrams, but the first claim is for blind aperture regulating mechanism for roller blind shutters, having the blind in two parts, each mounted on a separate and spring-actuated roller, with tapes to attach the free end of one blind part to an inner

roller located inside of, and adapted to be connected and disconnected from, one of the aforesaid rollers, wherein the free end of the blind part on this last-named roller is attached by separate and independent tapes to a winding roller, independent of the other rollers and adapted to be revolved from the exterior of the shutter case to thereby set the shutter, whereupon the size of the slit or aperture between the aforesaid blind parts can be adjusted to any desired extent. Arthur Lewis Adams, 26, Charing Cross Road, London.

DEVELOPMENT DARK SLIDE.—No. 12,038, 1904. A single dark slide with a detachable back portion, which serves as a receptacle for developer. This development chamber is closed by a sliding door, containing ruby glass, and it is suggested that after exposure the plate should be allowed to fall into the developer, and the upper part of the "dark slide" afterwards removed. William Holden, 55, Stamford Street; and James Schofield, 130, Manchester Road, Roches, both of Mossley.

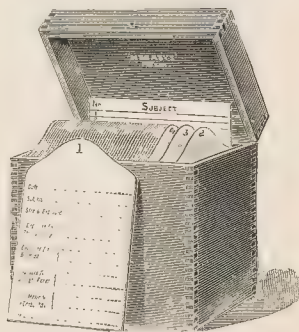
New Apparatus, &c.

Glossy and Matte P.O.P. Postcards. Made by Cadett and Neall, Ltd., Ashted, Surrey.

In response to the growing demand for postcards with the characteristic features of printing-out paper, Messrs. Cadett and Neall have added these two articles to their manufactures. The postcards, which apparently bear the same emulsion as Cadett P.O.P., tone quickly and with good results in the gold sulphocyanide bath. The postcards are put in sixpenny packets of twelve, with two masks, and are doubtless supplied in packets of larger numbers.

The "Negasys" and "Phosys" files for negatives and prints. Made by Houghtons, Limited, 88-89, High Holborn, London, W.C.

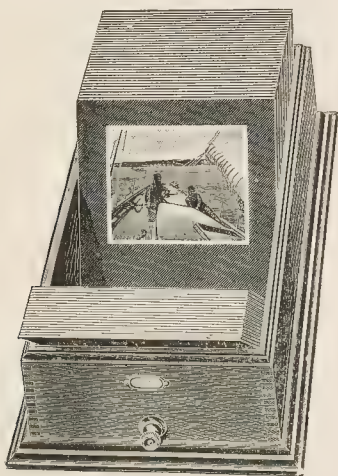
It is presumed that every professional photographer has a system of his own for storing and filing accumulations of negatives and prints. He would probably soon be in a most hopeless muddle if he did not.



The "Negasys" File.

What that system is depends, in most instances, upon circumstances that have arisen during the growth of the business. We are quite sure, however, that, in many instances, existing systems of negative and print storing are open to improvement. The negatives may be ever so carefully stored, and the collection of prints equally well looked after, but in a great number of cases that have come under our observation there is often a deplorable lack of method in the filing and cataloguing arrangements, that has rendered the finding of any particular negative or print a matter of time, not to say of uncertainty. Of the devious way and means employed by

the amateur photographer in storing his hordes of pictorial possibilities, we have little to say beyond the fact that each is a law unto himself, and it is generally an extremely hap-hazard one. The fatal tendency to put off the printing of certain negatives, which are meanwhile "put on the shelf," and the indiscriminate bunching together of the season's output for redistribution during the long winter evenings call for a remedy that, for success in its application, must be at once simple and certain. Messrs. Houghton are, therefore, to be congratulated on having taken the matter in hand; and the "Negasys" and "Phosys" files, for negatives and prints respectively, which they are now placing on the market, will do much to restore order in the workrooms of both professional and amateur photographers. The "Negasys" and "Phosys" files amount to no more or less than the application of the well-known card index and vertical filing system to negatives and prints. The system has been universally recognised by business firms as one of the most reliable and simple substitutes for cataloguing in book form. The "Negasys" file, as



The "Phosys" File.

shown in the illustration, is a simple but well-made box, containing fifty numbered envelopes. Each envelope will take a negative, particulars of which can be added outside. An index card completes the file. The principal advantages of this form of filing negatives is that each box will contain as many plates as an ordinary grooved negative box three times the size. The saving in space alone, therefore, is very considerable. In practical use, negatives can be filed by localities, by subjects, by dates, numerically, or in any other way desired, and guide cards can be used to divide or sub-divide the negatives. With the aid of the index, any negative can be found and withdrawn without touching any other negative. The "Negasys" files can be either built up in a series of separate units, or the negatives may be treated as a complete series, and each box given an initial letter, this letter being also added to the numbers on the envelopes. By this means, any number of negatives can be collected for printing purposes, etc., from various boxes, and afterwards replaced without the slightest confusion. When a great number of negatives are filed, a general card index will reduce the system to the greatest possible simplicity. The boxes are made at present in $\frac{1}{4}$ -plate, 5 by 4, $\frac{1}{2}$ -plate, and whole plate sizes, and range in price from 1s. 6d. to 3s. 9d.

The "Phosys" file is intended to replace the album or any other method of displaying prints that has been yet

advocated. To the professional photographer, this file should especially appeal. For the exhibition of specimens it is likely to be extremely popular; and it is extraordinary that the vertical card index system has not been applied to the purpose previously. Each picture is plainly visible; each one is mounted separately to suits its character; all are as secure as in an album, yet each is always interchangeable, and can be taken out and examined as an ordinary mounted print. There are no limitations to the capacity of the file, as prints can be stored, sorted, grouped, changed, remounted, arranged and rearranged just as circumstances require, yet they can be replaced as before in a very short time. Each print is mounted on an art paper or card mount. These mounts, which are supplied very cheaply, have a small circular hole cut through them at the bottom, and are stacked together in an oak tray. A metal rod passes through the tray and the cards and keeps the mounted photographs in position; but this rod can be easily withdrawn and any one print or prints can be taken out for inspection, or the whole number can be turned back like the pages of a book. The applications of this system are limitless, and, used in conjunction with the "Negasys" files, should form a perfect record of both prints and negatives. The oak cases are extremely well made, and in all sizes. In addition to the separate boxes, Messrs. Houghton apply the system in the shape of extremely well-made boxes and cabinets containing drawers and receptacles for prints of various sizes. These cabinets form handsome pieces of furniture, that will form a pleasing addition to the reception room of any photographer. The quartered oak trays, as illustrated above, to take mounts 6 x 6 in. cost 5s., and the prices range from this amount to £5 5s. for cabinets.

"Bertha" Concentrated Transparent Colours. Made by the "Vanguard" Manufacturing Co., Maidenhead.

To colour or tint the monochromatic productions of the camera, in approximate imitation of the hues of nature, appears to be the desire of every photographer at one period or another of his existence. The Vanguard Company were early to recognise this, and their series of "Bertha colours" for tinting photographic prints and transparencies, have achieved a large measure of popularity, not only by their variety, but for the simplicity of their application. The advent of the picture post-card, and the great increase of other types of work likely to be enhanced by skilful colouring, have doubtless influenced the company in extending the series, and in the supplementary set of colours sent to us for trial such tints as "slate," "brick," and "gold" are included. The entire series now comprises fourteen colours, and this will be found complete enough to meet practically every requirement. The colours are supplied in powder form, and it is only necessary to take up a small proportion of the powder with a moistened camel-hair or sable brush and add it to a little clear water, working it with the brush until a perfectly even tint is formed, or the contents of each little box of powder can be dissolved in an ounce of hot water and stored in liquid form in bottles. The diluted colours are applied very easily to most surfaces, but for P.O.P. it is recommended to work with an alkaline albumen medium. The colours are very pure, and in certain cases can be mixed to obtain other tints. The effect of a print treated with the "Bertha" colours is very pleasing if well done.

A pneumatic bulb of small size and oval in shape is a new introduction with the Altrincham Rubber Co., Mossburn Buildings, Altrincham, by whom it is advanced specially for the convenience of users of small hand cameras. The price is 10½d., or 1s. 1½d. in black enamelled rubber. It is one of some thirty different patterns of bulbs made by the company.

A "small sundries" list, giving particulars of this season's cameras

and a list giving prices, sizes, and descriptions of nearly every plate, paper, and film on the market are the two latest outputs from the publicity department of Jonathan Fallowfield, 146, Charing Cross Road, London, W. The latter list is likely to prove very useful, and considerable time appears to have been expended upon its production. A postcard will bring either or both.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
28	Aberdeen Photo. Assn.	Annual Business Meeting.
29	West London Photo. Society ...	Arranging Exhibition and Summer Programme.
29	Watford Photo. Society	Second Annual Exhibition of Members' Work, &c.
1. May.	Southampton Camera Club	Amateur Photographer Prize Slides.
1.	Exeter Camera Club	Experiences with the Camera in Switzerland. Illustrated. Mr. A. Brock.
1.	Wallasey Amateur Photo. Soc.	The Platinotype Process. Mr. W. Hayes.
2.	Royal Photographic Society.....	Retouching and Improving the Negative. Demonstrated. Mr. Redmond Barrett.
3.	Sheffield Photo. Society.....	Some Experiments in Bromide Toning. Demonstrated. Messrs. G. A. Seed and H. S. Nutt.
3.	Manchester Amateur Ph. Soc.	Printing-out Papers. Mr. F. Higginbottom.
3.	North Middlesex Photo. Soc.	Lantern Slide and Print Competitions. Social Evening.
3.	G.E.R. Mechanics' Institution	The History of Photography. Illustrated. Mr. Alex. Stewart.
3.	Edinburgh Photo. Society	Messrs. R. & J. Beck's Specialities in Cameras, Lenses, &c. Demonstrated. Mr. W. F. Slater.
3.	Cricklewood Photo. Society	Ten Minutes' Paper or Demonstration by the Members.
3.	Everton Camera Club	Flower Photography. Demonstrated. Mr. E. Seymour.
4.	Watford Camera Club	Paper: Dr. C. Lester Leonard.
4.	Rontgen Society	Photochromoscope. Mr. T. E. Freshwater.
4.	London and Prov. Photo. Assn.	

ST. ALBANS PHOTOGRAPHIC SOCIETY.—The annual general meeting of this society was held in the society's rooms in the chemical laboratory of St. Albans School on Friday last. A successful year was reported. Mr. W. J. Armitage was elected president of the society. The Committee for the ensuing year consists of Mrs. C. H. Ashdown, Mr. T. Asquith, Mr. W. H. Coleman, Mr. Stanley Kent, Mr. D. A. H. Lawrence, and Miss Worssam. Mr. W. R. L. Lowe and Mr. W. H. Coleman were appointed delegates to the Affiliation Committee of the Royal Photographic Society, and Mr. C. H. Ashdown was again appointed hon. secretary and treasurer.

ALDERSHOT CAMERA CLUB.—On April 20, a demonstration of carbon printing was given before the members of this club by Mr. Basebe. The lecturer made a number of extraordinary statements, one or two of which we may quote. He claimed four advantages for the process:—1. Rapidity of development; 2. Adaptability to after treatment; 3. Durability; and 4. Range of colour. Under the head of durability, he said, it compared very favourably with platinotype, as while prints by the latter process were known to fade in the course of years, carbon pictures retained their original tints practically for ever. The carbon process was very exacting; it demanded good negatives, "and," said Mr. Basebe, "good negatives are rare to-day; ghosts we have in plenty, but very few really good negatives." But, although in this respect it fell behind the ordinary P.O.P., for by the latter good prints could be obtained from ghostly negatives, the lecturer claimed for his favourite process that by it prints could be obtained in one-third the time taken by the P.O.P. Another advantage claimed, was that by carbon deep shadows could be lightened—an impossibility with practically every other process.

SOUTHPORT PHOTOGRAPHIC SOCIETY.—The fifteenth annual meeting of the Southport Photographic Society was held at the Queen's Hall, Nevill Street, on Thursday evening of last week. Mr. D. E. Benson, the hon. secretary (pro tem.), read the report, which showed a satisfactory and successful year had been passed. The officers for the ensuing year were then elected as follows:—President, Mr. Willis Brunt; vice-presidents, Messrs. J. Lambert and J. S. Dickinson; hon. treasurer, Mr. R. Booth; hon. sec. and librarian, Mr. J. T. Rigby; council, Messrs. D. E. Benson, Dr. Bradley, E. R. Cave, Dr. Hawksley, and Dr. Payne; affiliation delegates, Messrs. D. E. Benson and J. T. Rigby; auditors, Messrs. H. M. Jackson and Woodall.

Commercial & Legal Intelligence

EASTMAN KODAK COMPANY of New Jersey.—The report of this company for 1904 and balance-sheet as at December 31 last have just been issued. The results of the year eclipse the previous records of the company brilliant though they have been. The net profits, after making ample provision for depreciation on buildings, plant, and machinery, amount to £688,484, as against £606,740 for the previous twelve months. Out of this sum dividends of 6 per cent. upon the preferred capital and 10 per cent. upon the common have been distributed, leaving £218,099 to be added to the undivided surplus fund, increasing it thereby to £444,584. In addition to this surplus there are special reserves of £103,436. The financial position of the company is reported as exceedingly strong, its liabilities being only its current trade accounts, amounting to £93,603, while its current assets figure at £2,146,325. Of this latter no less than £1,253,347 consists of marketable bonds and cash on hand. The earning power of the company shows a steady increase, as will be seen from the following statement of annual earnings: Year ending December 31, 1895, £49,656 14s. 4d.; 1896, £122,676 19s. 3d.; 1897, £185,232 0s. 1d.; 1898, £243,232 8s. 4d.; 1899, £335,919 5s. 7d.; 1900, £465,816 0s. 7d.; 1901, £517,347 5s. 5d.; 1902, £564,455 0s. 1d.; 1903, £606,740 8s. 11d.; 1904, £688,484 1s. 9d. The earnings for last year, after paying 6 per cent. upon the preference capital, are equal to over 15 per cent. upon the ordinary shares. It is obvious that when the whole of the resources of the company are commercially employed—there being over a million sterling of money doing nothing—the earnings of the company should be materially increased. The shares have risen lately considerably in value, being now quoted: Preference, 111-115; common, 150-155.

A SINGULAR CLAIM.—At Pontypridd County Court on Wednesday of last week a sequel to the Clydach Vale Colliery explosion was disclosed in a case in which Mr. A. H. Chapman, photographer, Swansea, sued Mr. R. Williams, assistant surveyor at the Cambrian Colliery, for £10 damage to five photographic plates used on the occasion of the pit calamity. It appears that on the Monday after the explosion the photographer visited the colliery, and after he had taken three views the defendant questioned his right to be on the premises. While he was away obtaining permission, defendant exposed his plates, which were in consequence spoiled. Plaintiff further stated that he had been commissioned by the "Daily Mirror" to take the views, for which £1 1s. each would have been paid. For the defence it was contended that plaintiff had no right to be on the premises. Judgment was given for the defendant, but without costs.

MESSRS. Reynolds and Branson, Ltd., 14, Commercial Street, Leeds, have issued a large catalogue of photographic apparatus under the title "Handy Guide to Photographic Requisites." Presumably they will send it free on application.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given
 * * We do not undertake responsibility for the opinions expressed by our correspondents.

THE P.P.A. ASSISTANTS' CERTIFICATES. To the Editors.

Gentlemen,—While I am extremely anxious to meet reasonable criticisms of the certificates scheme, I think it should not be supposed to be incumbent on me to reply to those which would not have arisen had the prospectus been studied with proper care. Your correspondent Pembury Ward, for instance, puts it that our three grades suggest first, second, and third ratings for photography generally. That saps our intention, and the suggestion is not justifiable. Our certificates will indicate that the holder is first rate up to the point he goes, and, moreover, we have provided alternative terms for the grades in "Assistant's Certificate," "Operator's Certificate," and "Principal Operator's Certificate." It is a little careless of him to say "now that official permission has been published," etc., when the publication of the draft prospectus was accompanied with an official invitation to all photographers, employers, and assistants to assist in perfecting the scheme.

Your correspondent R. Russell would be able to answer many of his own questions had he read the prospectus, but those of them which relate to wages have nothing to do with the scheme directly.

"Scot" writes temperately, as before, but is it not a little unkind of him to suggest that the operation of the scheme must be suspended because a matter which affects much less than 1 per cent. of the total number of assistants has been overlooked? I have again to thank him for the spirit of his letter and his recognition of the benefits to be derived from mutual respect on the part of employers and those they employ.

"Assistant," also, I thank for his suggestion. A similar suggestion was fully discussed, and was found to be impracticable in that particular form, but in a modified way every certificate will give the same amount of information as to the particular qualifications of the holder.—I am, etc.,

WILLIAM GROVE,

Hon. Sec.

51, Baker Street, W.
April 24, 1905.

MAKERS' FORMULÆ. To the Editors.

Gentlemen,—Mr. Peake's letter on this subject in your last calls attention to the chaotic condition of our weights and measures, and I do not think that our makers are to be blamed if they follow the common custom; nor are they alone, for one can hardly take up a photographic journal or book without finding sinners in a similar sense.

However, to answer Mr. Peake's specific questions. Without direct experiment it is impossible to state the total bulk of B solution; therefore, putting on one side altogether for the moment the exact weight of the "1 oz." of pyro, it is utterly impossible to tell him how many grains of pyro are contained in the ounce.

With regard to A, I believe I am correct in stating that plate makers invariably mean by "pyro. 1 oz." the commercial ounce bottle, which contains 437.5 gr. Therefore A is not a 10 per cent. solution.

May we not assume, with all due respect to the plate-makers, that the infinity of variations of formulæ arises from a little natural jealousy, and is a relic of the olden days, when every photographer

swore by his own formula, and banned all others? Certainly in the light of the experiments of Messrs. Hurter and Driffield and Mr. Watkins, some such simple expression of formulæ as suggested by your correspondent would be more consistent with our present state of knowledge of photo-chemistry.

A is not a 10 per cent. solution, I contend, because a true 10 per cent. solution is one containing 1 part by weight of the solid in every 10 parts by weight of the solvent, and we do not weigh out our developers, but measure them; therefore, if we wish to make a 10 per cent. solution we must either take such a quantity of the solid as will amount to one-tenth of the total bulk of the solution, or we must multiply the weight of our solid by ten to get the total bulk of our solution. In the case in point, on the first premise, we must, to make 10 oz. of a 10 per cent. solution of pyro, use $(480\text{m} \times 10) \div 10 \text{ grains} = 480 \text{ grains}$. This means, as pyro is sold by the avoirdupois ounce of 437.5 grains, that we must purchase two 1 oz. bottles of pyro, and weigh out 480 grains. Surely the more sensible method is to take as the unit our weight of solid—viz., 437.5—and multiply by ten and make the total bulk of our solution 4,375 fluid minims.

With regard to the conversion of metric into English, I, like your correspondent, have noticed a little confusion in the system adopted by various writers, but it all rests on the chaotic condition of our weights and measures, and the specific formula which Mr. Peake gives may be "translated" in two ways, and I give these in parallel columns, only I have added the "to" in the last line:—

		A.	B.
Hypo	400 gms.	8 oz.	3,840 gr.
Sodium chloride.....	20 gms.	175 gr.	192 gr.
Lead acetate.....	10 gms.	87.5 gr.	96 gr.
Gold chlor. (1 p.c. sol.)	100 ccs.	2 oz.	2 oz.
Water to	1,000 ccs.	20 oz.	20 oz.

The results in A are thus arrived at—if 1,000 ccs. = 20 oz., it is obvious that every 100 ccs. = 2 oz.; therefore 400 gms. = 8 oz., but we weigh our hypo by avoirdupois weight; 20 gms. is the 20th of 400, therefore it is equal to one-twentieth of 8 oz. = 175 gr., 10 gms. must be half 20, therefore we get 87.5 gr. B is calculated in the following manner, if 1,000 = 20 x 480, what are 400 equal to and so on, and I contend that B is correct, and A wrong.

Of course in this particular instance the difference is immaterial, but in formulæ for emulsions the error may be so great as to vitiate the whole thing.

May I point out as bearing on this subject your "Ex Cathedra" par on "Exactness in Formulæ" with regard to the difference between the litre and the 1,000 ccs., that I think the difference should be greater than you state, and 1 millilitre = 1.00016 cubic centimetres? But a still more important point in connection with this purely "academic" difference, is that the "litre" and "millilitre" represent the volume of 1,000 grammes and 1 gramme respectively of distilled water at 4 deg. C. (= 39.2 deg. Fahr.). We English use "litre" and "cubic centimetre" to represent the same weights of water at 60 deg. Fahr. The result of this is that as the 1 gramme of water has a bigger volume at 60 deg. Fahr. than at 39.2 deg. Fahr., our c.c. is greater than the millilitre whereas, according to the Continental system, the actual cubic centimetre has been found to be theoretically less than the millilitre. Practically the whole world standardises at 4 deg. C. We take over a bastard system of metric weights, and standardise at 60 deg. Fahr. but our Imperial weights and measures are standardised at 62 deg. Fahr.!

Query: Ought we not to take into consideration barometrical variation?—Yours faithfully,
Edinburgh.

CHEMIST.

To the Editors.

Gentlemen,—Mr. Arthur Peake in your current issue makes a number of comments on formulae for development which tend to show how necessary it is that we should adopt the metric system of weights and measures as early as possible, and give up the confusing "no system" generally employed.

At the top of page 318 he asks how the formulæ, which are given in English and metric units, are derived. A reference to page 15 of this year's "Almanac" will show him how they ought to be derived from each other; but in cases where makers, or processors, of formulæ give what they consider equivalent numbers you probably left the responsibility with them.

The last paragraph on that page deals with the question in Mr. Peake's third paragraph. I suppose that it would never be able to lay down legal penalties for using language which is liable to misunderstanding, and till it is I fear people will not always exactly what they mean, or specify exactly what they mean, perhaps the following may meet your correspondent's wants.

The sodium sulphite usually employed in photography is the talline form, in which half the weight consists of water; assuming that this is meant in both the forms A and B, then the former would give 10 oz. of solution, and, as regards pyro, would really be 10 per cent. solution, whereas B would measure about 12 oz., or be about 8.3 per cent. Nevertheless, I fancy that most photographers would call both 10 per cent. solutions of pyro. I fear, that this confusion would not be removed by the use of metric units. The only thing to do is to follow the instructions of the author.

As to the reason why writers cannot give their formulæ in the plain way described, it is to be considered that people tell us they find answer, and when that is done it is well to remember the old proverb, and "not look a gift horse in the mouth"! The solution of the final formula is:—

Pyro, 8 oz.; sodium sulphite, 195 gr.; lead acetate, 97.5 gr.; chloride, 2 oz. of a 1 per cent. solution. Make up to 1 pint of water.—I am, Gentlemen, yours faithfully,
 April 20.

J. F. TENNANT.

PHOTOGRAPHERS' ADVERTISEMENTS.

To the Editors.

Gentlemen,—I have been much interested in Mr. Frank Colebrook's witty articles supplementary to my own on the subject of photographers' advertisements, but should like to join issue with him on the point, in that he criticises my suggested advertisements as being too much alike. Upon the question of printing and advertising I am aware that I stand in the same position as Mr. Colebrook does upon that of professional photography—viz., that I am an outsider; but still, I am of opinion that if a photographer writes regularly, and frequently changes the matter of his advertisements, it is, upon the whole, advantageous to retain the one of setting. The Fels-Naptha advertisements now appearing in the dailies, or Messrs. Raines' series on page x. of this journal, are instances of my meaning.

Colebrook cites his friend, Mr. G. A. Atkinson, of Ulverston, as an example for photographers to follow. But is Mr. Atkinson a photographer within the meaning of the act—I should say, within the class for whom my notes were written? I rather think that Mr. Atkinson is a stationer, and did I not write that photographers should have some of the business now in the hands of the stationers?—Yours faithfully,
 W. J. CASEY.

Answers to Correspondents.

* * * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.

* * * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* * * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

* * * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:

J. Clapperton, 23, Albert Place, Galashiels. Photograph of Mr. J. Bell, aged 10 years.

B. H. Williams, 12, Castle Street, Dudley. Photograph of Dudley Castle Fetes.

B. T. Cornforth, 5, Rock Street, Higher Broughton. Photograph of Burrow Bridge, Bolton.

A. Cowle, Ellwath, Alton. Photograph of Interior of West U. F. Church, Alton.

STUDIO QUERY.—Would you kindly advise me upon the construction of a photographic studio, size to be 26 ft. by 14 ft.? What height amount of glass, side and top, would you recommend for working by a West light only?—KIDDERMINSTER.

We should advise a studio of the "lean-to form," with from 5 ft. to 5 ft. 6 in. at either end opaque top and side. The glass at the side may be, to the eaves, 8 ft., and coming to about 3 ft. or 3 ft. 6 in. to the floor. Bolas' book on the studio and its construction, published by Marion and Co., price 2s., will give you some useful hints.

BACKGROUND MATERIAL.—Can you tell me where to get canvas suitable for backgrounds, and the best method of preparing it?—C. FINEX.

The best material for the purpose is unbleached sheeting. It may be had of any of the large drapers up to about 8 ft. wide—perhaps wider if required. To prepare it, strain it on a frame and then give it a good coating of size, such as is sold at the oilshops. It will then be ready for distempering or for flattening in oil.

STAMP PORTRAITS.—1 Would you kindly inform me how to work "stamp photos" cheapest from one negative; size 1½ in. by ¾ in.? I believe these are printed on Velox; but how is it washed quickly—say, about twenty-four on a sheet without expensive apparatus? 2. I have also to copy a good many faded and discoloured photographs for enlarging. How is the best negative of such obtained?—C. O. B.

1. If you wish to work from one negative you will require a special printing frame for the purpose. These frames are supplied by all the large dealers such as Marions, Fallowfields, Houghtons, and others. You will see by our last issue that Messrs. Sharp and Hitchmough, Dale Street, Liverpool, have just issued a new price list of stamp photograph accessories. Better write for one. The prints are washed in the usual way. 2. If the photographs are very yellow the best results are obtained on orthochromatic plates.

COPYRIGHT.—I have taken views of village for photo post-cards, and supplied shop for sale of them. Another shopkeeper bought three of them, and has had them reproduced. I have just had them copyrighted after finding out he was selling same. He is selling them after I have got them copyrighted. Kindly tell me if I can stop him selling, and what claims I can have against him.—M. D. M.

You can stop the sale of further copies, but you cannot

make a claim for infringement of copyright before registration. You may, however, write the firm asking them how they propose settling the matter.

R. W. J., London, N.—Dr. C. L. Marquart, Benel-an-Rhein.

ENLARGEMENTS.—1. What lenses do you consider the best for enlarging? Would an Aldis Series II. be suitable? 2. Would a sheet of opal be as good as a mirror for a reflector outside window? 3. Can you tell me how to avoid hair markings and fine scratches on enlargements, when made with the enlarging lantern? I find the slightest marking on the film of negative are exaggerated a dozen times on enlargements. The enlarging apparatus is incandescent gas.—LANTERN.

1. Yes, an excellent lens for the purpose; and so is almost any reputable maker's anastigmat. 2. We should prefer the opal, it is a better light diffuser; though a mirror will shorten exposure somewhat it is more liable to illuminate the negative unevenly. 3. Only by sacrificing a little of the definition and using a rough paper. But the negative should be retouched, and the enlargement as well, if necessary.

IDENTIFYING LENS.—I bought a Dallmeyer's lens, Series II., No. 4, and gave £6 10s. for it, second-hand. I am told by a friend that each glass should be marked on the edge with the name. Mine has not got it. I should like to know if it is genuine. The mount is engraved "J. H. Dallmeyer, No. 4, London, Stigmatic Series II., Patent No. 67,066."

It is not Messrs. Dallmeyer's practice to mark the glasses in this way. With the exception of one lens, each glass is burnished in. If you are in any doubt, the makers would tell you if the lens is genuine or not on your bearing the cost of carriage each way; and we believe nearly every other lens-maker will do the same.

MOUNTING ON CELLULOID.—Kindly let us know the best method of sticking celluloid to photographs. This celluloid is becoming more extensively used, and we have no doubt it would be useful to many more of your readers to know how to stick it to their prints.—H. and M.

Dip the prints in alcohol and press through a hot press with the celluloid. This is the method used by the "photo-button" maker. If you write Mr. Jonathan Fallowfield he will send you prices of suitable roller presses.

RETOUCHING AND OPERATING.—Kindly give your opinion of (1) the retouching and (2) operating of enclosed photographs, and state where same might be improved.—IMPROVER.

1. The retouching on the young faces is very good indeed—natural and clean; but the high lights might have been increased, and the width of the heavy shadows better graded. The work on the three women is too mechanical, although, from a stippling point of view, nice enough. A softer and looser touch might be cultivated with advantage, especially for the matt papers, with greater ease and freedom from the wrist for the pencil movement. Broader and better blended touches would have suited these faces. You do not send prints made before retouching, so it is impossible to criticise the main features in this important branch of photography—the preservation of the likeness. The work is much above the average we usually receive. 2. Your straightforward work is apt to be hard, we think. Lighting is good usually, but your negative apparently is not right for the printing paper. Your studies, the narrow print of the girl and the circle of the child, are creditable, but we would caution you from letting your taste for this sort of thing—which, we will say, is pretty good—lead you to eccentricity.

COPYRIGHT.—I photographed a nobleman, now deceased, giving him a few copies, which he acknowledged. Others he bought. The

photograph was not registered until a few days after the nobleman's death, and now I am challenged by a person that he can use any of these photographs without my permission for the reason that I had sold copies before registration. Is this so? No money was paid me at the time of sitting in any way; the nobleman giving me the sitting freely, knowing I should benefit by the sale of it.—MODU.

The copyright is not lost to you by the sale of the copies but you should have obtained the assignation to yourself of the copyright by the sitter at the time of the sitting, registering the copyright at the same time. However, the only question is whether the copyright belongs to you or to the family of the deceased sitter. Certainly the photograph cannot be copied without permission.

BACKING.—Can you give me an easily made formula for backing panchromatic plates, preferably with caramel?—T. WHITE.

There are plenty of excellent backings obtainable commercially, and most if not all are suitable for panchromatic plates. If, however, the following be made up, it will answer:—Crystalline caramel, 1 oz.; water, 5 drachms; methylated spirits, 3 drachms; add enough methyl violet, and very little is required to make the mixture black, or some ordinary lamp black may be incorporated with the above. The main point is to have the backing mixture as nearly black as possible.

STRIPPING WITHOUT FLUORIC ACID.—Is it possible to strip the film from negatives without using fluoric acid, which I cannot get.—PHOTOMECHANIC.

There ought to be no difficulty in obtaining hydrofluoric acid but it is nasty stuff to keep and handle. If, however, the plate is soaked for a few minutes in: sodium or potassium fluoride, 100 grains; water, 1 oz.; hydrochloric acid, 10 minims the film will readily strip. A celluloid or papier mâché dish must be used for this, and it must only be mixed just before use.

FRAUDULENT Dundee Canvasser.—At the Dundee Sheriff Court last week the credulity of certain Dundee people, who had been swindled out of small sums of money by a fraudulent canvasser, was brought to light. The case was that of George Hutton Middleton, a canvasser in the employment of the Anglo-Parisian Artists Photo Company, 134, Nethergate, Dundee, who admitted having committed eighteen acts of fraud, the sum involved amounting to £13s. 9d. It appeared that Middleton's duties consisted in soliciting orders for photographs, and on securing a customer he was instructed to leave a card, for which he received sixpence, representing his commission on the transaction. Accused, however, had persuaded several persons to give him more than sixpence. A sentence of four months imprisonment was imposed.

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EX CATHEDRA.

Photograph Collecting. An interesting article by Sir Martin Conway on the subject of photograph collecting appears in the current number of the "Grand Magazine." The author discusses the collecting instinct inherent in almost every human being, and in view of the enormous activity of photographers in this country, deplores the annual destruction of numbers of photographs of real importance to the future historian and student of art. He suggests that properly classified collections of photographs undertaken, not necessarily by photographers, would prove as great a source of pleasure as collecting stamps, buttons, tobacco pipes, shoes and gloves of celebrities, snuff boxes, etc. Photographs of bird and animal life for instance, classified series of modern scenery apart from its pictorial interest, reproductions of works of art, portraits of well-known people, photographs of buildings, street scenes, chronological illustrations of a man's life, including his friends, places he lived in or visited, etc., and many other forms that such collections might take are suggested. In addition to this, the formation of an historical photographic museum for the storing and preservation of camera records of existing objects of beauty and interest is proposed. We are quite in accord with these statements on the whole, but surely Sir Martin Conway cannot be cognisant of the extensive labours in this direction of Sir Benjamin Stone and his ever-increasing contributions of photographs of men, manners and matters to the British Museum; of the good work accomplished in the same direction by the National Photographic Record Association, and the innumerable photographic surveys now being energetically undertaken in all parts of the kingdom under the auspices of various photographic societies, to say nothing of the newly formed Arundel club, which has for its object the collection and publication of

photographic records of works of art. Apart from this, however, we think that the idea of photograph collecting by the individual, as a hobby, is a good one, and if carried out as systematically as, say, stamp collecting, would be both interesting and profitable.

* * *

Second-hand Photographs. In the same article, Sir Martin Conway remarks that although multitudes of people buy photographs, very few as yet buy and arrange them methodically, and, therefore, commercial organisation for photograph collectors does not exist, and, further, "that no trade is alive until the articles it supplies have a second-hand value. It is by the second-hand trade that the health of a business in new objects can be tested. The fact that some books are worth far more second-hand than when they were new, the fact that some pictures increase in value from year to year, that some postage-stamps grow more valuable as time goes by, stimulates the collection of such objects, and gives vitality to the trade in them." The recommendation for dealers in second-hand photographs for collectors is a novel idea; but, first, the advent of the ubiquitous photographic picture postcard has to be taken into consideration; secondly, the increasing value of photographs cannot possibly bear comparison with objects the issue of which has been ascertained and is finite, unless the original negatives are not in existence; and, thirdly, the author appears to have overlooked the fact that until photographs are produced that can be guaranteed to have a uniform degree of permanence, second-hand prints are not likely to have an extensive market, and cannot, therefore, be compared with stamps, pictures, or books, etc. which have a reasonable chance of long life.

The Trade in Photographs.

The trade in photographs is in a very indifferent condition in England, according to the writer referred to above. He says that "no trade is so badly organised as that of photographs," but holds the Italian photographic view trade up as a brilliant exception. Italy is apparently the only country where the production and sale of photographs has really been carried to a high degree of perfection. With the catalogues published by the chief Italian photographers at hand it is easy for anyone to order and obtain photographs of almost any kind of view or work of art existing in Italy. England appears to be at the other end of the scale—the country in which photographic publication is least efficiently carried out. "The moment anything outside the most commonplace range of tourists' photographs is wanted in this country, it is almost impossible to obtain it," says Sir Martin, who also states that there is room in England for several great photographic publishers to cater for the demands of the large touring public, and still more of the public that seldom tour, but desire to possess repre-

sentations of objects they cannot travel to see. The writer's pronouncements in this respect should be authoritative, but we would have thought that the output of such firms as Frith, Valentine, Hanfstaengl, Erdmann and Schanz and other well-known publishing houses, to say nothing of the vast number of views and reproductions of works of art in postcard form that are published almost every week might have saved this country from the denunciation of the eminent explorer.

* * *

Wet Weather Photography. Probably no period of the year is better suited for the production of "wet weather" photographs than the present. By wet weather photographs we mean representations of familiar views, usually street scenes, taken during or immediately after a shower of rain. Earlier in the year is not so suitable for the purpose, as the light is not then so actinic, nor are the conditions nearly so favourable for the work as at the present time. The pictorial possibilities of this type of outdoor work has been made familiar in this country by the pictures of John Beeby and others. Gleaming pavements, dripping trees, scurrying figures with mackintoshes and umbrellas, and wonderful reflections, not only provide good material for the hand camera man, but present well-known streets and places in an altogether new guise. When rendered in the form of picture postcards, they have a ready sale, which leaves the ordinary portrayal of the same views far behind.

* * *

Hand Camera Work in the Rain. Heavy showers, with intermittent gleams of sunshine, afford the best opportunities for this work, and the present time of year is particularly fruitful in climatic vagaries of the sort. Sunshine and rain together also give striking effects, and as these photographs depend chiefly for their novelty and beauty on the reflections, points of view should be chosen, showing good stretches of wet roadway or pavement. The paved sidewalks in many towns are bordered with trees, and a vista of these—now in spring raiment—will help a composition of moving figures, while it will frequently be found that what would be quite a commonplace street scene in dry weather has been converted by the aid of a passing shower and the subsequent reflections into a very effective picture. Exposures from 1-20th to 1-100th of a second can be given, according to the amount of movement present, and fully-exposed negatives can be obtained with a focal-plane shutter giving higher speeds, as there is always a great amount of light reflected from the ground. Fast, backed plates should be used, and, of course, it is essential that the lens should be protected from any stray rain drops. A before-lens shutter and a box-form camera will probably be found most useful on this account, but otherwise, if the photographer decides to brave the elements during the shower, he can always work in comfort under an umbrella held by a friend, although good results will not be so readily obtained as immediately after rain, owing to the blurring of the reflections by rain dropping on the pavements.

* * *

The New Chemistry. This week commences a short series of articles from the pen of Mr. Kenneth Mees, for which we need offer no apology, though we will not deny our less scientific readers a word of explanation. Take up the current journal of any chemical society, and you will find half the papers full of terms and language which are so much Greek to the chemist who left his classroom, say, even ten years ago. Physical methods of investigating phenomena have brought in their train a set of new expressions—the shorthand of your modern

chemist, but unintelligible to the student whose textbook days ante-dated the new movement. Yet the commonsense of this modern chemistry is not beyond the grasp of the average student, and in putting him in a way to understand it, we are simply following our own precedents of many years. The chemistry of photography has always received a fair showing in the *BRITISH JOURNAL*, and such a series of papers as that which Mr. Mees here begins has impressed us as particularly necessary, if those who have hitherto followed chemical progress are to maintain an intelligent interest in chemistry, and particularly in photographic chemistry.

* * *

Chemical Technology of Japan.

Professor Otsuki, who read a paper before the Society of Chemical Industry on Monday evening, is a Japanese member of that almost international body, and for some time past has been prosecuting researches at Hanover. Dr. Divers, the first professor of chemistry at Tokio, and the man to whom Japan owes her first enlightenment in chemical science, referred to the aptitude shown by the Japanese science student, and as proof of his statement came the announcement that Japan founded her own Society of Chemical Industry a year ago, and now has a thousand in its membership. With young Japanese in almost every university and technical school in Europe, it is well to consider the probable immediate future of chemical manufactures in the island empire of the East. Photographic manufacturers, in particular, may well ask how long it will be before Japan will be making herself independent of Western supplies of photographic material. At present several British firms number Japan among their important customers, despite the difficulties of delivering goods so far from their factories. Yet no one can imagine that competition with the Japanese maker in his own market will not come sooner or later, though the reputation of English plates and papers will lay heavy burdens even on our clever and versatile allies.

* * *

The Action of Peroxide of Dry Plates.

Since Dr. Russell's researches on the production of a latent image on gelatine plates by the chemical action in the dark of certain substances, a good deal of experimental work has been done in this sphere of "photography without light," vapography or radiography as it has been variously styled. In the present state of our knowledge we prefer the term "pseudo-photography," under which the miscellaneous effect, resembling those of light can be classified. It is still a debatable point whether the various bodies which produce a latent image in the gelatino-bromide emulsion do so by direct chemical or by a species of radiation, and the paper by Professor Chiri Otsuki, Ph.D., last Monday evening, before the Society of Chemical Industry still leaves room for discussion. The author confined himself to a "Study of the Action of Hydrogen Peroxide on a Photographic Plate in the Dark," and he concludes in favour of direct transmission of hydrogen peroxide vapour to the film. The chief reasons for this belief are the destruction of the image by the action of plain water for an hour, and the fact that while action of the peroxide is exerted through gelatine, celluloid, etc., in no case could it be made to pass through metal, except the latter was actually perforated by the peroxide.

* * *

Theories of Pseudo-Photography.

The vapour theory has always seemed to us a very difficult one to support, in view of the sharp reproductions of objects which have been obtained—Dr. Otsuki showed some

remarkably good specimens—and of the fact that certain media which appear to transmit the action are not directly permeable by the vapour. Dr. Russell recognised this difficulty and Mr. Chapman Jones suggested some years ago that the radiation, if such it be, is produced by the strong oxidation of the peroxide. Prof. Otsuki confirms Graetz's observations that differences of temperature between the peroxide and the plate exercise an enormous effect on the character of the action. For the present, it appears, judgment as to the true cause of the phenomenon must be reserved.

The Picture Season.

Spring commences the picture season. The Royal Academy Exhibition is now open, so is that at the New Gallery, to say nothing of the numerous minor shows in London. On the Continent, in all the principal cities, the annual exhibitions of pictures are open, or will be during the next two or three weeks. So far as the Royal Academy show is concerned the general opinion is that it is a fairly good average one, and nothing more. We learn that something like a thousand pictures sent in were rejected, to the sore disappointment of hundreds of aspiring young artists. This is also the season when fine-art publishers are on the look-out for securing the right of publication of such pictures as they think will command a good sale. At the present time we know that more than one of the largest continental art-reproduction houses have representatives in this country with that object in view.

A Photographic Historian.

There is a professional photographer in Seattle, in the North-west of the United States, who has made a name for himself from work done in hours when he has not been earning his bread and butter. His name is E. S. Curtis, and his hobby for years past has been the photography of Indian tribes. Appreciation takes the shape of an article in "Scribner's," and a public exhibition of his work at the Waldorf-Astoria, New York. In possessing himself of probably the best collection of Indian pictures, Mr. Curtis has cast aside the ordinary comforts of life, and spent a large proportion of each year on the most fatiguing journeys, extorting sittings from the reluctant Indians, who either over-rate the value of their services, or shrink from the "devil-machine." Mr. Curtis works in gum and multi-gum and is reported to be sending his photographs to European exhibitions this year.

Celluloid Dangers.

Not long ago we referred to certain alleged cases of spontaneous inflammability of celluloid, and since then there has appeared from the Home Office a cautionary circular as to the handling and storage of celluloid in manufacturing premises. An extract from these regulations appeared in our issue of March 7 last. That attention should need to be drawn to the inflammable nature of celluloid is almost a matter for surprise, but that such is the case we cannot doubt. Cinematograph accidents are not the only ones. Our readers will recollect the lamentable fire in Queen Victoria Street, the cause of which was celluloid. Now we hear from the Berlin correspondent of the "Daily Telegraph" that recent accidents there have moved the authorities to frame special regulations. That fact alone need not arouse consternation, for it is difficult to imagine any sort of accident too small for a German official body to make the *raison d'être* of a set of regulations. However, a catastrophe actually occurred last Friday. A boy was lighting some packing in the yard of a fancy warehouse

where celluloid goods were stored. Apparently some waste pieces of celluloid were in the rubbish, for suddenly flames shot up, the fire spread to the celluloid stock, and a series of explosions followed, smashing all the windows of neighbouring houses and injuring the passengers on a passing electric car. Obviously, the case is one of culpable carelessness; but that, unfortunately, does not deprive celluloid of its dangerous character.

Where Ignorance is—Danger.

Considering the many uses to which celluloid is now put, and its highly inflammable nature, it is a matter for congratulation that there are so comparatively few accidents. For when the material is once alight it cannot be extinguished, and it will burn itself out in a few seconds. What is most surprising is that those who make the greatest use of celluloid fancy articles are, as a rule, quite unaware of its dangerous character. Ladies, for example, who wear "tortoise-shell" combs, hair fasteners, and such-like things, have no idea of the danger they may run. Showcards are now being made of celluloid, and we recently saw one hanging in a restaurant in close proximity to a gas flame, the proprietor being evidently unaware of its dangerous inflammable character. As we have just said, it is a little surprising that there are not more accidents than there are. There is no question that a large addition of pigment to celluloid greatly reduces its inflammability and easy ignition. The celluloid, or xylonite, of which photographic dishes are made is not so inflammable as is the more transparent material such as is used for artificial tortoise-shell.

"Antioxydants." It has always been an accepted axiom, at least, since the eighties, when Berkeley suggested its use, that sodium sulphite was employed in developers to prevent the oxidation of the developing agent, but this view is controverted by a recent research of MM. Lumière and Seyewetz, who prove that the addition of certain developing agents to sodium sulphite solution prevents the oxidation of the sulphite. The original paper is filled with tables and curves obtained from their quantitative analyses, but the practical conclusions they come to are—that weak solutions of sodium sulphite may be kept, without oxidation, for a long time by the addition of very small quantities of these "antioxydants." About 0.75 grammes of paramidophenol hydrochloride, 0.3 grammes of hydroquinone, or two or three grammes of trioxymethylene (paraformaldehyde) per litre of 3 per cent. solution of sulphite practically prevent the oxidation of the same. As to the theory involved the authors are not certain, though they point out that sulphite *per se* and developing agents *per se*, though rapidly oxidising in aqueous solution, yet do not do so when mixed. They describe the action as probably "diastasic" or "catalytic."

Formaldehyde in the Air.

Several French chemists have recently shown that formic aldehyde, the active constituent of the photographer's "formaline," is a constant constituent of the air of towns. Some further experiments by M. Trillat recently communicated to the French Chemical Society prove that the formaldehyde is produced by the incomplete combustion of a great number of materials, including wood, paper, coal, peat, and petroleum. The quantities formed are not so very small, coal yielding 1.4,000th of its weight of formaldehyde on heating in an iron stove. As an idea of the quantities thus discharged

into the air, the following figures of M. Trillat's may be used:—

Air taken	Formaldehyde per 100 gals. of air.
On roof of Pasteur Institute .....	.18 grains.
Half-way up .....	.20 grains.
At Courbevoie (outside Paris) .....	.4 grains.

In detecting the formaldehyde, M. Trillat employed porous paper containing para-rosaniline hydrochloride, the paper becoming blue in the course of an hour or two when formaldehyde is present. His results have certainly a photographic interest, as the presence of even such minute quantities of formaldehyde in the air may have an effect on gelatine plates and papers.

Poison Bottles.

The question of a special shape of bottle for poisons has again arisen from some recent cases where fatal results have attended mistakes in the contents of the bottle. The suggestion has been made before, and several types of bottle put forward for the purpose. If our memory serves us, one of the London evening papers deprecated the adoption of a bottle constricted round the middle to the contour of a fashion-plate young lady on the ground that its very object would be defeated; the average man, by habitual association of ideas, would pass from clasping the waist to pressing to the lips! But in view of accidents which constantly take place, it would be well if a special form of bottle could be recognised under the Pharmacy Act. It would be one great factor in the prevention of accidental poisoning.

Scheduled Poisons.

The number of poisons which can be sold only by a certificated pharmacist are comparatively few in numbers, and of course the list does not include many substances which are dangerous poisons. The scheduling of carbolic acid is stated to have materially reduced the number of deaths from that poison, and now the dangerous mineral acids and ammonia are mentioned as advisable additions to the list of scheduled bodies. The pharmacy regulations are curiously inconsistent in what they do not schedule. For example, mercuric chloride (corrosive sublimate) is a scheduled poison, but mercuric iodide is not, and even when reforms have been made in the retail sale of poisons, there still remains the anomalous condition of things under which anybody can freely purchase the most deadly poisons in large quantities.

PORTRAITURE AT THE ROYAL ACADEMY.

WE have on previous occasions taken the opportunity of drawing the attention of our readers to the advantages derived from a study of good portrait-paintings by artists of repute. Not only are these productions of the brush likely to inspire camera portraitists with many new ideas in the way of pose, lighting, arrangement of accessories, composition, etc., but the outstanding qualities to be observed in the treatment of expression should prove an object-lesson to many professional photographers. This year's Academy, which opened its doors to the public on Monday, is particularly rich in portraiture, and although, as is usually the case in each succeeding exhibition of the R.A. at Burlington House, there are many specimens of portrait and figure work that had better not be taken as examples to follow, much that is exceedingly good in every respect is to be seen on the walls. The genius of J. S. Sargent is displayed to the full in the six examples of his work on view. His magnificent portrait of "Señor Manuel Garcia" will repay much careful study. As an example of concentration it would be hard to beat. The material

is summed up with an extraordinary simplicity and force, wholly suitable to the subject and the occasion. The strong, almost mysterious, face of the centenarian is dealt with in a manner that ought not to be beyond the capacity of the camera should the occasion arise to portray a similar type, but in particular are the sensitive, yet "old," hands worthy of close attention. The posing of the hands is a subject that receives far too little attention from the average portrait and figure photographer. There are, of course, notable exceptions whose treatment of this part of the human figure frequently brings forth the comment, "How painter-like!" These workers have probably studied the results achieved by masters in painting, and applied them in practical use. The portrait studies by A. Hacker in this year's exhibition are therefore worthy of careful inspection and study, if for this reason alone. His portrait, "M. H. Spielmann, Esq.," disposes in a clever manner of the difficult subject of a man in evening dress examining a portfolio of prints. The masses of light formed by the face, the white shirt-front, the hands, and the prints are dealt with in a manner that leaves very little to be desired. Again, the sitting figure, "E. S. Phillips, Esq.," gives a suggestion for dealing with somewhat awkward academical robes and "mortar-board." The pose of the hands in this picture is remarkably happy, as also is the case in W. W. Oules's "Thomas Pilkington, Esq." In fact, in nearly every notable portrait in the present show in which the hands are included, the power of expression that can be conveyed by these useful members is made full use of, and in practically every instance could be taken as a useful guide by the photographer when dealing with similar subjects.

The portraits of ladies, too, are very plentiful, and the arrangements of draperies, skirts, lace, and other frou-frou should provide much mental pabulum for the ambitious portrait photographer. The numerous groups displayed, particularly those by J. S. Shannon, J. S. Sargent, and S. J. Solomon, afford striking examples of what to do when dealing with more than one figure in making a pleasing composition, although, it will be noticed, in many cases, a practice frequently decried in professional photography is seen, namely, that every member of a group is staring straight at the beholder.

The proper treatment of the background is often the fault in many otherwise successful photographic portraits. Here, again, a study of the methods of the leaders in the painting world will prove of enormous assistance. J. S. Sargent, for instance, in most of his striking single portraits relies on the effect and relief afforded by an extremely dark, plain background—almost black, in fact. This not only tends to strengthen the face and figure of the sitter, but the gain in simplicity and forcefulness is undeniable. In the portraits by W. W. Oules, Seymour Lucas, Solomon J. Solomon, A. S. Cope, James Sant, Arthur Hacker, and others, the same concentration of light and effect on the face is to be seen, and the background in nearly every example is made dark and plain. Professional photographers are, however, beginning to realise the great gain to be effected by simplicity in backgrounds, and the tendency of late to substitute plain dark grounds, or with very little gradation, is being appreciated by a public that is quick to institute comparisons between paintings they can enjoy and photographs they do not.

The Royal portraits this year are also very plentiful, and will give a clue as to what treatment glittering raiment, uniforms, and jewels should receive. Quite apart from the blaze of colour exhibited in Luke Fildes's "command" picture of Queen Alexandra, or Harold Speed's fine full-length portrait of the King, and A. S. Cope's "The Kaiser," these fine efforts are again, in spite of the mass

of detail present, remarkable for their concentration, both in lighting and composition.

The question of clothes is always a difficult one in portraiture, and our contemporary, the "Tailor and Cutter," will doubtless have a word or two to say, as usual, on the badly fitting, and in some cases almost impossible, habiliments of some of the gentlemen and ladies depicted on the canvases at Burlington House. We are not altogether sure, however, that painters are not right in sacrificing everything for the portrait, or, at least, in not unduly bringing into prominence the productions of the tailor and milliner, and it is undoubtedly true that many famous artists are equally famous for their disregard of the current modes. The mould of form satisfies them; with the glass of Fashion they have nothing to do; and although inaccuracies in the cut and finish of gowns, buttonless coats that would rend the heart of any tailor with self-respect, and trousers that he would have refused to cut, are to be seen here and there, the fact is immediately lost

sight of in the contemplation of the sitter's personality that shines forth from the "tout ensemble" of the portrait itself. This is as it should be. The portrait is the thing, and the more photographers there are who grasp this fact, and assist themselves by the study of the year's best paintings, the better it will be for their popularity, to say nothing of the effect on their output.

To those photographers who are unable to pay a personal visit to the Academy we can recommend the several excellent illustrated catalogues that are published. These reproductions in monochrome will probably be of almost as much value to the photographer as an inspection of the original pictures. The absence of colour will accentuate the presence of form and line, and the composition will, in most instances, be more readily grasped. If, however, a visit is made, the collection of portrait miniatures in the Water Colour Room will repay attention, and give much valuable assistance to those who produce this sort of thing with a photographic base.

MODERN CHEMISTRY FOR PHOTOGRAPHIC WORKERS.

INTRODUCTORY NOTE.

In the course of the last ten years there has arisen in the chemical world an entirely new force, modifying the older conceptions, and changing the language of the science. And the results of this new force are so far-reaching, and at present so little developed, that we may look for an outburst of new life in every branch of chemical technology, as the applications and modifications thus introduced are realised. This modern chemistry is generally known as physical chemistry, because it has adopted methods of investigation which were formerly employed almost entirely in physical experiments, and, moreover, it uses the language and mathematical formulæ of the physicist.

The point wherein, however, physical chemistry differs from the chemistry which was formerly so thoroughly developed, is that whereas the earlier chemistry deals with the products of reactions, this modern chemistry deals with the course of the reactions themselves. It is, for instance, sufficient for the chemist of twenty years ago to know that silver bromide can interact with thiosulphate of soda to give a soluble silver sodium thiosulphate; the physical chemist wants to know in what way—that is, how fast, and under what conditions, this reaction can occur. And there is probably no branch of chemical technology in which more advantage is to be gained by the introduction of the methods and conceptions of physical chemistry than that grouped under the general name of photo-chemistry, so considerable a portion of which deals with the reactions and phenomena exhibited by the substances used in photography.

The rise of physical chemistry has, however, been so exceedingly rapid that probably the majority of modern chemists had left the class-room when it was still unknown, while it is a curious but indubitable fact that the conceptions of physical chemistry are generally supposed to be exceedingly difficult to comprehend. The cause of this is two-fold. In the first place,

mathematics is supposed to play a great part in physical chemistry, and many a good photo-chemist regards mathematics with a horror second only to that which he reserves for "green fog." In the second place, really good books in English on physical chemistry have been issued only during the last few years.

The second difficulty has now been met, while the mathematical bogey need scare no one from using the non-mathematical portions of physical chemistry, which are by no means the least important. To avoid the physico-chemical methods because mathematical physics is beyond one is like refusing to use a lathe because it is not fitted with an automatic turret; the mathematics will be most useful if they can be acquired; but non-mathematical physical chemistry will prove an exceedingly valuable tool.

And it is with a view to placing some of the physico-chemical conceptions and methods before photographers in such non-technical and simple language as may be possible that this article, and those that follow, have been undertaken. The series will deal in some manner with the following subjects:—

I. The properties of solutions and their relations to gases: osmotic pressure.

II. The ionic theory and dissociation.

III. The application of the ionic theory to chemical reactions.

IV. Equilibrium and the final result of reactions.

V. The velocity of reactions: chemical dynamics.

Much use has been made of "Modern Chemistry," by Sir William Ramsay, published by Dent and Co., and of the series of text-books of physical chemistry edited by Sir William Ramsay, and published by Longmans and Co. The thanks of the author are due to Sir William Ramsay for his permission to use these books.

AND THEIR RELATIONS TO GASES: OSMOTIC PRESSURE.

Conceptions of Physical Chemistry.

It is frequently urged against the physical chemist that the conceptions which he chooses to employ are purely hypothetical imaginings, of which he cannot prove the actual existence. And to this he will most cheerfully assent, merely pointing out that the same statement applies to all other scientific conceptions. No one ever had proof of the existence of an ion any more than

any one ever had proof of the existence of an atom or a wave of light; both the ion and the atom are hypotheses which were invented, and are used, in order to group series of phenomena under general headings, and the value of a hypothesis depends on the power of grouping phenomena which it may exhibit. The question as to whether an atom or an ion really has any objective existence is not of scientific, but of metaphysical, interest.

What is a Solution?

Now, since physical chemistry employs physical methods for the investigation of reactions, the physical state of the reacting bodies is naturally of great interest. The reacting bodies may exist in any one of four physical states, as solids, liquids, gases, or in solution. And before we can develop any facts about the reactions, we must get conceptions as to the meaning of these physical states, and especially the exceedingly important one of solutions.

Suppose that we take a small quantity of sugar and examine it, we see a number of small white, shiny grains. We add it to a quantity of water, and shake it for a minute, and the white grains are gone, leaving the water clear as before. Now, what has happened? Clearly the sugar has distributed itself throughout the mass of the water in some manner. And now we want to find the condition of our former white sugar in the bulk of the water.

There is only one state in which we have observed so small a mass of substance as our sugar to occupy so great a bulk as that sugar now occupies, and that is in the state of gas, so that it is clearly to the gaseous state that we must turn for an analogy to our sugar solution.

Gases and Solution.

The most obvious property distinguishing gases is the readiness with which they change their bulk upon the application of pressure. If we take a quantity of gas and confine it in a tube by filling the lower end of the tube, and also another tube attached to the lower end, with mercury, we shall find at once that by pouring more mercury into our tube, and so increasing the pressure on the gas, we can greatly diminish its volume. And by conducting this experiment in a properly graduated apparatus we can very easily show that if we double the pressure we halve the volume, so that if we multiply the pressure by the volume, the product is quite constant, which at once gives us what is known as Boyle's law—namely, that the volume of a gas varies inversely as the pressure.

Gas Pressure.

If we look for a minute at our apparatus, when we have increased the pressure on the gas and correspondingly diminished the volume, it will probably occur to us to wonder what it is that is resisting the pressure which our mercury is causing. Well, Boyle called it "the spring of the air," and pictured air as being a sort of hair mattress containing a great number of little invisible curly springs. But since we shall find it convenient to consider all substances as made up of a very great number of little molecules, we must clearly try to get our picture of what resists the pressure from that conception. Now, if we take a ball and throw it at a ninepin, the ninepin is knocked down without further ado by, as we say, the force of the blow; and this force depends on two things: the one, the weight of the ball, and the other, the speed with which it was moving. Suppose that instead of that ball we took one only one-hundredth of the size and threw it at our ninepin, we should probably have failed most completely to knock it down; but if then we had taken a hundred of these little balls and thrown them, so that they all hit the ninepin at the same time, the effect on the pin would have been identical with that produced by the one big ball.

We can consider these little molecules, then, in a gas as moving with very great speed in all directions, and a very great number of them hit the surface of the mercury every second, so that they produce that resistance to pressure which Boyle described as "the spring of the air."

If we decrease the volume of a gas by increasing the pressure, more molecules will hit the mercury in the same time, and the resistance to pressure will be correspondingly increased. Now let us see whether we can get anything corresponding to this pressure in the case of our sugar solution.

Pressure of Dissolved Substances—i.e., Osmotic Pressure.

In order to do this we must get our sugar molecules somewhere where they can exert pressure without the water molecules with which they are mixed exerting pressure too. This is not a very easy thing to do; but, fortunately, it happens that there are a few membranes which will let the little water-molecules slip through them, while they stop the big molecules of sugar. So let us take a long tube and close it at the bottom with one of these membranes, and then, after filling it with our sugar solution, put the closed lower end in a basin of water. The sugar-molecules are now beating against that membrane at the bottom and producing pressure, so that water enters through the membrane, to balance the pressure, by raising the level of the solution in the tube until the solution in the tube stands very much higher than the water in the basin outside, showing that there is a great difference of pressure due to the pressure of the sugar molecules only. This pressure is called the "osmotic" pressure of the solution.

Since this osmotic pressure is due to the bombardment of the molecules of sugar, it is clear that it is the same thing as the pressure due to the bombardment of the molecules of a gas. And, indeed, measurement of the amount of the pressure shows that the osmotic pressure of a substance in solution is equal to the pressure which the substance would exert if it were confined in the same volume in the state of gas.

Osmotic Pressure and Molecular Weights.

According to the molecular theory of gases, we consider that equal volumes of all gases at the same temperature and pressure contain the same number of molecules (Avogadro's law), so that when we weigh a litre of oxygen, and find that it weighs sixteen times as much as a litre of hydrogen, we think that it does so, not because it contains sixteen times as many molecules, but because each molecule weighs sixteen times as much. And so for gases the weight of the molecules, or the "molecular weight," as it is termed, can be found from the weight of the gas which occupies a fixed volume at a fixed pressure. And in just the same way, since, for a dissolved substance, the volume of the solution corresponds to the volume of a gas, and the osmotic pressure to the pressure of a gas, so the molecular weight can be found from the weight of the substance which gives a fixed osmotic pressure in a fixed volume of water.

Molecular Weights from Physical Properties.

But, unfortunately, measurements of osmotic pressure are not easily made; the membrane used consists of a fine slimy precipitate of copper ferrocyanide, made by immersing a small porous pot in a solution of potassium ferrocyanide, and filling it inside with copper sulphate so that the two solutions meet in the inside of the walls of the pot and precipitate the copper ferrocyanide there; but this membrane is continually breaking under the very large pressures employed, and the method is extremely difficult to render accurate. Fortunately, however, it can be shown that the rise of boiling-point and lowering of freezing-point which take place when substances are dissolved in a solvent depend upon the osmotic pressure of the dissolved substance. For instance, pure distilled water freezes at 0 deg. C. Now, if we dissolve one gram of sugar in 100 cc. of water we shall find that this solution will freeze, not at 0 deg., but at .054 deg. below zero, and if we dissolve two grams in 100 cc. it will freeze at .108 deg. below zero, and so on.

And, again, we find that equal numbers of molecules, which produce equal pressures in gases, and equal osmotic pressures in solutions, produce equal lowering of the freezing-point or raising of the boiling-point. So that we can calculate the molecular weight of a dissolved substance from the weight necessary to produce a fixed lowering of freezing-point. The fixed lowering of freezing-point taken is the amount produced by the molecular weight in grams per litre, which has been called a mol.

The molecular weight of sugar $C_{12}H_{22}O_{11}$ is 342, and consequently if 342 grams of sugar are dissolved in a litre of water, we shall get our unit lowering of freezing-point, which experiment shows to be 18.5 deg. C.

But if we dissolve $23+35.5=58.5$ grams of sodium chloride in a litre of water we shall find that it does not produce 18.5 deg. depression, but a very much greater amount, showing that since equal numbers of molecules produce equal depressions, we must

have here many more molecules, and these molecules can only have come from the splitting up of our original molecules.

So that we see that some substances, among them nearly all salts, split up, when dissolved, into more molecules than they originally possessed.

And for the cause of this splitting up we must examine some electrical experiments, which we will next proceed to do.

C. E. KENNETH MEES, B.Sc., F.C.S.

PAPERS ON PRACTICAL PHOTOGRAPHIC OPTICS.

II.

The following methods of "Lens Calculations without Arithmetic" form the second of a series of chapters on photographic optics, the first of which, on "Focussing Scales and Depth of Field," appeared last week. Other articles will deal with "Disks of Confusion, and Distances beyond which all Objects are in Focus," and "The Speed of Telephoto Lenses when Employed on Near Objects." We have interspersed Mr. Lockett's text with the equations on which his geometrical constructions are based.

Focal and other calculations by the ordinary arithmetical methods are often intricate and involved, whereas the same problems geometrically considered are frequently very simple, and probably the few simple problems here given may prove of assistance to some workers. So far as the writer is aware, they have not previously been published. The first problem, although interesting, is simply given as a prelude to the very practical one which follows.

Problem I.—To Find the Greater and Lesser Conjugate Foci.

On any line set off a distance A B (Fig. 1), equal to the distance between the object and the focussing screen, or image. At A erect a perpendicular A C, equal to the size of the object. At B erect a perpendicular B D, equal to the size of the image. Join A D and B C, and where these lines intersect at E draw the line E F, parallel to D B, cutting A B in F. Then A F and F B are the greater and lesser conjugate foci respectively.

I. $FB : AF :: BD : AC$ (similar triangles).
 $u : v :: \text{image} : \text{object}.$

i.e., F B and A F are the conjugate focal lengths.

Problem II.—To Find the Principal or Equivalent Focus of a Lens.

Set up the camera and focus sharply with open aperture on any object of convenient size. Measure the distance between the object and focussing screen and obtain the conjugate foci as in the preceding problem. Now, on B D produced (Fig. 2) mark off B G equal to B F. Join G A, cutting E F produced in H. Then H F is the principal or equivalent focus of the lens. The beautiful simplicity of this formula, as compared with the ordinary arithmetical method, is worthy of notice. It will be seen that there is no need to ascertain the ratio between the sizes of object and image; nor is it even necessary to use a measure of any kind, since all the requisite information may be obtained with a piece of string and a pair of dividers, setting down the various distances direct, on a suitable sheet of paper, with the aid of a T or set square.

II. $HF : BG :: AF : FB.$
 $HF : u :: v : v + u.$
 $HF = \frac{uv}{v+u}$
 $\frac{1}{HF} = \frac{1}{u} + \frac{1}{v}$

i.e., H F is the focal length.

Problem III.—To Find the Conjugate Foci for a Given Size of Image, with a Lens of Given Focus.

This is another very practical problem, obviously available for enlarging, copying, and reducing, as well as to ascertain the necessary length for studios, etc. On any line set off A B (Fig. 3) equal to the size of object, and B C equal to the size of image required. At B erect a perpendicular B D equal to the focal length of the lens. At A erect a perpendicular A E, and at C another perpendicular C F. From A draw a line through D, cutting C F in H; and from G draw a line through D, cutting A E in G. Then A G and C H are the required

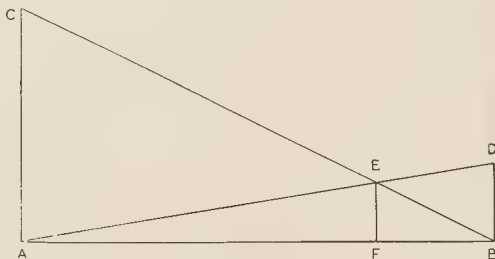


Fig. 1

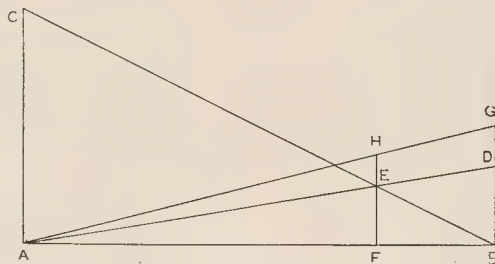


Fig. 2.

conjugate foci; or A G and C H added together are equal to the necessary distance between object and image. It will no doubt be remarked by some that this diagram (Fig. 3) is exactly similar to one given by Mr. T. Bolas in "The British Journal Photographic Almanac" (1905, p. 710), for the totally different purpose of obtaining the combined focal length of two lenses in contact. The coincidence is extremely interesting, and embodies what is evidently a principle well worth further examination.

The next two problems are, perhaps, not so generally useful as the two last, but are notable for even greater directness and freedom from complication.

Problem III. is a variant of I.

Problem IV.—To Find the Focal Length of a Lens, the Greater Conjugate and Ratio of Image to Object being known.

Draw a line A B (Fig. 4) equal to the greater conjugate, and from B, at any convenient angle with A B, draw a line B C. From B, with any radius, step off a series of equal divisions, equal in number to the ratio *plus* one. In the example given, the ratio is supposed to be 4, so that five equal divisions are accordingly marked off. Join the last division and A; through the next division (in this case 4) draw the line 4 D parallel to 5 A. Then A D is the required focal length.

By similar triangles—D : D-F :: r+1 : r.

$$\text{i.e., } \frac{D-F}{D} = \frac{r}{r+1}$$

which is the same as $F = \frac{Dr}{r+1}$ the equation for focal length.

Problem V.—To Find the Lesser Conjugate, the Greater Conjugate being known.

Draw a line A B (Fig. 5) equal to the greater conjugate. At A erect a perpendicular A C, equal to the size of object. From C step off C D equal to the size of image. Join C B, and through D draw D E parallel to C B, cutting A B in E. Then E B is the required lesser conjugate.

$$EB : AE :: CD : AD$$

$$v : u-v :: \text{image} : \text{object-image.}$$

$$\frac{\text{Object}}{\text{Image}} = \frac{u}{v}$$

These are but a few of many remarkably concise and convincing problems in which geometry is capable of coming to the aid of the embarrassed photographer, removing the necessity of troublesome calculation with, perhaps, a host of refractory fractions. No doubt sufficient has been said to indicate the value of a deeper study in this direction. It is

not necessary, in practice, that the diagrams should be drawn to full size measurements. It will commonly be found more

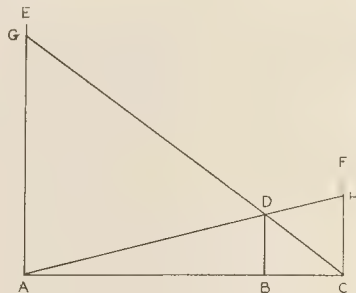


FIG. 3.

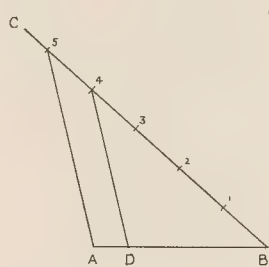


FIG. 4.

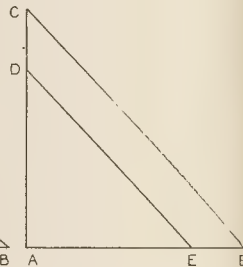


FIG. 5.

convenient to use a scale of one-eighth to the inch, reading off eighths of an inch as inches in the result.

A. LOCKETT.

THE WEEK IN HISTORY.

The Old South London.

NEXT Wednesday, May 10, I shall be thinking of that day forty-six years ago, when the first and original South London Photographic Society came into being. The life and soul of its inception, as of its brightest activity, was my old friend A. H. Wall, unknown, perhaps even by name, to many readers of these lines, but still hale and hearty, and congenially employed in the pacific borough of Stratford-on-Avon. The South London made Walworth its centre, and showed the only other two societies in London at that time—the present Royal and the moribund North London—how to combine the character of a club with the technical activities of a photographic society. Its social management was a great feature. The members sat round a table, and did not rise formally to address the chair. It was a curious fact that the majority of the members lived north of the Thames, a fact which led at length to the removal of the meeting-place to the City of London College, Leadenhall Street, whence in 1873 the society soared westward to Arundel Hall, in the Strand, and again further west two years later to the Society of Arts, where it remained until its demise.

The South London was an energetic society, and in its earlier years had its experimental committee to investigate technical matters connected with photography. As showing the esteem in which its president, the Rev. F. F. Statham, was held, I may say that he was first elected on its formation, and he held the position up to the time of his death, which occurred in 1885. Although he went out of office each year, he was always unanimously re-elected—not once during the whole period was another

president even proposed. The society ceased to exist in 1887, when it handed over its minutes and archives to the Photographic Club, the existence of which body, by the way, was due to the members of the South London. It arose in this way: At the conclusion of the winter session in 1879, when many things of interest were coming to the front—gelatine photography being one of them—it was thought that something should be done during the vacation. Mr. Brittlebank, one of the members who then had a studio in the Tottenham Court Road, in the block of buildings now removed in widening that thoroughfare, kindly placed his rooms at the disposal of the members to meet in weekly, which was at once accepted. The meetings were known as the "Brittlebank meetings." At the end of the society's vacation, as these weekly meetings had proved so interesting and instructive, it was proposed to form a Photographic Club. A meeting was held at the Freemasons' Tavern on November 19, 1879, with the late Mr. Jabez Hughes in the chair, and the Photographic Club was formed.

Niepce's First Photograph.

Among the letters of Nicéphore Niepce to his brother is one written May 9, 1816—eighty-nine years ago on Tuesday next—in which he announces his first fixing of the camera image. He used the lens of a microscope, and found that he could record objects out of doors even when the sun was not actually shining. Niepce named his study "heliography" (drawing by sunlight), but from this time forth he might have used the term "photography."

HISTORIETS.

DIAPHRAGM NUMBERS.

Editorial Note.

[We have received the following, with a request to publish it, from Mr. F. M. Steadman, who writes from Prado, 94, Havana. In complying with the wish we desire to disclaim particularly any responsibility for the communication, and to announce beforehand our unwillingness, to explain, precisely what it is all about. Though we have read it more than once we should not feel qualified to speak positively. Apparently Mr. Steadman's system is based on some kind of circular measure, but until we have before us a more intelligible account of it than that which follows, we would prefer to say nothing about it, except that as it stands the system seems to have just about the same advantage as expressing plate speeds in miles per hour or focal lengths in terms of fiddlesticks.—Eds. B.J.P.]

In my new mathematical method of dealing with light, the "cone unit" is called the "cu." and has 1-64th the convergence of a hemisphere. If a light source be of uniform intensity throughout two cu's of it will create upon a surface impinged upon twice the intrinsic intensity of one "cu." This unit-cone is negligible close to $f/2.8$ (the square root of 8) in form, and for practical purposes may be said to have that form. To reduce any diaphragm or other unit-cone therefore to its "cu" value, it is only necessary to divide 8 by the square of the f value of that cone.

Thus, $\frac{8}{f/2.8^2} = \frac{8}{8} = 1$ cu or 1-64th hemisphere, and in like manner,

$$\frac{8}{f/4^2} = \frac{8}{16} = \frac{1}{2} \text{ cu}$$

$$\text{and } \frac{8}{f/4.5^2} = \frac{8}{20.25} = \frac{1}{2.53} \text{ cu}$$

The practicability of this method may be appreciated by the following simple problem. During the last full moon I desired to make a moonlight view of the roof below my window, and measured the moonlight as follows:—With a new lens, made by Bausch and Lomb, but not yet advertised, which works at $f/4.2$, or creates a light unit of that form at the full aperture, I focussed the moon against a piece of Eastman film, and obtained a visible impression of the image in 16 seconds. Then I formed the problem: If an $f/4$ (practically) cone of moonlight would do certain work in 16 seconds, how long would it require the natural cone of the moon to do that work?

Since the moon is about 100 times its own diameter from the earth its natural cone (as its rays impinge upon any one point on the earth) has an f value of 100.

$$\frac{8}{f/4^2} = \frac{1}{2} \text{ cu through lens}$$

$$\frac{8}{f/100^2} = \frac{1}{1250} \text{ cu, naturally.}$$

Now, by analysis, if half a "cu" of light will perform certain labour in 16 seconds, one "cu" would do it in eight seconds, and 1-1,250th of a "cu" would require 1,250 times 8 seconds, or practically 21 minutes. By reason of there being no absorption of glass in the case of the natural moon, this time was reduced to 16 minutes.

Now Eastman film tints 16 times as fast as "Solio," and the intensity of the moonlight therefore, by the "first appearance time" on "Solio" (which method was adopted officially by the P.A. of A. at St. Louis last October), would be 16 times 16 minutes, or 256 minutes.

Now by my method the actinic of the light (by the "first appearance" "Solio" method) is always the exposure with the speed diaphragm of the subject in hand.

The speed diaphragm of such a subject (classed as "average object in mid distance") is $f/32$, or U.S. 64, and with that diaphragm,

therefore, the full normal exposure would be 256 minutes. To use diaphragm $f/4$ (U.S. No. 1) then the following problem must be performed:—The speed diaphragm, $f/32$, or U.S. 64, is equal to 1-128th of a "cu" (in the case of the U.S. diaphragm half is divided by the number to obtain the "cu" value of the cone formed).

The cone desired to be used, $f/4$, or U.S. No. 1, is equal to half "cu." Then if 1-128th of a "cu" of light will give a normal exposure in 256 minutes one "cu" will perform the labour in 1-128th of 256 minutes, which is two minutes, and a half a "cu" will do it in twice two minutes, or four minutes.

The normal exposure therefore with $f/4$, or U.S. No. 1 was found to be four minutes, but as I desired to diminish the details in the shadows to obtain an effect more in harmony with moonlight in nature, a quarter normal exposure, or one minute, was given.

The film was developed normally by the time method, and afterwards intensified, as it was clear, would be required by reason of the quarter normal exposure. A print is sent to the Editors.*

Would it not be logical to take the numbers of a diaphragm the actual unit values of the cones they form, or 1 divided by that unit value? In that case $f/2.8$ and U.S. No. 1 would be 2, and it would be known to be half the convergence of No. 1, and diaphragm $f/8$ and U.S. No. 4 would be No. 8, and would be thought of as 1-8th of a "cu." or unit. All light-cones may be thought of in simple "cu." value (up to $f/1$ with negligible error), and if a window averages 3ft. in diameter, and a head is 6ft. away from it, the f value of

the light-cone at a point on the face is $f/2$, and $\frac{8}{f/2^2} = 2$ "cu's."

When the sun is 30 degrees from the horizon, one "cu." of sky creates an intensity about 32 seconds by the "first appearance" Solio method, and therefore two cu's." of sky would create an intensity of 16 seconds, which would be the exposure with the speed diaphragm of the subject in hand.

With this scale of diaphragms, which recognises the f value of cones as the basis of calculation, the numbers would stand for the actual working capacity of the cone which the diaphragm formed, and would allow the ordinary reasoning powers of the worker to apply in their use.

It is true that the numbers themselves are the same as the present U.S. scale—i.e., 1, 2, 4, 8, etc., but this scale has no logical physical reason to be, as the selection of $f/4$ to be U.S. No. 1 was but a matter of convenience decided upon by the R.S. Committee when the U.S. diaphragm scale was recommended.

The "cu." system, on the contrary, is based on the complete sphere as a natural physical constant. The sky as light source measures 64 "cu's." since it occupies a half sphere in relation to any point upon which its rays impinge.

The sun, whose natural cone (to the earth) is about $f/107$ measures $\frac{8}{107^2}$, or 1-1,460th of a "cu." The law which directly causes intensity is that of impingement, and not that of radiation, and the solid angle of an impinging cone therefore is the dimension which should be unified, and which the "cu." does unify in a popular manner. And since diaphragms govern impinging cones there is no need of their having a different scale from that which can be applied to any other cone as that of the sun, or moon, or a window. The "cu." method annihilates the truth of distance and area in dealing with light only, in the calculation of intrinsic intensity, which is the truth of light most important in photography.

F. M. STEADMAN.

* The print has not yet come to hand.—Eds. B.J.P.

PORTRAIT LIGHTING WITH THE COOPER HEWITT MERCURY-VAPOUR LAMP.

As recent articles in these pages have already stated, the mercury-vapour lamp has been edgaging the serious attention of professional photographers in the land of its commercial birth, the United States, although very little has yet found its way into print on the subject. Hence there is good reason why space should be found for the experience of Mr. Felix Raymer as communicated to "The Camera." Mr. Raymer has the reputation of being a practised technician in lighting, and it is therefore of interest to note his comparison of the new artificial illuminant with daylight.

My claim (says our author) has been (and is yet) that there is no difference in lights of any style, shape, or nature, so long as the operator knows how to use the light. It is not that one style light will produce a better effect than another style light, but it is that one operator will work his light in such a way that he will secure a better effect than another operator would. So I found it in the use of the Cooper Hewitt light. I had never tried to make a negative under one of them before, so can truthfully say I knew nothing of them any more than I would know of any other source of light, but the proposition was for me to work that light, and get as good work from it as I could get from daylight. Therefore, when I was asked to give a demonstration of the light before a recent convention, I recalled all I had said both to the conventions in previous years, and also through the magazines, and at once proceeded to apply my own directions as given to others for working a strange light, and I was not disappointed in the result.

The Mercury Lamp as a Sky-light.

In working the Cooper Hewitt light, it is necessary to do so as though it were nothing more than a small sky-light, and in fact it resembles one very much in its construction, the main difference being that it is so small in size that one would naturally think it would require longer exposure than our "old-time" sky-light, which had covered many square feet of light space. This is just where we all make a mistake in working it for the first time. As a matter of fact, it requires *as little or less exposure than any sky-light* I ever stood under. There is something remarkable about the actinic value of the light. One particular feature I noticed in its use, and that is, in place of the peculiar tone given to the face under it, confusing the operator, it makes his judgment of tone value much better, and he is in a position to secure more what he actually sees under the light than ever before. The high-lights are brought up strong and clear cut, while the middle tints and lower tones fall into place as no daylight will show.

How to Light a Portrait.

For a portrait effect the subject should be posed at a point where all of the light will fall on the face from the front. I mean by

this that there should be no back light coming from the side or rear. To get this result it will be necessary that the subject be posed about 2 ft. back from one side of the light. The direction for the light falling on the face should be from an angle of about 45 deg. In this way there will be no more of side light than top light, but an even distribution of both. To get this direction, the subject should be seated about 6 ft. out into the room from the light (this is supposing the ceiling of the room to be about 12 ft. high, and the light fitted into it for that height ceiling). After trying the light with the subject seated at this distance, it can easily be seen whether the light is falling right or otherwise. Have the subject turn his face away from the light until he is facing directly away from it, and then begin to turn slowly toward the light until the point is reached where the ear on the shadow side of the face is about to come into light, and then stop. Do not allow the ear to come into the light, but go as far in that direction as possible without doing so. When this point is reached, look at the shadow that falls from the nose towards the shadow cheek. If it runs across the cheek it is an indication that the light falls too low on the subject. To correct it, all that is necessary will be to move the subject nearer to the light. This will cause the light to take a more downward course, and which will, of course, throw the shadows in the same direction.

If the shadow from the nose falls directly under it, it is an indication that the light is falling on the subject from too high a source. The plan of correction would be to move the subject farther from the light. This will throw the shadows further across the face.

But if the shadow takes a course running toward the corner of the mouth, it will be all right, as that is near enough to the angle of 45 deg. for all practical purposes.

Maxims in Mercury-vapour Lighting.

I will give a few suggestions for using the light that may be of service to many.

First.—Notice the little sparks of light that appear in the eyes. If the one in the shadow eye is not shown or is too faint, it will indicate one of three things: (1) The face is not turned far enough to the light; (2) the head is too low; (3) there is too much top light being used—move the subject further from the light if this is the cause.

Second.—Notice the highest light on the face. If it is in the centre of the forehead, the face is too far to the light. If it is on the temple, the face is too far from the light. The proper place for it is directly over the *light* eye.

Third.—Be careful as to exposure. The light is a faster light than any operator will think on his first trial.

OXYGEN Cylinder Explosion.—A shocking explosion took place at Winterthur (Zurich) on Saturday last, in the physics section of the Cantonal Technical School, as the attendant was unpacking the oxygen cylinders for a lecture with lantern slides. The man's body was blown to pieces, parts of it being hurled to a great distance, while a number of pupils in a neighbouring class-room were seriously injured. Had the explosion occurred a quarter or an hour later there must have been terrible loss of life. The explosion was heard all over the town. The instruments in the laboratory, to the value of some £400-£600, were entirely destroyed. Explosions of this kind are fortunately of rare occurrence, the last that occasioned loss of life in England happening some years ago in the Fenchurch Street

Railway Station, when a youth who was carrying a cylinder of oxygen was the victim. The preparation and testing of gas bottles has, however, been brought to such a reliable state in this country that users need have no fears as to their employment under any reasonable conditions.

THE committee of the Carnegie Public Library, Coatbridge, have decided to inaugurate the opening of the building with a photographic exhibition. The date will be May 18, and six open classes are announced. Silver and bronze plaques will be at the disposal of the judges in each class. Entries close May 12, and full particulars will be sent on application to the hon. secretary, G. W. Campbell, Ailsa Cottage, Coatbridge, N.B.

CLOUD NEGATIVES.

CLOUD Negatives and Printing was the subject of a lecture by Mr. H. W. Bennett, on April 11, to the members of the Birmingham Photographic Society. At the outset it was pointed out that this was a branch of photography very much neglected by most amateurs. There were supposed to be so many difficulties to encounter that most fought shy of cloud printing, and selected subjects which needed none. And the existing text books did not cast much light on the matter, so that one was left to learn by personal experience how to insert clouds into prints, and how to secure good cloud negatives.

The Necessity for Clouds.

The necessity for improving pictures by filling in the sky portion with suitable clouds was apparent to everyone with an artistic eye. The sky in nature can never be represented by white paper, and "bald headed" photographs could lay no claim to being pictures. If clouds were not printed in, at least tone down to a greyish tint, which would much better represent sky tones than white. The occasions on which one can obtain clouds and landscape on the same plate are few and far between. When possible, of course, do so, and save much time. The difference in exposure required for sky and landscape, however, precludes much hope of success.

Points to be Considered.

Having decided to study cloud printing, let us examine what principles we have to work upon. In the first place the rules of composition apply as much to clouds as to landscapes. These are briefly: (1) There must be agreement between the two parts of the pictures; but how often is this rule neglected?—clouds are wedded to landscapes which they do not suit, with the result that the eye is at once drawn to the sky, and an irritating effect is produced. The lighting of the clouds must be from the same direction as the landscape, and their tone values should be the same. Remember that in the sky the deepest shadow will always be lighter than the deepest part of the landscape, and allow for this. (2) The form of clouds must be studied. Note carefully the nearer the horizon the lighter the clouds; often they become little more than streaks. (3) There should be a principal point of interest in the cloud as in the landscape portion, and the same form should never be repeated in the same picture. (4) The

direction of wind will make a difference in cloud-shapes, this fact should be noted and used as experience directs.

Practical Hints.

The actual photographing of clouds was next considered. The best months in which to secure cloud negatives were April, May, and September, because then the forms were continually varying, and the light was not so strong. Windy weather was the best. Choose a good open space and include some landscape on each plate. Keep the camera horizontal and raise the front, this would enable the camera to be swung round while the view still remained vertical. Focus on some marked points in the landscape, then get ready for the exposure, and study the clouds until a suitable combination appears, when the exposure should be made. A lens should be used of shorter focus than that used for the landscape, with a view to getting the size of the clouds to harmonise better with the picture.

Isochromatic plates were essential for very light clouds; for heavy ones the ordinary did equally well. A screen which increased the exposure about five times should be used, but not a deep one or the colours would be over corrected. The exposure must be very short, and the negative kept thin, to ensure quicker printing. Backing of plates is essential to avoid the spreading of light, the risk of which is great in cloud photography.

Methods of Printing.

The landscape portion must be printed first, then masked and the clouds inserted. A large printing frame should be used, and the mask fastened on the outside, with the edges slightly projecting; the light would then spread underneath, and there would be no harsh line. For platinotype, a mark must be made on the paper after the landscape part is printed, then mask as before. For carbon, put a mark in some white colour on each end of the negative, then press the tissue down, thus obtaining a mark which would be a guide where to apply the mask.

In conclusion, one thing is essential if our pictures are to be successful; nature must be studied, and many negatives obtained from which a selection could be made. It is useless to attempt to obtain one universally useful cloud negative. Nature is ever varying, and one value of cloud photography is to enforce this lesson.

SATURN'S Satellites.—Professor E. Pickering, of Harvard University, has discovered a tenth satellite of Saturn by means of the Druce photographic telescope. The period of the satellite is twenty-one days. It is stated that the character of motion is direct. The period is very nearly equal to that of Hyperion, the faint satellite discovered by Mr. Lassell, of Liverpool, in 1848. The brilliancy of the new object is only about one-sixteenth of that of the older satellite, or three whole magnitudes fainter, and could only possibly have been discovered by photographic means.

THE Röntgen Congress, to celebrate the tenth anniversary of the discovery of the Röntgen Rays, was opened in Berlin on Sunday in the presence of a number of high officials, university authorities, professors, and many German and foreign scientists. The objects of the Congress are twofold. In the first place it will provide an opportunity to survey the brilliant achievements of the past decade that have been rendered possible by Professor Röntgen's discovery, and, in the second place, again to do public honour to the discoverer himself.

PHOTOGRAPHIC Evidence.—In a series of betting prosecutions at Grimsby on Friday last, the police brought a snapshot taken by a policeman in concealment as evidence. The photograph showed one of the defendants receiving money from a man in the street.

Our bright contemporary *The Globe* states that "there is to be published in New York an album of portraits of the principal members of Parliament of each country," and adds, "six hundred and seventy members of the British House of Commons are said to have forwarded their photos."

EXHIBITION OF ALPINE PHOTOGRAPHS.—Another exhibition of photographs by members of the Alpine Club and others will be on view at the club rooms, 23, Savile Row, W., from May 10 to May 31. Previous exhibitions by this club have produced many fine mountain pictures of great beauty and interest, and the forthcoming show should be no exception.

THE syllabus of lectures, outings, etc., of the South London Photographic Society has been sent us. The evening meetings at Collyer Hall, High Street, Peckham, are continued during the summer in addition to a comprehensive list of excursions. Saturday half-day cycle rides are also provided for, and should prove popular, and various competitions are likewise announced. The date of the Seventeenth Annual Exhibition is fixed for March 3 to 10, 1906. Full particulars as to membership, etc., will be forwarded by the Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

Photo-Mechanical Notes.

Journalistic Changes.

HERR OTTO MENTE, who was formerly with Klimsch and Co., has joined the Photo-chemical Laboratory of the Technical High School, Charlottenburg, Berlin, and has also assumed the joint editorship of the "Zeitschrift für Reproduktionstechnik," vice Dr. Aarland resigned.

The Use of Screens in Copying.

In the "Zeitschrift für Reproduktionstechnik" attention is directed to the use of coloured screens for copying ordinary photographs, such as carbon and gum bichromate prints, many of which are now met with on coloured supports. A cell with liquid filters is suggested as the handiest, and practically only three solutions are required—namely, a solution of tartrazine, a mixture of tartrazine and brilliant acid green, and a solution of eosine. The tartrazine should be used with a blue pigment image on a white or yellow paper, and even with black or brown images on yellow paper it gives better contrasts. The green filter is useful if red or reddish-brown images on yellowish paper have to be reproduced, and it is useful for prints toned with uranium. The red filter is not much in request, and is most useful when bright blue images are met with. Practically these are the so-called "contrast filters," which by absorbing more or less of the colour reflected by the images, produce a black; if the existing contrasts in a coloured print are too great they can always be lessened by using a filter of the colour of the image.

Rough Paper Prints.

The copying of prints on rough-surfaced papers very frequently presents considerable difficulty, and the resulting negatives are too often but photographs of the surface irregularities with a minor image of the actual print. To overcome this difficulty, says the above-mentioned paper, such prints should be copied out-of-doors on a dull day, as really satisfactory results cannot be obtained with the electric light. The use of "contrast" filters will also be found advantageous with such subjects.

Rules for the Half-tone Screen.

THE following are some of the instructions given to screen-negative students at the London County Council School of Photo-Engraving, Bolt Court, Fleet Street, E.C. :—

To clean the screen, use the China silk and not the duster.

Be careful the screen is thoroughly secure in the camera.

To reproduce an average copy the same size :—

The distance of the screen with a lens of 18in. focal length, using wet collodion, will be approximately :—

For the 100-line screen, 8 millimetres away from the plate.	
" 125-line " 6 " " "	
" 133-line " 5 " " "	
" 150-line " $3\frac{1}{2}$ " " "	
" 175-line " $2\frac{1}{2}$ " " "	

These distances are for screens in which the black lines and white spaces are equal, and are measured from the surface of the screen.

Stops to be used will be of a diameter of, say, 1-90th of the camera extension (stop marked $f/45$) for exposure for the shadows, supplemented by an exposure for the high lights, with a stop of a diameter of, say, 1-30th of the camera extension (stop marked $f/16$) for 1-20th part of the time given to the shadow exposure.

When using dry plates or collodion emulsion for making negatives it will probably be found necessary to have the screen nearer than above.

With greater reduction, the stops may be smaller in size, and the screen distance may be less.

With greater enlargement the stops may be larger and the screen placed farther away.

With a lens of shorter focal length, the stops may need to be smaller or the screen distance less.

With a lens of longer focal length, the stops may need to be larger or the screen placed farther away.

Originals, having very heavy contrasts, may need smaller stops, or closer screen distance, or both.

Originals, with very flat contrasts, may need larger stops, or longer screen distance, or both.

When using suitable transparencies as originals the screen distance may be 25 per cent. more than above.

"Flashing"—i.e., exposing with white paper over the original and a very small stop in the lens should only be resorted to when the shadows of the original are very dense, and should, as a rule, not exceed 1-20th of the total exposure. Round stops should generally be used in preference to square; only under exceptional circumstances may square stops with corners extended be used.

Before exposing, make quite certain your arc lights evenly illuminate the copy, that the mirror, or prism, is perfectly clean, and that the image is central on the ground glass.

Lectures on Three-Colour and Orthochromatic Work.

Last evening, May 4, at eight o'clock, commenced a series of nine lecture-demonstrations on the principles and practice of orthochromatics at the L.C.C. School of Photo-engraving, Bolt Court, Fleet Street, London, E.C. The lecturer, Mr. A. J. Bull, is known to many of our readers as very thoroughly qualified to speak on the subject, and the course of lectures ought to be well attended. The fees are 2s. 6d. for the course, or 1s. for a single lecture, and we believe the series is open to persons directly or indirectly connected with the illustrative crafts. The syllabus is as follows:—Nature of light and colour; selective absorption and other causes of colour effects; the spectrum; nature of ordinary colours; primary colours. Properties of orthochromatic plates and methods of testing; safe lights for the dark-room; use of light filters; orthochromatic photography. Three-colour photography by the additive method. Three-colour photography by the subtractive method; nature of best reproduction colours and negative records; adjustment of colour filters to plates; effects of incorrect filters and plates; position of the filter. Three-colour negative making; details of the indirect method; avoidance of screen pattern; a direct method by the use of collodion-emulsion and the dry plate; fine etching; proving. Four-colour processes.

THE prize competition promoted by Messrs. Burroughs Wellcome and Co. will close on May 15. Prizes of five, three, and two guineas respectively are offered for negatives developed with "Tabloid" Pyro-Metol Developer. Entry forms and full particulars may be obtained from all chemists and dealers, or from Messrs. Burroughs-Wellcome and Co., London, E.C.

SHORTNESS of memory is a public as well as an individual failing, and many who learn of the death of Mr. W. H. Alexander in his 73rd year will need to be reminded that it was he who, with such splendid generosity, provided nearly the whole of the money for building the National Portrait Gallery. Forty-five years ago the nation's collection of portraits was housed under temporary conditions in Great George Street, and although they later found a more fitting home at South Kensington, the risks of fire made apparent by the subsequent outbreak at the Indian Museum led to their being carried away to the museum in Bethnal Green. Then it was that Mr. Alexander made his princely offer of £80,000, and the Treasury adding £16,000, the fine building, near neighbour to the National Gallery, was erected and opened nine years ago.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between April 17 and 22:—

CAMPHOR.—No. 8,297. "Improvements in the manufacture of camphor." Chemische Fabrik auf Actien (vorm E. Schering), 24, Southampton Buildings, Chancery Lane, London.

CINEMATOGRAPHY.—No. 8,341. "A process of producing light projections by means of the cinematograph." Paul Effing, 41, Rominsenerstrasse, Berlin.

FINDER.—No. 8,453. "A portable finder to be fitted on the outside of the ordinary hand camera, showing the objects to be photographed the same size and in the same position as they will appear on the sensitive plate." William Henry Hawling, 1, Clarence Gardens, London Road, Bath.

NEGATIVE MAKING.—No. 8,458. "Production of photographic negatives by mechanical means." Edward Walter Kempton and Edwin Gordon-Bertram, 26, Speldhurst Road, Bedford Park, London.

PRINTS.—No. 8,616. "Improvements in process of copying, developing, fixing, washing, and drying webs of photographic paper and in apparatus for carrying the same into effect." Friedrich Heinrich Lange, 79, Augsburgstrasse, Berlin, W.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

CINEMATOPHGRAPHS.—No. 11,821, 1904. "Improvements in and connected with cinematographs and like apparatus." The improvements claimed are a special feeding arrangement, whereby the period of movement of the film is small in comparison with the period of rest and the clamping of the film whilst stationary, thus doing away with the flickering defect, and an improved effect is obtained by revolving a four-armed shutter. Arrangements are also made for adjusting the picture centrally in the mat whilst running. Fireproof tubes surround the optical axis, so as to prevent ignition of the roll of film and preventing the latter falling across the axis if accidentally broken. The feeding drum is arranged so as to grip the film only for a part of its periphery, and a special clamping device for periodically holding the film stationary, consisting of a loose mat and spring-controlled hinged frame. Joseph Mason, 25, Windmill Street, Shaftesbury Avenue, W.

DEVELOPERS.—No. 23,729, 1904. "Improvements in and relating to photographic developers." The applicants have found that the condensation products of paramidophenol, or its sulphite compounds, obtained by the action of aldehydes of the aliphatic and aromatic series, are superior to paramidophenol. The products obtained with formaldehyde and acetaldehyde are particularly suitable. The production of these compounds may be illustrated by the following example:—144.5 grammes of paramidophenol hydrochloride and 120 grammes of potassium bisulphite are dissolved in 440 ccs. of water, and, after cooling, 100 grammes of a 40 per cent. solution of formaldehyde are added. The sulphite combination of the product can be crystallised from this solution. As a developer, it is used in a dilution of 1 to 4 with a solution of 5 grammes of the sulphite combination, 25 grammes of potass. carbonate, and 25 grammes of sulphite of soda in 100 grammes of water.

New Apparatus, &c.

The Kodak Tank Developer. Made by Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

The merits of stand development for negatives on glass plates has long been recognised, and various tanks for the purpose have been devised from time to time. The application of the method to spools of films has now been accomplished by the Kodak Company, who, well to the fore, as usual, in all matters connected with economy of time, space, or labour in film photography, have evolved an ingenious piece of apparatus that bids fair to rival their well-known developing machine. The employment of the latter involves a certain



Winding the film on to the reel.

amount of manual labour, inasmuch the film during development has to be continually on the move.

In the new pattern developer, the process is practically automatic. The handle-turning operation during development is obviated, and the entire film is developed in a vertical position while stationary. The advocates for time development have substantially proved the advantages of what may be termed "development in the dark," and its application to the production of a batch of well-developed negatives from various exposures on a length of film has been well exemplified in the Kodak developing machine and the present form of developing tank.



Placing the reel and film into the developing tank.

The apparatus consists of a flanged reel, upon which is wound a long red celluloid strip or apron. A wooden box is supplied in which the film and black backing is wound from the camera spool on to this reel, and is protected from light by the red celluloid. So far, the operation is somewhat similar to that which takes place in the developing machine. After the film has been transferred from the spool to the reel, it is removed from the winding box, and can be handled with perfect safety in the light of an ordinary room.

The flanged reel is now removed entire (containing the apron, the black paper, and the film) and is inserted in the developing tank, as shown in the illustration. This tank is not unlike a jam pot in shape, but is highly finished and electro-plated.

Previous to inserting the reel, the tank is three-parts filled with developer. The reel is gently lowered into the solution, which quickly finds its way to all parts of the film, as the edges of the red celluloid

apron are separated by strips of serrated rubber, and development proceeds slowly and evenly. At the expiration of every two or three minutes it is recommended to withdraw the reel and replace it again upside down. With the developer recommended and supplied by the Kodak Company, development will be complete in twenty minutes. There appears to be little danger of fogging or sticking with this method, and batches of well-developed negatives should result.

When development is complete, the developer is poured off and the tank filled and emptied two or three times with clean water. The film can then be unwound, separated from the black paper, and cut into lengths for fixing in the ordinary way. These operations can be conducted in the light of an ordinary room, and no harm will come to the negatives.

Washing and drying are carried out in the ordinary way, and the film user who has not yet experimented with this form of development will be both astonished and pleased at the uniformity of the results obtained. The entire apparatus is produced with that finish and regard for details for which the Kodak Company are famous, and as it fulfils all that is claimed for it, the new developing tank should have a ready sale. The complete outfit is at present supplied in three sizes—the Brownie tank for No. 1 and No. 2 Brownie spools, the 3½-inch tank for all spools up to that size, and the 5-inch tank for spools not exceeding 5 inches, the prices being 10s., 20s., and 25s. respectively.

THE useful little list of the principal makes of plates and papers, etc., issued by Jonathan Fallowfield, 146, Charing Cross Road, W., to which we referred last week has now been sent to us in a neatly-bound form. As it is likely to prove a pamphlet of reference that will receive much use, the new form of issue is a good one. Every photographer should get a copy. This firm also announces a new automatic ferrotype camera called the "Taquina," for the rapid production of small circular photographs for brooches, etc. A full notice of this ingenious piece of apparatus will appear later.

New Materials.

Collodion Emulsion. Made by Mr. F. G. Willatt, 15½, Gordon Road, High Wycombe.

We have received from Mr. Willatt a sample of collodion emulsion which, he states, is made from methylated spirit, and can therefore be sold at 2s. 9d. for five ounces, 10s. pint, or even less in larger quantities. The treatment of the emulsion used wet is the same as usual; if required to be used dry, a simple preservative (as, for example, tea) is flowed over; the plate is then rinsed and allowed to dry. The emulsion works cleanly, giving good gradation, and is about the same speed as, or perhaps a little quicker than, another make against which we tried it. On drying there is a slight milkiness in the film, which, however, disappears on varnishing.

This emulsion, therefore, is quite suitable for lantern-slide making or slow copying work, but collodion emulsion now is most extensively used in three-colour work, and here this sample of Mr. Willatt's emulsion breaks down, as it is not susceptible to the addition of the most frequently used sensitising dyes. This is not due to the methylated spirit in the emulsion, as we have added methylated spirit to other emulsions without any ill effect as regards their sensitiveness, but it is probably due to the free nitric acid in the sample submitted. If Mr. Willatt can make an equally good emulsion without free acid, we should think his product would answer all requirements, and prove a formidable competitor to the more expensive German emulsions generally purchased at present.

Since the above was written Mr. Willatt has informed us that at present he is offering the emulsion only for copying and lantern

slides, but anticipates that he will be able to prepare an emulsion with methylated spirit suitable for colour sensitising.

The "H. H." developer. Sold by J. Rawlins, 3, Cross Lane, St. Mary-at-Hill, E.C.

Mr. Horsley Hinton's name used in connection with various photographic accessories has become such a guarantee of excellence that we were not surprised to receive samples of a new developer, entitled "The H. H. Developer," and we find on trial that it is really a very good developer indeed. If it is regularly used by Mr. Hinton, perhaps the secret of his successful negatives is thereby laid bare. The developer appears to be a concentrated form of our old friend pyro-ammonia, and as supplied by Messrs. Rawlins, will be found very handy to use and fairly quick in action. It gives negatives of a good printing colour, and does not clog up the plate with the pronounced yellow stain peculiar to some pyro-ammonia formulæ. Full printed instructions accompany the preparation, which will not be found expensive, as 1s. will purchase sufficient to make half a gallon.

The "Salon" Plate. Manufactured by the Gem Dry Plate Co., Ltd., Willesden Green, London, N.W.

The tendency towards high speeds for modern dry plates appears to have no limits. Manufacturers vie with each other in their endeavours to place before the photographic public plates which in addition to possessing the acme of speed retain all those good qualities that make for excellence and uniformity in negative production. Latitude, a quality that appeared until quite recently peculiar to plates of comparative slowness, is now apparently obtained with the greatest ease in the most rapid emulsions, and the new "Salon" plate just introduced by the Gem Dry Plate Company embodies these two qualities with distinct success. Of its great rapidity there can be no question whatever. We have experimented with samples submitted to us, and exposures of 1-120th of a second with stop $f/8$ made on a dully lit street scene at three o'clock on an April afternoon have given us well-exposed negatives showing full shadow detail.

We regard this as a somewhat severe test, and are quite satisfied that the high speed claimed for the "Salon" plate is fully substantiated. As a plate for the studio it should be extremely useful on dull days, particularly as there is no inclination to hardness in the image, even with the brief exposures we have given. On the contrary, a soft, quick-printing negative appears to be the usual result, but we found that forcing the development to any extent was apt to produce a slight veiling, which, however, could be disregarded as not affecting the printing quality of the negative. This veiling, or fog, was particularly noticeable when developing the first one or two negatives with metol-hydroquinone; but with the pyro-soda, or pyro-ammonia recommended by the makers, this can be regarded as no detriment.

With a pyro developer very high quality negatives indeed are produced, and even with the brief exposures referred to above excellent gradation and good printing quality result.

The increasing number of those who place confidence in laboratory measurements of a plate may be interested in studying the following measurements of the "Salon" plate made for us by Mr. C. E. Ken neth Mees, B.Sc.:

Speed number, Watkins, ferrous oxalate ...	288
Speed number, Watkins, pyro-metol ...	324
γ (density giving power of the plate) ...	2.21
K (velocity constant of development with standard ferrous oxalate developer) ...	.086
$T\gamma$ (time necessary to obtain the standard gradation of 1) ...	7 minutes

These results were obtained with plates from batch No. 4,167.

The Gem Dry Plate Company, Ltd., inform us that measurements by Mr. Watkins have given a Watkins No. of over 400, that is, in excess of the figure claimed by the makers. This is not the place to dilate on plate speed controversies. It is clear, we hope, that the "Salon" plate possesses extreme sensitiveness, and to this we would add the important statement that it is sold at the popular prices of 2s. 3d. per dozen half-plates.

Dr. Smith's new three-colour plates, the introduction of which we have already chronicled, consist of three films of emulsion, coated one on top of the other, separated by a film of collodion, which permits of the separation of negatives. The top film is sensitive to blue-violet, and gives the negative for the yellow or minus-blue print; the middle film is sensitised for orange and red, and gives the negative for the blue or minus-red print; whilst the lowest film is sensitised for yellow and green, and gives the negative for the red or minus-green print. The films are not only orthochromatised, but also stained to reduce the preponderating blue-violet sensitiveness.

The sensitiveness of the plate is stated to be 8 on Dr. Smith's scale, or $5\frac{1}{2}$ Scheiner, or $17\frac{1}{2}$ Warnerke, or 20 H. and D., or $f/32$ Wynne, and are fast enough to permit of exposures of about 1-10th of a second with $f/7$ in summer; smaller apertures than $f/16$ are not recommended. No light filters or screens are required.

After exposure the film must be cut through all round; the plate is then laid in a black envelope, and one corner of the same slit up; then a candle is lit, and, care being taken that the light does not fall directly on the exposed corner, the top film is cut through, and in the dark, or with very dim light, the film is transferred by means of a sheet of special paper to a sheet of gelatinised glass, and the temporary paper support is then stripped off. Precisely the same operation is performed with the middle film, and then the three plates are developed simultaneously, the separating collodion films having been previously dissolved by soaking them in methylated alcohol. Positives are prepared from the negatives thus obtained by one of the usual methods.

A REPORT of the new "Red Seal" plates of Messrs. Elliott and Sons, Ltd., Barnet, Herts, is held over till next week for want of space.

Exhibitions.

WATFORD PHOTOGRAPHIC SOCIETY.

The second annual exhibition of this Society was opened in the Watford Public Library on April 28. The awards made by the judge, T. Percivale Padwick, are as follows:—

First prize: "A. Lowestoft Fishing Smack," Miss M. J. Smith. Second prize: "Eventide," P. W. Morris. Third prize: "Card Houses," Mrs. L. Reid. Highly commended: "L'Amour," Miss Kate Smith; and "The Wane of Day," L. W. Shubbrook.

The Members' Classes were well supported, and the loan collection of pictures selected from the 1904 competition, Affiliation of Photographic Societies, formed a feature of the show.

BARRHEAD.

The second annual exhibition of the Barrhead Amateur Art Club (incorporated with the Scottish Photographic Federation) was opened by Bailie Paton on April 26 at the Public Hall, Barrhead, and has proved a great success. Over £30 worth of pictures and photographs have been sold, which speaks well for the quality of the exhibits. The judges were: J. W. Eadie, vice-president of the

Scottish Photographic Federation, and Dr. Richmond, and the awards were as follows:—Class 1, any subject: Silver Medals, A. W. Hill and Fred Judge; Bronze Medals, Wm. Clayden and J. A. Taylor. Class 2, open to Associates of Scottish Photographic Federation: Silver Medal, A. W. Hill; Bronze Medals, R. Wallace and R. Murray. In the Members' Classes, Medals are awarded to R. Murray, Dr. Corbett, Douglas Shanks, and J. M'Grouther; and Certificates to Dr. Corbett, J. M'Grouther, Douglas Shanks, J. Wham, T. E. Dickson, and R. Murray.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
5.....	Wimbledon and Dis. Cam. Club	Members' Evening.
9.....	Royal Photographic Society ...	Three-Colour Photography with Examples. Mr. E. P. Butler.
10.....	Cricklewood Photo. Society	Flashlight. Demonstrated. Mr. Wilfred Emery.
10.....	North Middlesex Photo. Soc. ..	Various Tones on Papers by Development. Mr. Ernest J. Smith.
11.....	Richmond Camera Club	Annual General Meeting.
11.....	London and Prov. Photo. Assn.	Combination Printing. Mr. E. Humau.
11.....	Rugby Photographic Society ...	Annual General Meeting.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held May 2. Mr. J. C. Warburg in the chair. A practical demonstration on "Retouching," by Mr. Redmond Barrett, was the subject announced for the evening, but Mr. Barrett dispensed with the practical part of the demonstration, and treated the audience to a discursive series of statements regarding the process of negative improvement by means of the pencil. The lecturer ruminated on the position retouching has assumed in modern professional photography, and deplored its abuses, inasmuch practically all modern retouching was the same in effect, and that effect was bad and artificial. The tendency was to retouch all character out of a face by putting on too much work, and so making all portraits more or less expressionless and alike. His principles were:—To treat each negative as an individual study; to put on the minimum amount of lead pencil work consistent with the effect aimed at, and to allow the brain, not the fingers, to direct the pencil. By this means only was it possible to improve the negative and retain the likeness. A vigorous head and face should receive entirely different treatment from one lacking in force or character. In the one case the character of the sitter should be studied and assisted as much as possible by the retouching; in the other no work beyond the removal of blemishes should be attempted. Each touch with the pencil on the shadow side of a face had twice the effect of a similar touch on the light side, or dense part of the negative. Mr. Barrett stated there were no rules governing retouching. Simply make up your mind what was required in the way of improvement on the negative, and then do it. The delightful practicability of this axiom duly impressed the audience. Another self-evident truth expounded by the lecturer was that if a certain effect could be obtained with a small amount of work, say fifty touches with the pencil, it was quite unnecessary to employ 500 touches.

A series of questions put to the demonstrator elicited the following points:—The retouching medium should be applied with a small pad of gritless wadding, and should be rubbed with a circular motion over the parts to be retouched in widening circles until the medium was dry. By this circular motion it was possible to avoid varnish marking likely to occur, especially with negatives that had

been intensified. A medium pointed pencil was probably the best for all-round work, and the only advantages an expensive pencil had over the cheap article were that the point lasted longer and was free from grittiness, otherwise any form of hard pencil was suitable. A too fine point was quite unsuitable for large heads; as the space to be retouched could not be properly covered without a great deal of unnecessary work. For small work a fine point was useful, but not absolutely necessary. It was not necessary to frequently sharpen the pencil, as once the proper touch had been acquired turning the pencil during the progress of the work was sufficient to keep a good working point. In working on large heads a loose rubbing touch should be used, and no more pressure should be given than would be necessary to make a mark on the pile of white velvet; if too much pressure is employed either the pencil point will break and possibly damage the negative, or the surface will get slippery and refuse to take more lead. In this case, if it is necessary to add more density, the best plan was to apply a little moist colour with a fine-pointed sable brush. In any case it was not the pencil that did the work but the man, and therefore it could not be too strongly impressed on the retoucher to think before working, and to make up his mind just what is to be done. The object of retouching is to increase brilliancy and make a portrait. By forcing a high-light, the gain was not so much an increase of brilliancy in that light as the increase of brilliancy in the neighbouring shadows by contrast. A blurred negative or a negative of a sitter who had moved during exposure could be saved by placing definite high-lights in their proper places. The high-light, in any case, should always receive first attention when starting to retouch a portrait, otherwise if much work is done on the half-tones the lights will be lost, and it is often difficult to replace them in exactly the right position later. The lights on bridge of nose, forehead, and cheek bones should be secured before anything else is attempted, and the natural high-lights should not be confounded with the reflected lights arising from moisture on the skin during warm weather. It should be borne in mind that every touch of the pencil prints white, therefore too much retouching would flatten out all expression. It is better to soften severe expression than to take it away entirely, and in the case of a very open smile the lines of the face formed by the smile should be carefully retained, or a portrait merely showing the teeth would result.

Working on the glass side of the negative to lighten broad masses of shadow could be accomplished with water-colour or conté crayon, and if the retouching knife is used it should be employed on the plain film previous to varnishing. Always overdo the cutting process, as what is taken away can usually be put back by the pencil with better effect. The knife blade should be kept very sharp, and it will be found that the age of the negative has an effect on the ease of working. Mr. Barrett, in conclusion, reiterated his advice to think before applying pencil to negative, and impressed on his hearers the futility of doing too much work on a portrait when only a few touches were necessary. A hearty vote of thanks was accorded the lecturer at a late hour by the depleted audience.

The Secretary announced that on June 6 Miss Acland would give a display of her three-colour lantern slides of scenes at Gibraltar.

PHOTOGRAPHIC EXHIBITION AT KEIGHLEY.—During last week a photographic exhibition was held in the upper room of the Carnegie Library, at Keighley. The exhibitors, 55 in number, were represented by about 170 works, which Mr. T. C. Butterfield (Art master) and Mr. Alexander Keighley, F.R.P.S., have had the task of arranging. The members of the Keighley and District Photo. Association are, of course, the chief exhibitors, but there are also specimens from Birmingham, Leeds, Sheffield, Hull, and other parts of the Riding.

HULL PHOTOGRAPHIC SOCIETY.—The first outing of the summer session to Hesse Cliff on Saturday last attracted a good attendance. The President and another undertook to give personal attention to the members present, and much useful work was done. Such advice is just what society outings require to make them profitable, and arouse that attention which will draw the beginner and others to the same place again in the future for more serious work alone. The Hon. Sec. writes us that this is to be the keynote of each trip during the summer, and is worthy of support and imitation by other societies. The summer syllabus includes a long series of outings, and, from the particulars published, they appear to be extremely well organised.

RICHMOND CAMERA CLUB.—"Richmond Park" was the subject of an interesting lecture delivered to the members of this club by Mr. A. A. Barkas on Thursday evening last, the closing meeting of the session. The lecturer called the attention of the members to the large number of interesting objects of antiquity in the neighbourhood, which will sooner or later be destroyed, and which are well worth recording by means of the camera.

DARWEN PHOTOGRAPHIC ASSOCIATION.—The members of this association have decided on holding their annual picnic to Millers Dale and Buxton. Mr. Thomas, who has been secretary to the Darwen Photographic Society for ten years, has resigned the position. Mr. Fred. Dearnley has been appointed secretary and treasurer.

CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY (Photographic Section).—On Wednesday, April 26, Mr. J. H. Baldock, F.C.S., gave an interesting demonstration upon "Photographing Small Objects by Artificial Light."

BLAIRGOWRIE PHOTOGRAPHIC ASSOCIATION.—At the monthly meeting in the clubroom on Tuesday evening of last week Mr. W. D. M. Falconer gave a lecture on "Orthochromatic Photography," illustrated by lantern slides.

SOUTHPORT PHOTOGRAPHIC SOCIETY.—The members of this society held a successful concert in the Queen's Hall, Neville Street, Southport, on Thursday evening last.

SOUTH NORWOOD PHOTOGRAPHIC SOCIETY.—On Good Friday this society held their fourth annual excursion to Fittleworth. During the afternoon the presentation of a silver-plated rose-bowl was made to the president, Mr. J. Smith.

SOCIETY OF CHEMICAL INDUSTRY.—Meeting held Monday, May 1. A. Gordon Salamon in the chair. Prof. Chiri Otsuki, Ph.D., read a paper on "The Study of the Action of Hydrogen Peroxide on a Photographic Plate in the Dark," some reference to which is made in "Ex Cathedra." A further paper on "The Influence of the length of time of Development on the Degree of Darkening of the Photographic Plate" was taken as read. A brief discussion followed in which Messrs. T. Thorne Baker, S. E. Sheppard, and others took part.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—The last meeting of the winter session of this association was held on Thursday, April 27. The President congratulated the members on the success of the meetings held, and the increased vitality of the society.

GLASGOW SOUTHERN PHOTOGRAPHIC ASSOCIATION.—At the Fourth Annual General Meeting of this Association, held on April 25, the following office bearers were elected for the year: President, W. S. Morren; vice-president, Wm. H. Wilson; honorary treasurer, Edward J. Grant; honorary secretary, Wm. A. Frame, 28, Bank Street, Hillhead, Glasgow; hon. assistant secretary, R. Lindsay; council, Messrs. D. Linton, Jas. M. MacLean, D. Horn, J. Keith, Jas. Henderson, and Chas. Young; auditors, W. Milroy and Rob. Young. Any person desirous of joining the association can have full information on application to the honorary secretary.

Commercial & Legal Intelligence

NEWSPAPER Owner Sned.—In the case of the Official Guide Co. v. J. J. Neilly at Dublin last week, an order was made directing the attendance of the defendant for examination with reference to his means. The affidavit of the plaintiff company set forth that the Sheriff returned "no goods" on a judgment obtained against defendant for the sum of £108 9s. and costs. Defendant resided at Torrento, Dalkey, and the debt related to the printing of the "Irish Amateur Photographer," issued from the same place as the "Irish Figaro." An exhibit was made of a dishonoured cheque for £45.

MUCH-PAWNED Camera.—George Werner de Sondelberg, alias Leonard, alias Herne, a photographer, of no fixed abode, was charged, at the Cambridge Police-court, with stealing a camera, valued at £3, the property of Herbert Mason, in December last. The prisoner had applied to a local photographer for work, and had succeeded in obtaining the camera in question for the purposes of canvassing in the country. The detective who arrested him stated that the camera had been pawned by the prisoner, who had eventually parted with the ticket. The same camera had been pawned at the same place several times before. Later he found that the camera had been redeemed by the Rev. C. Joseph, from whom witness eventually received the property. Witness also heard that prisoner had pledged another camera that Mr. Joseph had lent him. The prisoner said he thought the camera had been given to him.

A BRIXHAM Photographer's Affairs.—Charles Edgar Pridham, 5, Fore Street, Brixham, attended a meeting of his creditors at Plymouth on Thursday of last week. The statement of affairs showed gross liabilities of £113 11s. 5d. The assets amount to £35 6s., leaving a deficiency of £75 15s. 5d. Depression in business and sickness are the alleged causes of insolvency. Subsequently, at his public examination at the Stonehouse Bankruptcy Court, before Mr. Registrar McCrea, debtor, stated that he spent from £50 to £60 fitting up his business premises. At first the business was profitable, but did not continue so, owing to the depression in the fishing industry. The examination was closed.

BANKRUPTCIES.—Cecil Montague Stafford, residing at 5, Nassau Place, Leeds, and carrying on business under the style of Cawkwell and Stafford, at 2, Commercial Street, Leeds, photographer, appeared for his public examination at the Leeds Bankruptcy Court on Monday, before the Registrar. The statement of affairs filed by the debtor disclosed liabilities amounting to £634 5s. 9d., and there were no assets. The unsecured liabilities were chiefly due to customers who had paid for photographs in advance and had not had them delivered. The examination was adjourned for a month.

WILLIAM ELLAND, 31, Hill Top Mount, Leeds, and carrying on business at 14, New Briggate, Leeds, photographer, also appeared for his public examination at the Leeds Bankruptcy Court on Monday, before the Registrar. The summary of accounts filed by the debtor showed liabilities estimated at £536 2s. 4d., and assets returned at £178 7s. The examination was adjourned to May 15.

For a simple mountant which will keep for a long time, that suggested by Messrs. Trapp and Munch for their papers may be tried. It is made by dissolving an ounce of gelatine in three ounces of water, and adding fifty minims of amyl alcohol.

The Argentine Government have assumed the monopoly of the manufacture and sale of pictorial postcards, and all prepared by private persons will be confiscated. It is to be hoped that this may bring revenue to the empty coffers of this distressful country.

The following advertisement appeared in last Monday's *Times*: The Seventh Messenger to the Potentates, Priests, and Ministers of all nations. Away with the Abominations. Prepare the People for a Special Manifestation of THE LIGHT." "Probably an advertisement of a new firm of electricians," suggests the *Globe*. The makers of the mercury-vapour lamp had better see into the matter.

Correspondence.

* * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

MAKERS' FORMULÆ.

To the Editors.

GENTLEMEN,—I am obliged both to Mr. Tennant and "Chemist" for their kindly endeavours to enlighten my ignorance, and I can now understand the subject and appreciate the cause of the chaos.

As regards Mr. Tennant's remark about not looking a gift horse in the mouth, this is surely uncalled for, and although I am always grateful when anyone gives me a good formula I am still more grateful when it is expressed in such a way that there is no doubt in my mind as to what is meant, so that if I find that it does not work satisfactorily, according to my standard, I know that it is not my fault for having made it up in another manner than that intended by the author.

With regard to Mr. Tennant's conversion, I fail to see how he gets 195 gr. and 97.5 for the chloride and lead respectively.

Certainly the facts brought forward merely emphasise my remarks as to the necessity for standardisation of our formulæ.—Yours faithfully,

ARTHUR PEAKE.

London, E.C.

To the Editors.

GENTLEMEN,—I trust that you will excuse my asking for a little space to comment on part of "Chemist's" letter in your issue of today. In the first place, I would desire to say that (probably from my error) the amount of sodium sulphite and that of lead acetate should be 175 and 87.5 grains respectively, instead of 195 and 97.5, as given.

I am utterly at a loss to see why for practical purposes the formula A of Mr. Peake should not be considered as containing 10 per cent. of pyro. "Chemist" seems to believe that the ounce measure of water contains 480 grains in weight. Of course it does not. It should hold one ounce avoirdupois of water of the standard quality and under the standard conditions. Of course the formula will not give a grain of pyro for 10 minims of the solution, but it will give an ounce for 10 ounces of the solution, or a gramme for 10 c.c.s., and that is what we require—if we choose to mix incongruous matters, the fault in the result is ours.

Next, as regards the comments on your "Ex Cathedra," the approximate difference between the litre and 1,000 c.c.s. is as you give it*; and will be found so on reference to the Statutory Order in Council, which has the force of law. A reference, too, to the definitions given in another Order in Council will show that the definition of a litre does refer to water at the temperature of 4 deg. C., and also prescribes the barometric pressure. It is true that the General Council of Medicine has authority to "publish a list of medicines and compounds, together with the true weights and measures of which they are mixed," and that they have used a temperature of 60 deg. F. for marking volumetric measures; but it seems doubtful whether a chemist is entitled to use such measures for any purpose of sale to the public unless they are stamped by the inspectors of the Standards Department. Probably the question will never arise, as any difference between the standard of the Medical Council and that of the inspector will be negligible. But perhaps some inspector may insist on earning his fees for verifying the weights and measures, if used otherwise than for making up prescriptions.—I am, Gentlemen, yours faithfully,

April 28, 1905.

J. F. TENNANT.

* It amounts, in other words, to about $2\frac{1}{2}$ minims in a litre.

THE P.P.A. ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I have no great desire to be controversial on the point, but would like to question Mr. Groves' estimate of the percentage of outclassed operator assistants. One per cent. is surely too small a proportion to represent this number, and, to my mind, would more accurately apply to the class drawn from the "hundred or so" studios for whom first-grade certificates, as the scheme now stands, are available only.

It is reasonable to suppose that in a trade, hitherto unclassified, there must be a large section of workmen long past their apprenticeship who are neither master photographers or (excuse me) "Extra first-grade" operators to whom a certificate, which covers a five years' term and qualifications that are almost secondary, cannot apply adequately. Their numbers and ability, it may be assumed, indeed, are such as to make them more genuinely representative of the "operator and assistant" employee than any other that is provided for in the certificates scheme.—Yours faithfully,

May 2, 1905.

Scot.

FOCUSsing SCALES AND DEPTH INDICATORS.

To the Editors.

Gentlemen,—I see that Mr. J. H. Taylor, in his article on focussing scales and depth of field, unduly credits me with the suggestion of a mechanically magnified scale. May I be allowed to correct this, and at the same time to explain the true facts with regard to the development of such depth-indicating devices?

The scale and indicator showing depth was first invented and published by myself in 1897 in "The Amateur Photographer," and since then the combination has been independently re-invented at least three times in three different countries—once by an American gentleman, whose name I forget; once by a member of the firm of Carl Zeiss; and once by Messrs. Beck. In all these cases the invention related to a scale for actual use on the camera, but, though various individuals made and applied scales according to my original instructions, it appears that Messrs. Beck alone attempted the commercial application of the invention.

The idea of magnifying the scale mechanically was, I believe, solely due to Mr. Bolas. He suggested this improvement in an article he wrote not long ago on my scale and index, and I supported his ideas as very practicable, though personally I do not feel the want of any magnification. The divisions on Messrs. Beck's "Cornex" index are minute, but this is owing to the fact that they have adopted a very small circle of confusion as the basis of their calculations. If 1/100 in. is adopted, the divisions are not too close for ordinary purposes, while a smaller circle of confusion is readily allowed for.

The indicator and scale to be used as a substitute for depth tables, as described by Mr. Taylor, is an excellent device, and I have had it in use for a long time. It is exactly on the same principle as the camera indicator, but it is made on a much bigger scale. It is a most perfect substitute for the usual depth tables, which are usually more confusing than helpful. I would, however, point out to Mr. Taylor that he has not tackled the problem from the easiest point of view. It is far easier to make an indicator than a very fully divided scale, and the best plan is to have one scale and separate indicators for lenses of different focal lengths.

I enclose a set of indicators with scale for your inspection and use. I think you will find that they convey far more information than the most elaborate table of depths, and that they are far more convenient in use. The circle of confusion allowed for is 1/100 in., and if it is desired to allow for, say, 1/200 in. it is only necessary to reduce the ratio number of the stop in like proportion. Thus, the depth with $f/8$ at 1/200 in. confusion is equal to the depth with $f/4$ at 1/100 in.

It is advisable to warn users of these scales that the results are not in all cases accurate. They are accurate in theory only. The calculations are based on the assumption that depth varies solely with aperture and focal length, which assumption is very wrong with many lenses, and quite possibly is incorrect with any. I understand that Messrs. Beck found it necessary to modify the divisions of their index to bring the results into accordance with facts instead of theory. A critical examination of the "Cornex" index will show that the divisions do not agree with theory, for the distance of the $f/8$ mark from the arrow is only one-third, instead of half the distance of the $f/16$ mark. The indicator must be very carefully adjusted to the particular type of lens it is to be used with, and this is a very unfortunate hindrance to the universal adoption of these useful devices. Depth tables, and depth calculations generally, are deceptive for the same reason, and indeed with some lenses they are useless. Still they are of some value, but they are by no means so easily applied as the scale and indicator described by Mr. Taylor.—Yours faithfully,

April 28, 1905.

C. WELBORNE PIPER.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington-street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

- S. Carter, Helston, Cornwall Road, Walmer. Photograph of Group of Officers of the 26th Middlesex R.V. (Artists). Photograph of General Parade of Artists Volunteers at Deal Barracks. Photograph of Group of Warrant Officers, Staff Sergeants, and Sergeants of the R.M.L.I. and 20th Middlesex Volunteers.
- W. McCrae, 14, Berkeley Road, Dublin. Photograph, Group of Twenty-eight Figures, Aston Villa and Bohemian Football Teams.
- H. E. Tonge, 721, Knutsford Road, Latchford, Warrington. Photograph of Jack Fish (Warrington Footballer), showing "Fish" on a Plaque.
- J. Muir, 7, Blackness Avenue, Dundee. Photograph of the Old Bridge, Dalginross, Comrie, Perthshire.
- F. Bustin, 151, Cheltenham Road, Bristol. Photograph of Mr. Arthur Roberts.
- F. Holmes, Castle Hill studio, Castle Street, Mere, Wilts. Two Photographs, "Meet of the West Wiltshire Foxhounds at Alfred's Tower, Stourhead, Somerset."
- R. P. Gregson, 37, Church Road, Lytham. Photograph of Stephen Bloomer.

CRYSTOLEUM GLASSES.—I am in want of some crystoleum glasses, set in plush frames, that show no raw edge of the glass, but are turned in. I have tried at several wholesale dealers, but cannot get these, although I have seen them in photographers' windows in neighbouring towns.—CHRYSTO.

The Art Photo Supply Co., Steelhouse Lane, Birmingham, or H. Cornthwaite, Dale End, Birmingham, will probably be able to supply what you require.

MAKING SOLUTIONS.—Kindly tell me what you consider the best method of making up a saturated solution of, say, crystal borax, so as to reach as nearly as possible the exact point of saturation, and thus prevent so much of it crystallising in the bottle, as I find it very difficult to re-dissolve it, as the bottle will not stand hot water.—BORAX.

Place about 1 oz. of borax (i.e., a little more than the water to be afterwards added will retain in solution when cold) in a jug and pour over it 10 oz. of hot water. Stir up thoroughly with a spoon or a glass rod, or by pouring backwards and for-

wards from one jug to another, until it dissolves. On setting aside to cool you will have a fully saturated solution, and you can see that this is so by the deposit of crystals thrown out of the solution on cooling. Consult the solubility tables in the "Almanac" for the quantities of salts.

WALTER SMITH.—8, King Street, St. James', S.W., is the address of Christy's.

FRENCH PASTELS.—I should be very pleased to hear through the medium of your paper where I may procure the French pastels mentioned last week by Mr. Arthur Whiting.—J. F. SLACK.

Reeves and Son, artists' dealers, Moorgate Street, London, DYES AND TINSEL.—Will you kindly inform me what liquid is the best to add to aniline dyes to prevent same from fading in P.O.P. print miniatures, especially the red colours, which usually fade on bromide paper? (2) What gum solution is used for sticking tinsel on postcards? (3) The best house for buying tinsel?

(1) None. You must choose fast colours. State your wants to one or other of the houses dealing in dyes. (2) We should say a mucilage of gum arabic would answer, or a waterproof glue, made by dissolving gelatine in water until it softens, removing it before it has lost its original shape, and dissolving in ordinary linseed oil on a gentle fire until it is of the consistency of jelly. (3) Two firms are:—Louis Birnsthing and Co., 26-27, Hanwell Street, London, E.C., and George Kenning and Son, Little Britain, London, E.C.

STEREOSCOPIC.—Would you kindly answer the following? On a camera for 5 by 7 plates I have a front board of $3\frac{1}{4}$ in. wide.

(1) Can I mount two lenses on it to have stereoscopic views and effect? (2) What would be the result if the lenses are not enough separated—say $2\frac{1}{2}$ in. from centre to centre of lenses? (3) Is there any other way to obtain two views on a plate with one lens without shifting the camera by inside or, may be, outside arrangements?—A. LEVY.

(1 and 2) Perhaps. The separation may be as little as $2\frac{1}{4}$ in.—centre to centre of the lenses—but it is well to have the lens-board at least wide enough to bring each lens opposite the centre of the $3\frac{1}{4}$ by 5 plate, i.e., the centres must be $3\frac{1}{4}$ in. apart. (3) Except a special tripod head to shift the camera to and fro 3 in. or more, there is nothing except an arrangement consisting of a pair of mirrors hinged at a large angle and placed to one side of the camera lens. The view is photographed by reflection from the two mirrors, and the angle is adjusted to give the necessary separation on the plate. This device, very neatly made, is sold as the "Stereoscopic Transmitter." See our advertisement pages.

STICKING PAPER TO METAL.—Your formula for a gum to stick paper on metal I cannot make to work, as the paper peels off after a few days. Does the tragacanth require crushing to a powder? And should the arabic be added afterwards?—F. B. GOWLAND.

We must confess not to have tried the particular formula, but the best way to make it would be to use both the gums in the form of powder; moisten the tragacanth with methylated spirit, and then add the water and stir in the gum arabic, and heat gently, or warm water might be used. We should think that the addition of a little acid, if permissible, such as acetic, would be advisable, as this would slightly etch the metal and cause the paper to adhere better. Very frequently a label will stick well if the metal is slightly roughened with pumice-stone powder; and the addition of a drop or two of glycerine to the mountant is also an improvement, as it prevents it becoming absolutely bone dry.

DESIGNS ON COPPER.—Could you kindly state if carbon is the best process to use for reproducing designs on copper plates and

cylinders for engravers to work, suitable for pottery printers, etc., or is there any better method adopted?—REX.

Carbon is not suitable, as the gelatine film clogs the engraver's tool. The plate should be sensitised by a fish glue or albumen formula, as used by the half-tone etcher. There are numerous formulae. You might use that in our "Photo-Mechanical Notes" for January 27 last. Better get a handbook on the half-tone process.

RETOUCHING.—The photographs herewith enclosed are prints from two poor quality negatives taken by an inexperienced operator. I am a first-class operator, but somewhat doubtful of my retouching. Would you kindly pass your opinion on my work? Should I be able to take a position as retoucher? Time taken on each negative, twenty minutes.—G. H.

If you are a first-class operator why did you not show your retouching upon your own negatives? We consider your retouching quite good enough for any firm that only allows twenty minutes for a cab.-vig., but a first-class operator should surely also be thoroughly up to the best quality retouching. Quickness is not everything, and the leading houses allow at least one hour for this size, and many firms make no stipulation as to time, if the retouching is conscientiously and artistically done. Considering your retouching from a high-class standpoint, it is decidedly weak, for you remove character too much, and simply slur over the faces. There is no quality and properly blended texture. A few lessons from a really first-class teacher would be of benefit to you. You might also submit to us a specimen of your retouching executed on your own studio-taken negative, and printed on glossy P.O.P. to show detail.

H. H. (London).—You have done right in obtaining a written assignment of the copyright, and in the event of infringement you can take action for damages and penalties. Both the Professional Photographers' Association and Copyright Union will assist their members. The photographs need not be marked "copyright."

COPYING OLD PHOTOGRAPHS.—I have several old photographs to copy, but cannot get them evenly lit or the margins quite straight and parallel in the results I have obtained. Can you give me some information as to the best method to set about the business?—M. BLUNDELL.

To secure good reproductions of old photographs, it is necessary to first have the originals quite flat, and the camera must be so adjusted that the focussing screen, camera front, and the support on which the photograph to be copied is pinned are all quite parallel and square one with another. The fact that your copies are crooked proves that you did not attend to this detail. The uneven lighting can only be remedied by trial and error, as you do not say what your source of light is. We should have thought that as you have a studio you could have obtained perfectly even lighting by daylight. If you want to copy the prints by artificial light it will be necessary to use two good oil or gas lamps (incandescent preferred), one on each side of the photograph, and shielded from the lens. A slow or photo-mechanical plate, with or without a blue screen, will give you the best results if the prints are at all faded.

BOOK ON PHOTO-MICROGRAPHY.—Will you kindly inform me where I can get a good book on photo-microscopic work, and the price of same?—E. M. P.

"Photo-Micrography," by J. H. Jennings, 3s.; or "A.B.C. of Photo-Micrography," by W. H. Walmsley, 5s.

H: M.—We understand the business is in the hands of the liqui-

dators, but it is possible that some money is recoverable, as the business has been conducted throughout in a shady way.

FADE.—It is impossible to state definitely what is the actual cause of the fading, but it is certainly due to sulphur compounds of some kind. It has very much the appearance of a print which has been treated with a combined bath containing lead.

BOOK ON STUDIO.—From where can I obtain "Lighting in Photographic Studios," by P. C. Duchochois? Can you supply me?
—R. HALL.

No. You can get it, post free 1s. 1½d., from Messrs. Dawbarn and Ward, Limited, 6, Farringdon Avenue, London, E.C.

INFRINGEMENT OF COPYRIGHT.—I shall be pleased if you can give me any information upon the following facts. Last September I arranged with a photographer in the town to have four pages of advertising matter in a guide, and at the same time arranged with him to take any photos I required for the same book, the photographs to be paid for by myself, and I had to allow it as a contra account off the pages of advertisement. This I did, and received a receipt for £1 for taking the said photos. I told the photographer he was to refer any one to me for publication, as I wanted them solely for my own book, and that I was making them copyright, and I was to receive a commission on photos sold to any one on the said pictures. I copyrighted the two pictures, and a few days ago found them published in another guide. The pictures are those taken for me, as no other photo has been taken, and the names in some places are spelt as my first issue of postcards. I enclose book for your perusal. Please refer to pages turned down in guide. I shall be pleased if you can enlighten me at all upon the matter.—NIL DESPERANDUM.

If the facts be as stated, you have a clear cause of action against the infringer of your copyright for penalties, damages, injunction restraining further sale, and forfeiture of all copies, blocks, etc.; also against the photographer. We should advise you to put the matter in the hands of a solicitor well versed in copyright law.

LENS FOR ENLARGING.—I am anxious to make enlargements by incandescent light from small negatives (about 2 in. by 1½ in.) to whole-plate size and 12 by 10. Will you please tell me the best lens to use for the purpose? Can you recommend the Goetz Double Anastigmat Series 1B, as advertised in the "Almanac," p. 377, and, if so, which No. of same ought I to get?—T. S.

Any good modern anastigmat with a large working aperture will serve your purpose. This type of lens is much to be preferred for the "portrait" form usually recommended for enlarging, as it has a flat field and covers well to the corners without stopping down. The lens you mention will do very well indeed, and as the ultimate size of the enlargement has nothing to do with the size of lens employed, No. 000 of the Series 1B, covering a plate 2¼ by 1½ at full aperture, should meet your requirements.

STUDIO QUERY.—May I ask you to be good enough to advise me as to the best design and construction of a photographic studio, which I am about to build in my garden? Please supply following particulars:—Would 20 ft. by 10 ft. be a convenient size? Height of eaves and ridge. Position and amount of glass. Position of dark-room. Position of door, etc. And generally as to the best way of going about it.—J. F. LLOYD.

You do not say whether you require the studio for amateur or professional purposes. If the latter, we should advise its being 5 ft. or 6 ft. longer, if you have the space at your disposal, also a foot or so wider. As the building will be near the wall on one side, we should say that the ridge-roof form

will be the best, but with the one side only—the N.W.—glazed. If the studio is made only 20 ft. long, 4 ft. or 4 ft. 6 in. at either end, top, and sides may be opaque. If longer, that may be increased in proportion. The dark-room may be at the southern side, and the door at any convenient part. We should advise you to get Bolas's book, "The Photographic Studio: a Guide to its Construction, etc." It will give you a lot of useful information. It is published by Marion and Co.

Will Mr. J. H. Taylor kindly send his address, as our publishers hold a letter for him.

JOHN MADDISON.—If you will name the year, we can identify the picture, but it is certain that the copyright is not ours.

RETOUCHING.—Kindly give your opinion of retouching of enclosed photographs, and state where same might be improved.—M. S. M. B.

Your touch is pretty clean, but much too similar on all the faces. No difference is made between men and women, and we note that none of the faces are of old people—the best possible to show the skill of the retoucher. The men look too hard and ill through the close working, and would have had a more natural and softer appearance if you had used a bolder grain. The evening-dress study of young lady is your best effort, but avoid getting such a decided line of lighting down the nose—soften it off on both sides. Only two of the prints show the unretouched as well as the finished picture, and these we comment upon specially. The young sitter is fairly good, but very flat about the nose and chin. Look to your high-lighting more, and do not sterilise your efforts with mere stipple. The nose is almost flush with the cheeks, and the chin a sad nonentity—do not make her assume a weakness if she has it not. The elderly lady is grossly, or rather ethereally and unreasonably flattered. *She* may like it, but her own coterie of dear friends must snigger! Your treatment of the neck, although very much rejuvenated, is commercially warranted; but the entire removal of the shadows from under the eyes, the corners of the mouth, the mark from nostril to lips, and the dimple in the chin are quite inexcusable. The lady is fat, probably fair, and most decidedly forty—then why make her an insipid gazelle of uncertain age?

THE LIEGE EXHIBITION.—The King of the Belgians has arranged to visit the exhibition, including the British section, on the 11th inst., and it is expected that the whole of the exhibits will be ready by that time for His Majesty's inspection. The incomplete state in all sections, including the Belgian section, on the opening day, was caused by the block on the Belgian railways, which during the last few days have been severely overtaxed, in the direction of Antwerp, Brussels, Charleroi, and Aix la Chapelle, and exhibitors were unable to receive their goods. The lines are now clear, and great progress is being made every day in installing the various exhibits.

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EX CATHEDRA.

Cyanide Poisoning. Three deaths have been recorded during the past few weeks of poisoning by cyanide of potassium. Now another has been added to the list. In the previous cases the poison was taken internally; in the present it was not, and this gives to a greater photographic interest. From the very brief report now before us, it seems that the victim was an amateur photographer. Some week or two ago, when using a solution of the cyanide he allowed it to enter a cut finger, where it apparently set up blood poisoning, which proved fatal in spite of medical treatment. Except by wet-plate workers, and, on the rare occasions when the cyanide of silver, or Monckhoven intensifier, is employed cyanide does not enter into present-day working methods. And, indeed, throughout the many years when cyanide has been used as a fixing agent by every photographer in the land, we cannot recollect a single fatal case of the poison entering through a wound. We know of many serious results—among both photographers and electro-plate workers—where weeks of pain have been caused by poisoned hands and fingers, but the poison has never, so far as our recollection goes, had a fatal effect. Frequently, years ago when working the collodion process we have had the poison enter a scratch or abrasion of the skin without results, but we always took time by the forelock. As soon as we felt the smarting—which occurs always when the cyanide comes in contact with a wound—the part was put under the tap for a minute or two, and then the place well sucked for a few minutes so as to get out all traces of the poison before it had time to diffuse itself, and, of course, being taken that no more got in during the day's work. One may often have a slight scratch or abrasion of the skin and not be aware of the fact until

the cyanide reveals it, then the best course to pursue is that just mentioned. If, however, the smarting should be renewed the place should again be well sucked at frequent intervals, and finally poulticed for some hours. If this be done very rarely will any ill-effects follow.

Death from Bichromate of Potash.

Although bichromate of potash is so largely employed, and for so many purposes, it is seldom that we hear of a death from it. Last week, however, an inquest was held at Hammersmith on the body of a man who had swallowed some solution of it in mistake for beer. It appears from the evidence given at the inquest that he was told he could help himself to some beer from a bottle in a certain cupboard. It happened that there was a similar bottle in the cupboard containing the bichromate, which a french-polisher, who used it in his work, had placed there for safety. The deceased, in mistake, swallowed that, with fatal result. Coroners, when a death occurs from a substance which is not on the schedule of poisons, are moved to make strong comments on the fact that it is not. Had it been so in this case, as in many others of accidents with other unscheduled poisons, the result would have been the same, whether purchased from a pharmaceutical chemist, or bought at an oil shop. If from the former the purchaser would probably have to pay two or three times the price, for a similar quantity, that he would at the latter. The chemist's packet might be labelled "poison," or it might not, for we have frequently purchased the salt at a chemist's without the packet bearing the warning red label and legend. Even if the packet be labelled, what safeguard is that against accidents when the salt, whether bichromate or any other, is made into solution for use, for that is the only state in which it can be employed? It is with solutions that accidents occur.

Fallacies of Scheduling.

We remember an accident similar to the above, which occurred a few years ago in the warehouse of a firm of druggists' sundrymen, where a solution of bichromate of potash was drunk in mistake for beer, also with fatal result. We also remember a case in which a man, for some ailment he was suffering from, had been recommended to take a mixture of a pennyworth of each of two or three different things. Amongst them was a pennyworth of bicarbonate of potash. In mistake for this the "store chemist" supplied the man with bichromate of potash. The packet was not labelled poison; the man made up the mixture and took some, with the result that he became seriously ill for a long time, but ultimately recovered. He then brought an action against the "store chemist," and recovered very substantial damages—some seventy or eighty pounds, if our memory serves us correctly. These

are notable cases we call to mind of poisoning from bichromate of potash taken internally. Although it is an unscheduled poison, all were accidental and would not have been avoided if the salt had been scheduled except, perhaps, in the case of the chemist's carelessness. Most of us know the effect that the bichromate has upon the hands of some persons who use it largely in photography, but that is quite a different thing from the action of the salt taken internally. A Bill is being promoted in Parliament to amend the Pharmacy Act, and adding to the list of poisons, used for industrial purposes, so that they can only be sold in small quantities by pharmaceutical chemists. Ostensibly this is for the safety of the public. For years the attempt was made to get carbolic acid added to the scheduled list of poisons, and at last with success, so that it can now only be sold by pharmaceutical chemists. Notwithstanding this there are at the present time, if one may judge by the reports of inquests held, more suicides by carbolic acid than by any other poison, possibly more than by all the other poisons put together.

For Bichromate Workers. While we are upon the subject of bichromate, we may quote the recommendation of Dr. Schleich, in the current "Moniteur," of a calcium soap containing wax as a protection against skin-poisoning by bichromate. The preparation of the soap is carried out as follows:—150 grains of pure neutral soap is dissolved in $3\frac{1}{2}$ ounces of water on the water-bath, and $3\frac{1}{2}$ ounces of wax added with constant stirring. After thorough mixture and cooling, 170 minims of strong ammonia are added, and then $3\frac{1}{2}$ ounces of lanoline or other similar fat. The mixture is diluted with water to bring it to a suitable consistency, and can then be stored for use. Dr. Schleich advises first washing the hands with ordinary soap, soaping them again, and then rubbing in the paste made as above. On the hands being finally rinsed with water without wiping on a towel, a protective layer of wax is left on the hands. At the close of work the hands are thoroughly washed and dried on a towel, whereby the wax is removed. The procedure is stated to give a much more convenient protection than collodion or rubber gloves, though why Dr. Schleich calls his mixture a calcium soap we cannot say.

A Further Loss of Thames Scenery.

Lovers of the scenery of the "Silver Thames" will learn with regret that another beautiful spot is doomed. We learn that that lovely estate of some twenty acres with its fine lawn coming down to the river, and studded with cedar trees, known as the Boyle Farm. Thames Ditton, has been sold for building purposes. It is stated that the mansion will probably be converted into a large riverside club, or an hotel, and the old-world garden will be utilised for houses. Horace Walpole often wrote of the beauties of the place, and at one time Boyle Farm rivalled Strawberry Hill as a centre of gaiety. Photographers who wish to obtain pictures of this beautiful spot should lose no time in securing them before it is disfigured by the builders.

Defacing Negatives.

Which is the best way of making a big batch of gelatine negatives, varnished or unvarnished, unfit for printing? The question is one which may come up before the photographer who is clearing out accumulations of exposures, and wants to assure himself that they can never be used to the detriment of himself or his sitters. The natural answer, no doubt, is: Scratch through the film as each negative is discarded.

But that will be found a by no means rapid process, and other expedients, such as removing the film in hot water are quite impossible. A solution of the difficulty, discovered by one of our correspondents when placed under the circumstance we have referred to above, is to dab each negative with a solution of aniline violet dye in methylated spirit. The blotch of colour causes an immediate defacement of the negative, and it matters not whether the film is varnished or not. The dye fixes itself with equitenacity in both cases. In point of rapidity the method is all that can be desired, and its application to even negative that passes out of the photographer's possession, presumably for destruction, is a certain means of preventing any illicit and undesirable use of it.

Points of View.

A new terror for the portrait painter who exhibits at the Royal Academy has appeared on the horizon. We have nerved ourselves to regard with equanimity the indictments of the "Tailor and Cutter," who annually cuts up, with metaphorical scissors, the pictures of the year, and points out the impossibility of the clothes worn by famous people as depicted on the canvases at Burlington House, but now we see by a letter to the "Morning Leader" the votaries of St. Crispin have taken up the running, and the footwear in the picture comes in for disquieting criticism. Here is an excerpt from the letter in question:—"In large exhibit 101, representing King Edward, I beg to state that a village cobbler would be heartily ashamed of left boot of his Majesty, the welt of same throwing whole boot out of balance. Also waist and uppers are clumsy and liable to warp at seams, so destroying effect of whole picture. In 711 ('Sisters') left high heel of well-dressed lady getting into hansom is all sideways. Doubt if same wd be worth repair. Several and a half pairs of boots in this exhibit, every welt disfigured, clicking and finishing bad; neither laces nor lace holes apparent in any. Result: Picture spoilt entirely." We suppose that even if duly qualified tailors and shoemakers were included in the Hanging Committee of the R.A., the hatmakers, milliners, chiropodists, landscape gardeners, boatbuilders, and other specialists would still find cause for complaint.

An Incompetent Academy.

Controversy pertaining to the failings of the Royal Academy continues to rage in the daily press. The "reform party"—an apparently necessary evil indigenous to every well-established and popular institution—casts contumely on the present Exhibition, and Mr. John Cooke, a painter who has exhibited at Burlington House for many years, but whose name does not appear in the catalogue this year, states in the "Express" that "at the present time the minor and applied arts are absolutely ignored by the governing body. There is not an Academician who is a capable judge of an engraving." If this is correct, we wonder what position mere photography holds in the estimation of the august body that presides over the destinies of daubers at the temple of Art in Piccadilly. We read further that "if the Royal Academy were doing its duty to the country there would be no need for the art societies which have sprung up and which are all, directly or indirectly, opposed to the Academy," but are reassured by the admission that "although some of these societies attempt to compete with the Academy, such competition is impossible, for Burlington House is by nature of its traditions and its unrivalled building, almost impregnable. It could easily survive another fifty years of bad management." Exactly, Mr. Cooke. "Ars longa, vita brevis."

Halfpenny photography. There has lately been brought to our notice a photographic public of the very existence of which we were in profound ignorance. How large this public is we have no means of saying, but it is possible that thousands are numbered in its ranks, inasmuch as the complete outfit with which a photographer of this description commences the practice of the art costs but a single halfpenny. Your photographic dealer or chemist is not the person privileged to transfer these goods from the maker to the consumer. That duty, we find, is discharged by the sweet-shops. You ask for a "halfpenny photography," and you get a big envelope on which it is positively stated that "D. Mac's Young Photographer contains complete printing frame, sensitised paper, and chemicals. Will copy portraits, leaves, ferns, etc." Inside you discover a pasteboard printing-frame (with glass), two dirty bits of albumen paper about postage stamp size, and a pinch of white powder (hypo). We will say this much for the outfit: the assurances on the envelope are not belied, and when you tire of copying ferns, another halfpenny will purchase a very good negative of the Tower Bridge, whilst for a penny you can get three quarter-plate pieces of "Clerkenwell" P.O.P. in a wrapping strongly resembling that of a standard brand of gelatine printing-out paper. We cannot for a moment suppose that the wrapping or the designation of the paper indicates the emission of the packet from either of two great firms, however persistently the policy of "popular photography" may be pursued. Indeed, the instructions in the packet are too impractical in places for anyone to attribute them to an experienced photographic trader. We are told that, after washing, the picture "is ready for mounting, which must be done with a little paste when your picture is damp, so that you have no grease on it."

Photographers in embryo.

From inquiries made among our juvenile acquaintances we find that the photographic packet is a prized article. Sir Martin Conway, whom we quoted last week on second-hand photographs, will be interested in learning that a negative and printing frame (halfpenny each, new) may fetch as much as a penknife with two broken blades if not much the worse for wear. The technics of the art, too, we find, are not all in the literature. A young friend informed us that you could finish the pictures with salt instead of the chemicals. Her authority for this statement came not from Sir William Abney, as we had expected, but from "a boy in the backs." A good deal has been said at one time or another about the way in which the deluge of cheap cameras has made purchasers of more expensive apparatus. We are not so sure that there is a very great deal to be said on that score, but at any rate there is still another under-world of young boys and misses, photographers in embryo, who in a year or two, perhaps, will be purchasers of cameras and accessories.

The "Watkins Factor." The recent discussion as to the confusion which may result from the improper use of the term "development factor," has brought us the intimation from one or two writers of their intention to employ this term only in the original sense of Hurter and Driffield. Mr. Kenneth Mees and Messrs. Newton and Bull write that for the multiple or "times" number, as used in the Watkins system of time development, they will use the expression "Watkins factor." Perhaps other writers on development may find it convenient to fall in with the suggestion which seems as good as any other.

PRINTING PROCESSES.—II.

PLAIN OR SALTED PAPER.

As regards the sensitising of the salted paper, one of two procedures may be adopted. Both yield equally good results, though the one gives a much more sensitive paper and one that is suitable for somewhat hard negatives. The only disadvantage is that the paper must be used within twenty-four hours of silvering. The other should be adopted if the sensitised paper is to be kept, and it may be taken for granted that it is preferable for all-round work, because we can, under special circumstances, obtain all the advantages of the former by subsequent treatment.

The first method is by the use of ammonio-nitrate of silver, the second with a mixture of silver nitrate and citric acid. Whichever process is adopted precisely the same method should be used for applying the silver solution as was advised for the sizing, namely by brushing on. This process has the advantage of giving paper of constant quality, which is due to the fact that a given quantity of salt and a given quantity of silver is apportioned to a given area, and one is thus absolutely independent of any outside influences, such as humidity, or variation in temperature or errors in time of floating the paper on the baths. The floating method has certain disadvantages. A considerable quantity of silver bath has to be made up, far in excess of that actually required, and further, every sheet floated on the same abstracts a certain amount of silver. Hence it follows that unless the amount of silver in the bath is frequently and quantitatively estimated, the sheets of paper must be floated for an increasing time, with the consequent greater penetration of the solution into the fibre of the paper, and a great variation in the results obtained. The care of the silver bath is a trouble, and as the bath soon becomes contaminated with organic matter, it has to be sunned and filtered, and entails, in the end, far more trouble than the method we have advised.

It is unnecessary to enter into the theoretical calculations as to the amount of silver required to give us an excess of silver nitrate, but for the same area of paper as we mentioned in the directions for sizing, that is 480 sq. inches, we require practically forty grains. This quantity may, of course, be reduced or increased as the operator, taught by experience, thinks fit, but the above quantity yields a very rich printing paper, giving deep tones that cannot be obtained if a much weaker bath is used. There is also another fact which should induce one to use a strong silver solution, namely that it instantly forms a coarser grained silver chloride, which has but little tendency to sink into the fibres of the paper.

As already stated, if the paper is to be kept, it is advisable to add some citric acid, and the longer the paper is to be kept the greater must be the amount of acid; practically it should amount to one third of the weight of silver nitrate, so that our bath will then be:

Silver nitrate	40 grains
Citric acid.....	13 "
Distilled water to	$\frac{1}{2}$ ounce.

and this should be spread rapidly and evenly over the above named area of paper, precisely in the same way as described for the size. As soon as the surface moisture disappears the paper should be hung up by wooden clips to dry.

The ammonio-nitrate solution has one disadvantage, and that is that if there is much ammonia in excess, the silver chloride will be dissolved, and therefore will have a ten-

dency to sink into the paper. This trouble may be overcome by the following well-known plan:—Dissolve the silver in about three-fourths of the total bulk of water, divide into two portions, to one add liquor ammonia fort .880 drop by drop till the brown precipitate first formed is redissolved, then add the other half of the liquid to this ammoniacal solution, stirring all the time, when generally a perfectly clear solution will be obtained, if not, an additional drop or two of ammonia will clear it up, and then make up to the given bulk with water. Of course the citric acid is omitted, as this serves no purpose now. It is as well also to point out that if this formula is adopted, the ammoniacal silver solution must be brushed on—the paper cannot be sensitised by floating.

As exactly the same result can be obtained by fuming the paper, sensitised with the acid solution, with ammonia, and this entails no more trouble than is involved in putting a little solution of ammonia or a lump of carbonate of ammonia (preferably the latter) in the bottom of a box, pinning the paper to the lid and leaving for a little time, say from five to ten minutes, the ammoniacal-silver method can be dispensed with.

Various other acids, such as tartaric, oxalic, and less known organic acids have been suggested as substitutes for citric, but there are practical objections to all. In the case of tartaric, crystallisation is very apt to take place on the surface; oxalic has inferior preservative powers; the less known organic acids are much dearer, and act no better if as well as citric. That some variation in printing quality may be obtained by the use of these, however, cannot be denied, but their use is more interesting theoretically than practically.

It must not be supposed that because we have given a particular formula, that others will not be found successful. Any soluble chloride may be used, and it has been claimed by some that variation in the final tone of the print is obtained by variation of the chloride. The changes may, of course, be rung through the alkaline haloids, or the earthy haloids, such as calcium, barium, or magnesium and to those who wish to experiment there is a wide field open here but it would be as well to point out that the proportion of actual chloride must be calculated; that is to say, it must not be forgotten, to take one example, that 100 grains of barium chloride

will only contain 29 grains of available chloride, as against 70 grains in 100 grains of ammonium chloride.

There are, however, two possible additions to the salting solution which are extremely valuable, and they should not be neglected as by their use the variation in gradation is enormously increased. The one is sodium phosphate which flattens the print considerably—that is, extends the scale of gradation; the other is a chromate—either potassium chromate or bichromate or the ammonium or calcium chromate may be used. Any of these shortens the scale, so that even the flattest negative may be made to give a rich contrasty print. The exact amount of either must, of course, be determined by experiment, but practically 0.02 per cent. of ammonium bichromate shortens the scale by one-third; with the phosphate a much greater quantity may be used amounting even to 5 per cent. of the weight of chloride.

Changes may be rung on the sizes also. Albumen should not be used, nor caseine, but gelatine and agar agar may, and the latter in particular is very satisfactory, as it keeps the salts well on the surface of the paper. This it does for the reason that it does not form a solution but a jelly which has to be worked into the paper. It is more trouble to apply and make, but this will be of minor importance to anyone who wishes to use it. The best method of preparing this size is to soak 5 grains of agar-agar in one ounce of water for an hour, and then boil for ten minutes, filter whilst hot through fine muslin or nainsook and allow to cool. If it is desired to coat the paper with this as it is, the solution must be used whilst fairly warm, and the coating must be done near a fire; but it is far preferable to allow the solution to set to a jelly and then break it up by squeezing it through fine muslin two or three times. The given quantity is then worked on to the paper with the brushes until it presents a uniform appearance; naturally, the chloride and citrate must be added to the warm solution.

If gelatine is preferred, then the size may be prepared by merely replacing the arrowroot in the formula we have given by an equal weight of gelatine, soaking in the water for an hour, then dissolving by the aid of a water bath. It is easy to apply, only it must be used warm, and unless the brush is rapidly worked, it sets before it is possible to break all the innumerable little bubbles which form.

MODERN CHEMISTRY FOR PHOTOGRAPHIC WORKERS.

II.—THE IONIC THEORY AND DISSOCIATION.

We have seen that if a substance is dissolved, we may consider that the molecules exert a definite pressure by reason of the way in which they are continually hitting against the walls of the containing vessel.

And we have further seen that we may measure the amount of this pressure, termed the "osmotic" pressure of the dissolved substance, by forming one of the walls of the containing vessel of such a material that the dissolved substance cannot penetrate it while the molecules of the solvent can pass freely through it, and that if we measure it we find that

The pressure of a dissolved substance is equal to the pressure which the substance would exert if it occupied the same space in the state of gas.

And we have seen that, according to Avogadro's law, equal volumes of gas at the same temperature and pressure contain the same number of molecules, so that if the gas in a bulb full of oxygen weighs sixteen times as much as if the bulb were full of hydrogen, we assume, not that there are sixteen times

as many molecules, but that each molecule is sixteen times as heavy.

The Pressure of Elements and Compounds in the Gaseous State.

Now, suppose that we take sixteen grams of oxygen and put it in a flask, and measure the pressure which it exerts, we shall get a certain result; and if we next take fourteen grams of nitrogen we shall get exactly the same pressure, and so from 35.5 grams of chlorine or twenty-three grams of sodium; and, generally, any substance whose weight is proportional to its molecular weight will exert the same pressure. When, however, we come to apply this test to compounds, we must remember that the molecule of oxygen, for instance, consists of two atoms, not of one, and the molecular weight will consequently be twice the atomic weight. If the weight of an atom of oxygen, for instance, is sixteen, then the weight of a molecule will be the weight of two atoms—that is, thirty-two. So, remembering this, we may place ammonium chloride in our bulb, and as the formula of this is NH_4Cl , and its molecular weight is 53

we may expect that if we take fifty-three grams of ammonium chloride in the state of gas, it will exert the same pressure as thirty-two grams of oxygen.

Suppose we take two bulbs exactly alike, and in one put thirty-two grams of oxygen, in the other fifty-three grams of ammonium chloride vapour (each at the lowest temperature at which the ammonium chloride will vaporise), and let us heat these two bulbs together in a furnace, the pressure in both of them will go up; but it will be seen that when the bulbs get very hot the pressures in them are no longer equal, but the ammonium chloride is exerting very much more pressure than the oxygen, and when the bulbs are very hot indeed the pressure of the ammonium chloride is practically double the pressure of the oxygen.

Dissociation.

If Avogadro's hypothesis is true, the fact that the ammonium chloride exerts twice the pressure of the oxygen can only mean that the ammonium chloride bulb contains twice as many molecules as the oxygen bulb. And since these molecules must have come from somewhere we are driven to the conclusion that the single molecule of ammonium chloride has split into two, so that we have got

$\text{NH}_4\text{Cl} \rightarrow \text{NH}_3 + \text{HCl}$
Ammonium chloride goes to ammonia and hydrochloric acid gas.

And when the bulb cools the ammonia and hydrochloric acid re-unite to form ammonium chloride. We can write our arrow the other way also:—

$\text{NH}_4\text{Cl} \rightleftharpoons \text{NH}_3 + \text{HCl}$
which is what is termed a reversible reaction—that is, a reaction which goes in either direction according to circumstances. Later on we shall meet other sorts of reversible reactions, and shall find that very many reactions indeed are reversible.

The simple splitting up of ammonium chloride is termed dissociation; but this dissociation is, so to speak, only one stage of a general reaction.

Dissociation in Solution.

We have seen that the osmotic pressure of a substance in solution is the same thing as the pressure of a gas, and that, though we cannot measure it directly with any ease, yet we can measure it both easily and accurately by measuring the amount by which either the freezing or the boiling-point of a solution differs from that of the pure solvent, so that we should expect that, as we find by experiment, weights of substances which are in proportion to their molecular weights, produce equal osmotic pressures when contained in equal bulks of solution. But if we dissolve a salt, such, for instance, as potassium chloride, in water, and measure its osmotic pressure, we find the pressure to be very much greater than that which we should have calculated from this law, and with extremely dilute solutions we may find the pressure to be double what we should have expected to obtain. To this fact we apply the explanation which we found useful in the case of the ammonium chloride—namely, that our potassium chloride has split up into two different molecules, and then we are at once confronted with the question: What are those different molecules? We could write:—

$\text{KCl} \rightarrow \text{K} + \text{Cl}$
Potassium chloride goes to potassium and chlorine.

But the difficulty arises that a solution of chlorine in water has certain well-known properties; it is green, and has a strong smell and bleaching action, while potassium fiercely attacks water evolving hydrogen. And since the potassium chloride solution exhibits none of these properties, it cannot have split up into potassium and chlorine.

Osmotic Pressure, Dissociation, and Electrical Conductivity.

If we attempt to pass an electric current through pure water we shall find that it will allow only an extremely small current to pass, or, as we usually term it, it has an extremely low conductivity. And if we add to the water some substance which has an osmotic pressure which is proportional to the molecular weight, we shall find that the conductivity is still but little improved. If, however, we add some salt which gives osmotic pressures which indicate that dissociation of some sort has taken place, we shall at once find that the conductivity is considerable. This fact would seem to indicate that the dissociated molecules of the salt act as carriers of electricity from one side of the solution to the other.

The State of Molecules in Solution—An Electrical Hypothesis.

And we come now to the necessity of consideration as to the nature of electricity. It is very difficult to see what it is which happens in the interior of a solution, and practically impossible to see what happens in a metallic wire; but, fortunately, an electric current can be led through something in which we can watch the phenomena which occur—namely, an exhausted glass tube. Suppose we take a glass tube and attach it to a pump so that we can remove all the air from it, and then pass a current of electricity through it. To do this we must pass two pieces of platinum wire through the walls of the tube, so that we can connect them to the poles of an induction coil. The piece of wire attached to the positive pole of the coil is called the anode; that attached to the negative pole is called the cathode.

Now, as we pass the current and slowly exhaust the air from the tube, we see the passage of the electricity through the tube as a flickering stream of light. And as the air is steadily reduced this stream of light widens and fills the tube, while more and more light collects around the poles themselves, and especially around that one which is attached to the negative pole of the induction coil, or cathode, as it is named. Suppose now we put a little light fan-wheel in front of the cathode, while the whole tube is glowing with a bright green light, we shall see that the fan will run round exactly as if there was a current of air shot off from the cathode. This experiment, and very many others which have been made in an exhausted tube, are explained by the assumption that there really are exceedingly small particles shot off from the cathode. Professor J. J. Thomson, at Cambridge, has succeeded in estimating the weight of these particles, and he has come to the conclusion that their weight is one-thousandth of the weight of a hydrogen atom. All these particles are shot off from the cathode or negative pole of the tube, and consequently are strongly charged with negative electricity. Positively charged particles are not known to occur of less weight than the atom of hydrogen, so that we may consider that only one sort of electricity really exists, the sort which hitherto we have called negative, and that this electricity consists, like all other matter, of small atoms, which in the case of electricity weigh 1-1,000th of the hydrogen atom, and are termed electrons.

According to this idea a positively charged body is one which has too few electrons; a negatively charged body, too many electrons; and one which is not charged at all will have what one may term the standard number of electrons, which will just balance the rest of the matter round them.

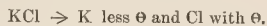
And now let us return to our potassium chloride solution. We saw that this solution would allow a current of electricity to pass through it, while pure water would not; and we have also seen that electricity consists of these little unit charges which are termed electrons, so that the addition of potassium chloride to the water has evidently made it possible for the electrons to pass from one side of the solution to the other. Suppose that we take a solution of copper sulphate and dip

into it two copper plates, and then connect these two copper plates to the poles of a battery. Then, after a little while, we shall find that one of these copper plates is having copper deposited upon it, while the other is losing an equal amount of the metal.

The Ionic Theory of Arrhenius.

To all these facts we may apply a simple explanation, which is called the ionic theory, and is due to Professor Arrhenius, namely, that when we dissolve potassium chloride in water, instead of splitting up into potassium atoms and chlorine atoms, it splits up into potassium atoms with one electron too few, i.e., positively charged potassium atoms, and chlorine atoms with one electron too many, i.e., negatively charged chlorine atoms.

So that if we draw our little electron as a small circle \ominus , we get



the chlorine taking one electron from the potassium atom. We call these charged atoms ions (= movers), and we may write the dissociation equation:—



where the + and — over the K and Cl. denote the electric charges which they possess.

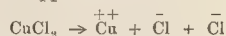
From this we can see at once that the osmotic pressure of a salt solution will depend on the extent to which it has dissociated into these ions. If it has completely dissociated (which only occurs with very dilute solutions), then the osmotic pressure will be double that which would be calculated from the simple formula of the substance, while if it be only partially dissociated, the osmotic pressure will have some intermediate value.

In the copper sulphate solution in which an electric current was passed between two copper plates, we shall have a few

copper sulphate molecules, together with a great many copper and sulphate ions, thus:—



putting two electric charges on both sulphate and copper because if we take copper chloride it must split up into



where the copper needs two charges to balance the two negative charges, one on each chlorine atom. Now, if we picture what happens in the solution when we start to pass a current of electricity, we see that we get one copper plate connected to the negative pole of the battery, and, therefore, having a negative charge, that is, free electrons. These electrons neutralise some of the charges on the copper ions and make these into copper atoms, which promptly deposit themselves (being insoluble in water) upon the copper plate. This leaves a chlorine ion free, which is neutralised by an atom of copper dissolving from the other positive plate, having lost an electron, and so becomes a positively charged atom, i.e., an ion; so that the copper is continually dissolving from one plate and being deposited on the other.

It will be clear from this that since one atom of an element can only carry one electron of electricity, the amount of a metal deposited will vary directly with its atomic weight, and the amount transmitted by the transfer of one gram molecule of any element will be always the same whatever the element may be. Faraday showed this to be the case by direct experiment, and the law forms the basis of the common voltmeter which measures the amount of current passing in a given time by the increase in weight of a silver or copper plate.

Thus we see that the solution of a salt essentially involves an ionisation of the salt, and it will next be advisable for us to consider the way in which these ions behave in chemical reactions.

C. E. KENNETH MEES, B.Sc., F.C.S.

THE WEEK IN HISTORY.

Flexible film in 1856.

In "The Week in History" for April 21 I spoke of the early introduction of the roll-holder into photography in reference to Captain Barr's instrument of 1855. The first attempts to produce a transparent film were made a year later. Probably Alexander Parkes was not aware of Barr's apparatus when he patented, on May 13, 1856, the use of collodion as the support as well as the vehicle of the sensitive silver salt in Scott Archer's process. In 1855 he had patented a mixture of nitrated cotton and other organic or inorganic body as a new material, though he does not appear to have recognised the importance of a light, flexible, transparent material in photography. This photographic patent, which was not finally sealed, consisted simply in the use of a sheet of collodion of sufficient thickness as a support for the prepared collodion.

The "Relandin" Roll-holder of 1855.

Fifty years ago next Thursday M. Relandin was showing the French Photographic Society the model of an apparatus in which twenty-four sheets of sensitive paper could be exposed in turn, being attached to a band of gummed silk wound round a drum. So far as can be ascertained from the description, the feature of daylight loading, which Captain Barr embodied in his slide, did not distinguish the apparatus of M. Relandin. It is true that a commission of the French Photographic Society reported in somewhat grandiloquent language on the invention, and stated that the sensitive papers could be changed with the greatest ease in full daylight, but that reference, I believe, must

be to the change of the twenty-four exposures, which the apparatus contained, and not to the withdrawal of a separate spool. A drawing of the Relandin "chassis" appears in the first volume (1855) of the "Journal" of the French Photographic Society.

Bichromates in Photography—The First Process.

Probably a good many people would not make the bichromate processes of printing as old as they really are if the question were put offhand. In point of fact, the employment of chromium compounds is almost as old as that of silver salts. On May 18, 1839, Mungo Ponton communicated a paper to the Royal Society of Scottish Artists in which he outlined a process for copying engravings, etc., by contact. Bichromate printing is thus very little the junior of the silver processes. Ponton's process was as follows:—"Well-sized paper is to be immersed in a solution of bichromate of potash and dried by the fire; by this it assumes a fine yellow colour, and it may be kept for any length of time without injury, and is always ready for use. When an engraving is laid on this paper, and it is exposed to the sunshine, it passes rapidly, over all the parts through which the rays can act, into a light brown. In this state the photograph cannot be exposed to the light, as all the yellow parts would become brown. If, however, the paper is soaked in water, all the unchanged salt is dissolved out, but that which is browned is not disturbed. We have thus a delicate negative picture, from which positive copies may be taken. If the paper is exposed too long to sunshine it loses colour. A pleasing variety can be made by mixing sulphate of indigo with the bichromate of

flash, the colour of the object and of the ground being different shades of green.”
It may be noted that Ponton did nothing towards our present-day carbon process except to draw attention to the sensitiveness of bichromate in admixture with organic matter. Had he chosen

gelatine as that organic matter, he might have observed the insolubility which is produced on exposure to light. This discovery, of such immense importance in photo-mechanical work, was, however, not made until 1852, when Fox-Talbot published it as part of his photo-etching process. HISTORICUS.

FOREIGN NOTES AND NEWS.

Self Luminous Paints.

Though not strictly within the province of photography, we may give here some formulæ for phosphorescent paints which we find in paper by L. Vanino and J. Gans in the “Journal für Praktische Chemie” (No. 4, 1905, p. 196). The formulæ will perhaps appeal to the numerous class of persons who are constantly asking how to make sympathetic inks, freezing mixtures, and other chemical odds and ends. The authors prepare a self-luminous paint from: Barium sulphate, 60 gm.; 5 per cent. alcoholic uranium nitrate solution, 12 ccs.; 5 per cent. alcoholic bismuth nitrate solution, 12 ccs. This mixture is treated in a muffle furnace for three-quarters of an hour and the contents of the crucible removed in as large pieces as possible. Better results are obtained with a mixture of: Strontium thiophosphate, 20 gm.; thorium nitrate (.5 per cent. alcoholic solution), 12 ccs.; lead nitrate (.5 per cent. alcoholic solution), 4 ccs. The authors have tested the formulæ of a great number of writers, and state those of Lenard, Mourelo, Vanino, and Balmain to be the best. These are as follows:—

Lenard.—Strontium carbonate, 100 gm.; sulphur, 100 gm.; potass chloride, .5 gm.; sodium chloride, .5 gm.; manganous chloride, .5 gm. The mixture is heated for three-quarters of an hour in the furnace.

Mourelo.—Strontium carbonate, 100 gm.; sulphur, 30 gm.; soda, 10 gm.; sodium chloride, .5 gm.; manganous sulphate, .2 gm.

Vanino.—The uranium formula given above.

Balmain.—Calcium oxide (quicklime), free from iron, 20 gm.; sulphur, 6 gm.; starch, 2 gm.; bismuth nitrate (5 per cent. alcoholic solution), 1 cc.; potass chloride, .15 gm.; sodium chloride, .15 gm. heated for three-quarters of an hour.

Another excellent formula is: Calcium oxide, 20 gm.; sulphur, 6 gm.; starch, 2 gm.; potass chloride, .5 gm.; sodium chloride, .5 gm.; bismuth chloride (.5 per cent. alcoholic solution), 1 cc.; calcium fluoride, 3 gm. The authors find that the Heraeus mercury-pour lamp is an excellent light for exciting phosphorescence of the paints.

The Bleaching Out Process of Colour Photography.
Dr. Neuhauss, who has made a special study of this process, has been continuing his experiments, and in the current number of the Photographische Rundschau” gives his latest formula:—

Gelatine	10g.
Water	100ccs.
Methylene blue (0.2 per cent. aq. sol.)	4ccs.
Auramine (0.2 per cent. alc. sol.)	2ccs.
Erythrosine (0.5 per cent. aq. sol.)	1.5ccs. (about)

Special stress is laid on the careful estimation of the quantity of erythrosine solution, this should be added drop by drop, and the moment the mixture begins to assume a red tinge it should be stopped, otherwise the sensitiveness will be lowered. The gelatine solution should be divided into three portions, and one of the dye solutions added to each and then mixed gradually with constant stirring. The sensitiveness of the mixture is increased if it is kept for three to four hours at 35 deg. to 40 deg. C. Ammonia solution, 20 to 30 per cent., used as a preliminary bath before exposure increases the sensitiveness, as does also a preliminary bath of a 1 per cent. solution of chloral hydrate, or this may be added to the dye mixture.

The new cyanine dyes were tested for this process, but proved unsuitable. In order to prepare prints on paper by this process, the opal glass, which has hitherto alone been used as a support, is coated with a rubber substratum, and after printing the gelatine film is stripped and brought into contact, under water, with baryta paper coated with a 5 per cent. solution of gelatine, squeezed and then dried, preferably in contact with a glass or ebonite plate.

Dry Mounting.

M. Briand suggests, in one of our French contemporaries, the following method of dry mounting, which may possibly be useful for highly-glazed P.O.P. prints:—

Shellac, white or yellow	30 g.
Methylated spirit	50 ccs.

Dissolve, and add:—

Gum elemi	3 g.
Canada balsam	5 g.
Methylated spirit	50 ccs.

It takes about twelve hours for the shellac to dissolve; mix the two solutions, and paint both sides of a thin piece of paper and allow to dry; place the paper between the mount and the print, and pass a hot iron over the print, when it will adhere well.

Gradation in Three-colour Work.

As long ago as 1890 the late H. W. Vogel pointed out that, with eosine of silver plates, yellow developed more slowly than blue, and that with slow-acting developers the plates must be developed thoroughly if the more correct rendering of the colours is required. Now Herren Precht and Stenger have been exposing ethyl red plates behind blue, green, and orange screens in strips, then measuring the densities obtained. The screens passed the following spectrum bands:—Blue, λ 415 to 490; green, λ 515 to 580; orange, λ 580 to 680. The developers used were ferrous oxalate and edinol, and the author's charts show that the gradations are not the same, and the longer the time of exposure and the longer the time of development, the greater the variation. The conclusion arrived at by the authors is that any estimated ratio of exposures behind a set of filters only holds good for a given time of development.

Pigment Tissue With Silver Bromide.

In our issue for November 25, 1904, we chronicled the patent of Dr. Riebensahn and Posseltdt for making carbon tissue with an admixture of silver bromide. In a more recent patent they point out that the rapidity of the bromide is considerably reduced, by the pigment probably, through a screening action, and propose to get over the difficulty by using the dyes generally used in the orthochromatising of plates, such as eosine, erythrosine, ethyl red, etc.

Cold Water Starch

In 1903 Julius Kantorowicz, of Breslau, took out a patent in Germany for making starch soluble in cold water by mixing it with alcohol and water and then treating it with soda. This patent he has recently amended, and now uses acetone, or a mixture of alcohol and ether, instead of the alcohol. As an example of the working, two kilos of potato starch are mixed with an equal weight of acetone, and well stirred, and 400 g. of soda lye of 30 degrees Beaumé stirred in, the result being a thick paste. After about an hour the soda is neutralised with acetic acid, and the starch precipitated and washed

with acetone and then dried and powdered. The product thus obtained is soluble in ten times its weight of water, and forms a very adhesive paste. We were under the impression that all cold water starch, as used in the laundry, was made by a similar process, but the patent may be novel.

Chemical Luminescence.

In the "Zeitschrift für Wissenschaftliche Photographie" Herren Trautz and Schorigin detail their experiments on this phenomenon, which is often seen when a plate developed with pyro-soda is immersed in alum solution. It was at first supposed to be some peculiar property of the dry plate, but as early as 1888 Lenhard and Wolf pointed out that this "phosphorescence," as it was called, had nothing to do with the plate, which was confirmed by Neubaus, 1895, and Precht (see B.J., 1904, p. 118). The authors now show that there are a very large number of organic substances which show this luminescence, and suggest that perhaps all organic substances which are oxidisable under 400 deg. will show it. It is entirely due to oxidation, and therefore oxygen must be present to show it.

Non-Actinic Paper.

Namias recommends, in "Il Progresso Fotografico," the following solution for staining paper for dark-room windows and lanterns:—

Tartrazine	96 grs.	10 gms.
Rhodamine	10 grs.	1 gm.
Water	10 ozs.	500 ccs.
Alcohol	10 ozs.	500 ccs.

This gives a good orange light, which is perfectly safe for very rapid plates, provided they are not unduly exposed to it.

Photo-Mechanical Notes.

Direct Three-colour Negatives on Dry Plates.

Dr. Loewenstamm and Herr Hoffert, of the Photo-chemical Laboratory of the Charlottenburg School, have been making a series of experiments in this direction, at the suggestion of Dr. Miethe, and point out that the troubles hitherto met with in the use of dry plates for direct half-tone negatives have been insufficient density in the dots and presence of fog. The following procedure is the result of their experiments:—Transparency plates are bathed with Miethe's ethyl-red. They must be backed with a black backing, which must naturally be in optical contact. To ensure accurate ratios of exposures, a scale of greys should be used; but better than this is, they state, to secure a correct ratio by obtaining identical size of dot in all three negatives. The three exposures should be made with the screen, and the three filters with a sheet of white paper as the subject. The exposure must be generous, or else sufficient density will not be obtained in the dots, and development should be arrested before any fog appears. The particular developing formulæ recommended are:—

Edinol	10 grammes.
Potassium carbonate (dry)	80 grammes.
„ metabisulphite	20 grammes.
„ bromide (10 per cent. sol.)	3 ccs.
Water	1,000 ccs.
Or—	
Edinol	10 grammes.
Sodium carbonate (cryst)	150 grammes.
Acetone sulphite	50 grammes.
Potass. bromide (10 per cent. sol.)	2 ccs.
Water	1,000 ccs.

Both developers keep well, and may be used more than once. Development will be complete in from three to four minutes and the lights should be dense and the shadows glass-clear. The negatives should be etched with Farmer's reducer till the dots in the half-tones begin to lose in density. They are then washed, the plate bleached with mercury, blackened with ammonia, again etched with Farmer's reducer, and the operations repeated until the dots are correct.

Removing Enamel from Etched Plates.

"Which is the best method of cleaning off the enamel from etched plates?" and "Is it necessary to clean it off at all?" A writer in "Process Work" deals with these two questions. In answer to No. 1, the most expedient and effectual way of removing the enamel is to place the plate into a dish of hot caustic potash or caustic soda when it will float off in a few minutes. Then brighten the plate in the usual way by using the chromic acid formulæ as before given in these columns. Now, as to Question No. 2. This is quite unnecessary in ordinary cases, as by retaining the enamel you not only gain additional printing depth, but the surface of the block is preserved as well. In the early stages of the enamel process, during the various stages of rough and fine etching, proving, etc., the quality of the enamel may be too weak to resist these actions on its surface, and consequently come off in patches, leaving the surface of the plate irregular. Therefore the only remedy will be to remove it altogether. But, of course, with the enamel now in use these difficulties have entirely disappeared. Here are a few exceptional cases, when it is advantageous to remove the enamel, viz., in cases of fine screen vignettéd work, so as to avoid a tendency to hard marking. Again, when burnishing is necessary or the surface of the enamel is scratched; but in ordinary cases the majority of printers prefer the enamel left on the plate.

A Hard Resist.

"What is the resistant used by cutlery firms for making up resistant varnish when etching names?" To a querist on this point, Mr. S. H. Horgan replies that gum guaiacum dissolved in alcohol to make a thin film on the steel is the solution employed. The name is printed with potash solution from a rubber stamp, which removes the varnish where required, and the blade is then etched in nitric acid. The potash, when applied with the rubber stamp, turns the gum into a soap, which dissolves in the nitric acid. But a very weak nitric acid bath is required to dull the polished surface of the exposed steel. The acid is usually applied with a sponge, instead of dipping the steel blade in a bath, and the reason for this is that, in coating the blade with varnish, it is almost impossible to cover the sharpened edge of the blade so perfectly that the acid will not penetrate and corrode the steel there.

Veiling of Enclosed Arc Glasses.

Talking of the trouble which is often found with the enclosed arc lamp, viz., the collection of a white powdery film on the glass and the subsequent burning of the film into the glass as an orange stain, the "Inland Printer" writes:—

"We are having the same difficulty on this side of the water. The orange discoloration only forms around the upper rim of the globe. When it begins to interfere with the actinic quality of the light the globe is thrown away. At present the interior of the globes are flowed with albumen after washing in the morning. They are dried with the upper rim down, so that the film of albumen will be thickest there. The object of this treatment is that the film of organic matter, that is, the albumen, will prevent the white powder becoming fused into the glass. The globes are put in nitric acid every morning, which loosens the film of hardened albumen, carrying with it the white powder deposit."

THE PROFESSIONAL PHOTOGRAPHERS' SOCIETY OF NEW YORK.

THE first meeting of this newly-formed body of New York photographers was held on April 13 last, Mr. Pirie MacDonald, President, in the chair. As the proceedings at that meeting will be perused with interest by many photographers on this side of the Atlantic we extract here from a lengthy report in the current issue of "The Photographer" (New York). The constitution and bye-laws of the society were unanimously adopted, and we need not refer to them at length. The membership of the society is to consist of.—(1) Active members, professional photographers, who are owners of and have establishments within the State of New York; (2) Associate members, professional photographers, not residents of the State of New York, who will be entitled to all the benefits and privileges of active members except that of voting; (3) honorary members shall be distinguished non-resident professional photographers whom the society desires to honour, or members of the society who by reason of their services to photography the society wishes to reward.

The subscription for active and associate members is to be 3 dols. (12s. 6d.) per annum.

Branch organisations, to be known as sections, composed of members of the society who may so elect, may be organised within the State of New York with the object of assisting and promoting the welfare of the society and handling questions of local interest. All expenses of such branch organisations must be borne by the sections themselves.

Reports from the Committees on Insurance and Copyright respectively were presented, and read as follows:—

Insurance.

The question of insurance on the premises and property of photographers is a matter of long-standing complaint on their part, at the manifestly unjust discrimination made against them in the item of a base rate. All lines of business have a base rate which may be increased by the conditions surrounding the individual risk—the building itself, or adjoining it; the base rate for photographers is 1.25, while that for the retail druggist is .75; the plumber and gas fitter, .75; the lithographer and printer (foot and hand power), 1.00; and paint and varnish stock is rated at 1.50.

All efforts that have been made in the past to induce the Rate Committee of the Board of Fire Underwriters to make an investigation into the condition under which our business is conducted, and adjust our rating on a basis more nearly approaching the conditions of the present day have met with no result, and your committee are convinced that the said Rate Committee have no proper knowledge of the technical conditions under which photographers to-day carry on their business.

An endeavour to find some record of losses by fire during any one year or term of years was unsuccessful. Such record, if any exist, must be found among the individual companies insuring photographers, and collated. It has been suggested in a talk with a former member of the Rate Committee that they may be gathered in the form of statements from the various photographers themselves of premiums paid over a term of years, and the losses (if any) collected.

As an organised body, it is probable that a committee of this society, appointed for that purpose, would be given a hearing before the Rate Committee and an opportunity to present their data and arguments asking for a reduction in what we consider an excessive rating.

In conclusion, we would recommend that a committee be appointed with power.

Copyright.

Your Advisory Committee on Copyright, appointed by the President at the preliminary meeting on February 5, after careful con-

sideration of the large and constantly growing use of photography by the magazines, newspapers, and other publications of this country, and realising the very inadequate protection given us by the present copyright laws, sees no ways of securing much relief from present conditions until a new and fairer copyright law shall have been passed.

By "present conditions" your committee refers to the fact that in the United States at the present time, hundreds of thousands of photographs are being continually reproduced by these publishers without any monetary consideration to the photographer.

Your committee believes that the time has come when the photographers of this country should refuse any longer to furnish grist free of charge to the mills of other publishers, allowing them to make all the profit our work may bring and being satisfied with an occasional credit line under the reproductions.

Your committee, therefore, recommends the adoption of similar rules to those which have been in vogue for the past ten years and which are still working so well in England, and which may broadly be summarised as follows:—

No. 1.—No member shall allow any of his copyright photographs to be reproduced by any newspaper or other publisher without receiving pay therefor.

No. 2.—All members shall agree that such pay shall never be less than an amount to be mutually settled upon.

No. 3.—Any member may at his pleasure charge more than such minimum rate, according to his own idea of the value of the picture in question, but never less.

No. 4.—Such charge shall be only for the reproduction right, and shall not include the print to be copied, which print shall be charged for in addition.

In the case of uncopyrighted pictures also, it is the unanimous opinion of the committee that the custom which has, to some extent, prevailed in the past of giving prints without pay to other publishers, is unwise, unnecessary, and undignified—that it should, therefore, be discontinued—and that no print, whether copyrighted or uncopyrighted, should be given out for publication unless paid for at regular rates.

Other Business.

An application from a body of New York City Photographers for permission to form a Metropolitan Section of the Society, as allowed for under the constitution, was put in and accepted.

Also an application for the formation of a Central Section of New York State was filed and accepted.

An application for a Western Section with Rochester as its centre was also filed, but not being in proper order was not acted upon at this session.

Mr. Core addressed words of congratulation to the President, Pirie MacDonald, for his splendid work, and then Mr. M. B. Parkinson, of Boston, addressed the members on the exhibition of pictures, and commended the action of the committee in its policy of selection as being a feature which beyond question required great bravery, but had proved itself to be the proper plan, winding up with a warm invitation to visit Boston in August for the National meeting.

Mr. Waide spoke on the greater fraternal condition that can be brought about by this new society, suggesting, in the words of Mr. Carnegie, that your competitors should be your best friends.

Mr. Waide moved that a committee be appointed to go into the matter of the adjustment of insurance rates. The motion was adopted.

Mr. MacDonald read an invitation from Mr. E. S. Curtis, of Seattle, Wash., to visit his exhibition of Indian pictures at the Waldorf-Astoria that afternoon.

Mr. Olivier spoke on the apprenticing of photographic assistants, stating how difficult it was to get competent help for the printing

and work-rooms. He offered a resolution to appoint a committee to look into the matter and report. The resolution was adopted, and the President appointed Mr. Olivier, Mr. Eddowes, and Mr. Core to serve on the committee.

THE OPTICAL CONVENTION.

THE preparations for the Optical Convention, which opens on May 30, are now approaching completion, and it is hoped next week to issue a full programme of the arrangements, including the list of papers and subjects for discussion.

In addition to the papers previously announced, a contribution is promised from Lord Rayleigh on "The Polishing of Glass Surfaces," and Professor Shuster will read a paper on "Spectroscopic Optics."

The demonstrations of special apparatus, arranged for the afternoons, include the following, viz.:-

Multiple Colour Illumination for Microscopic Objects, Mr. J. Rheinberg.

Diffraction Apparatus, Mr. J. Rheinberg.

Quartz Crystals, Mr. J. Woodward.

Spectroscopes, Mr. F. Twyman.

Interferometer, Mr. H. Stansfield.

Further applications for membership should be sent without delay to the hon. secretary, Mr. F. J. Selby, Elm Lodge, Teddington, Middlesex; the subscription for membership being five shillings. It is, perhaps, hardly necessary to add that lady members will be especially welcomed.

The catalogue is now in the printer's hands, and will shortly be ready for issue.

It is not confined to apparatus actually exhibited; the aim has been to produce as full an account as possible of the types of optical, meteorological, and other scientific instruments manufactured in this country, in a form which shall be as convenient as possible for purposes of reference. To this end the instruments have been carefully classified, and the table of contents will at once indicate where particulars of any special class of instruments are to be found. An alphabetical list of firms and exhibitors, with a general statement as to the instruments by each maker which are described in the catalogue, and a carefully-compiled index of instruments, are provided at the end of the volume. The general interest of the catalogue is greatly increased by the introduction to each of the various classes, in which a short account is given of the more important types of instruments included in the pages which follow. Each of these introductions has been written by an expert, and they add in no small degree to the attractiveness of the volume.

The aim of the Convention is one well worthy of the support of all those interested in scientific and technical development in this country; and all who are familiar with such optical instruments as the binocular, the photographic camera, the microscope, the projection lantern, etc., etc., will find much to interest them in the exhibition. Spectacles and eye-glasses are well represented; and this class includes a very complete collection of spectacles, from the oldest to the most recent forms, exhibited by Mr. W. W. Dunscomb, of Bristol. Acknowledgment is due to the help received from various guarantors and donors. Among recent contributions must be mentioned donations of £50 from the Mercers' Company and from the Goldsmiths' Company, and one of £10 from the Clothworkers' Company. Further promises of guarantees or donations should be sent to the hon. treasurer, Mr. E. B. Knobel, F.R.A.S., 32, Tavistock Square, W.C.

MR. THEODORE BROWN informs us that his private address, at which he transacts the editorial business of the "Optical Lantern and Cinematograph Chronicle," has been changed to Westcot, Drummond Road, Boscombe.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between April 25 and 29:-

MOUNTING.—No. 8,873. Adhesive folding tablets for mounting photographs, etc., in albums and elsewhere, so as to be readily removable without damage, although securely attached. Thomas Smith Jacob, 1, Quarry Mount Terrace, Delph Lane, Woodhouse, Leeds.

DEVELOPMENT.—No. 8,911. Improvements in development of photographic plates and films. William Fraser Claughton Kelly and John Arthur Benthall, 7, Southampton Buildings, Chancery Lane, London.

DRAINING RACKS.—No. 8,964. Improved photographic draining rack. Houghtons Limited, and Herbert Holmes, 88, High Holborn, London.

TUBES FOR CHEMICALS.—No. 8,971. Improvements in tubular receptacles for small quantities of photographic chemicals. John J. Griffin and Sons, Limited, and Ephraim Thomas Pratt, 37, Essex Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

AUTOMATIC ENLARGING.—No. 12,734, 1904. An enlarging system, of design such that the various parts are automatically placed on one of them being adjusted for a certain degree of enlargement. The patentee bases his method on the formulae:-

$$\text{Back focus} = f + (f \times n)$$

and

$$\text{Front focus} = f + (f \div n)$$

where f is the focal length of the lens and n the degree of enlargement. It is seen that for every additional unit of enlargement the back focus increases by a fixed increment, and the

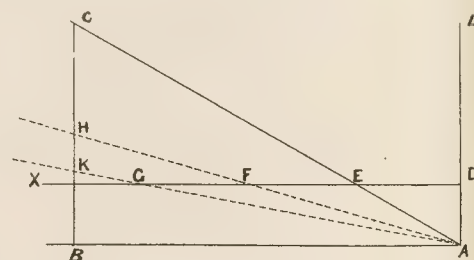


Fig. 1.

front focus diminishes by a constantly decreasing amount. The construction of the movement is based on one or other of two principles:—(1) If a lever be pivoted at one end of a given base, and inclined so as to form the hypotenuse of a right-angled triangle of which the remaining side is equal to the equivalent focus of the lens, it can be shown that the uniform movement of a point acting against the lever, along a line parallel to the base, will depress the lever so that it cuts the side of the triangle in a constantly diminishing ratio, and (2) a right-angled lever may be pivoted at one end of the base, so that the latter intersects the angle between the arms of the lever, then if one arm of the lever be inclined so as to form the hypotenuse of a right-angled triangle as before and the remaining side be made equal

to the equivalent focus of the lens, it can be shown that the uniform movement of a point acting on the other arm of the lever, along a line at right angles to the base, will cause the lever to move a constantly decreasing distance along the side of the triangle. In each case the distance travelled by the point for each unit of magnification should be to the distance of its path from the pivot of the lever as the length of the base is to the focus of the lens, or—

$$\frac{\text{Distance moved per unit magnification}}{\text{Distance of path from pivot of lever}} = \frac{\text{Cotangent of angle between lever and base in first position.}}$$

or in other words:—

$$\text{Length of lever} \times \cosine \text{ of its angle to axis of lens} = n \times f.$$

Fig. 1 explains method 1. B. C. is the focal length of a lens ; A. C. a pivoted lever forming the hypotenuse of the right-angled triangle A. B. C. : D. X. parallel to A. B. is divided at F. G. so that E. F. and F. G. each equals D. E. Now, depressing

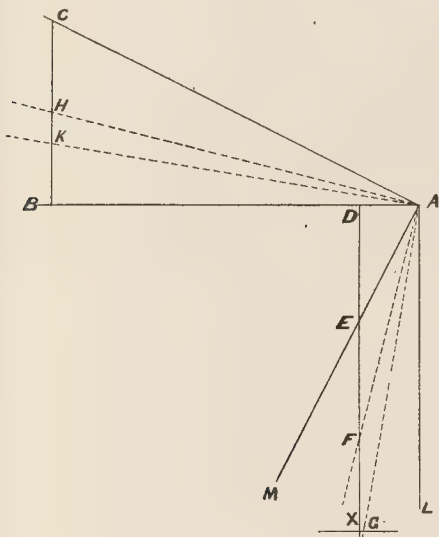


Fig. 2.

A. C. to the position A. H., A. B. is bisected, with the lever at A. K., intersecting D. X. at a distance F. G. further on B. C. intersected at K. Thus, for equal distances moved by a point along D. X., the intersection of the lever A. C. with the line B. C. takes place at unequal decreasing distances along B. C. In other words, for a given constant movement of the lever A. C. along D. X., a diminishing displacement of the lever along B. C. takes place. Fig. 2 is the diagram of the second method. Here C A M is a right-angled lever. If the arm A M is moved through the equal distances E. F., F. G., the movement of the arm A. C. is through C. H., H. K. These methods are applied to the construction of an automatic enlarger in the following ways:—(1) A point is moved along the line D. X., by gearing or otherwise, in direct proportion to the movement of the lens carrier along the baseboard, so that a uniform movement of the lens carrier causes a varying movement of the lens carrier with the lever connecting the lens carrier with the negative carrier; and (2) a point E, fixed to the base of the

positive carrier is caused to act on the arm of the lever A M, so that when the distance of E on the positive carrier is varied from the pivot A of the lever, and the positive carrier is thereby altered, the other arm of the lever causes a varying motion of the lever A. C., connecting the lens carrier with the negative carrier. Figs. 3 and 4 show two forms of apparatus where the adjustment is controlled by the second method. In Fig. 3 the positive carrier *a* is fixed and the negative carrier *b* and lens carrier *c* are movable; the mechanism employed consists of two right-angled levers *h* respectively pivoted at *i* to the movable lens carrier *c*, the longer arm *h*¹ of each lever either being adapted to slide freely through a swivel eye at the point *j*, where it is connected to the positive carrier *a*, or arms *h*¹ may be slotted so as to be adapted to slide over a fixed pin or slot at *j*; while the other end *h*² of each lever is attached at the point *k* to, or otherwise arranged to act at the point *k* on the movable negative carrier *b*, such connection at *k* being effected by means of a stud engaging in a slot in the lever arms *h*², or the latter may pass through a

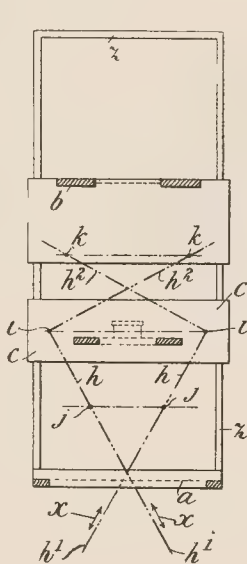


Fig. 3.

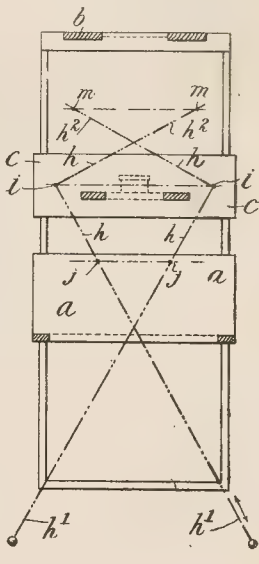


Fig. 4.

swivel eye—or other similar or equivalent devices may be employed. To adjust the apparatus the operator moves the carriers direct or pushes or pulls the end of the levers *h* in the direction of the double-ended arrows *x*, so that as the levers are forced past the joints *j j* of attachment or connection to the positive carrier *a*, consequently each rectangular lever is rocked on its pivot *i*, and thereby the outer end *h*² of each lever moves the negative carrier *b*, and the desired relative movement is thereby imparted to the lens carrier *c* and the negative carrier *b*—both relatively to one another and to the positive carrier. In Fig. 4 an arrangement of levers *h h* is shown, somewhat similar to Fig. 3, said levers being pivoted at *i* to the lens carrier *c*; but in this case the positive carrier *a* is made movable, and has the levers *h* attached or connected thereto at *j* in a manner similar to that described with reference to the point of attachment at *j* of the levers *h* in Fig. 3; while the other ends *h*² of the levers are similarly attached at *m* (as at *j*) to the base *z*, or the negative holder *b*, which latter

in this arrangement is fixed. The position of the points of attachment or connection of the levers to (*i.e.*, the points where same act on) the negative and positive carriers may be determined as follows:—The levers and negative and positive carriers are placed in the position they are intended to occupy, when the apparatus is at “unity.” Then lines drawn on the bases of the negative and positive carriers at right angles to the axis of the lens, at distances equal to the equivalent focus of the lens from the line through the pivots of the levers (*i.e.*, the points where same act on the carriers) will cut the centre of the slots in the levers at the required points. The positions of the vertical planes of the negative and positive carriers may be likewise determined by lines drawn at right angles to the axis of the lens at a distance from its optical centre equal to twice the length of the equivalent focus of the lens. Other figures show the attachment employed to provide for the use of lenses of different focal length on a given apparatus, but the diagrams are too complicated for reproduction. Henry Rex Cook, Major, Royal Garrison Artillery, Fort Fareham, Fareham.

RELIEF PHOTOGRAPHS.—No. 23,093, 1904. A method of obtaining prints in relief by printing an impression from a photographic negative on a sheet of sensitised porous unsized paper, stretching this impressed sheet in a frame, coating the back of the sheet with glue, applying over the glue a thin layer of plastic compound capable of becoming subsequently hard, and modelling the picture from the front against a board by means of modelling sticks. Friedrich Gärtner, 43, Tanusstrasse, Wiesbaden, Germany.

New Materials.

The Barnet “Red Seal” Plate. Manufactured by Elliott and Sons, Ltd., Barnet, Herts.

Messrs. Elliott have made several notable additions to the list of photographic manufactures within the past few months. Chief among them we should place the Barnet “Ortho” plate, an emulsion of remarkable general and colour-sensitive properties. The “Ortho,” it will be remembered, albeit of special character, is issued at the minimum price of 1s. per dozen quarter-plates. The same step is taken by Messrs. Elliott in introducing their new “Red Seal” plate, one of ordinary (not isochromatic) character, and already conspicuous in its highly decorative wrapping in the dealers’ windows. For the “Red Seal” Messrs. Elliott claim the following qualities, and from what we know of their managerial methods we believe they are difficultly persuaded to make one single claim which they cannot satisfy:—

- Remarkable speed;
- Abnormally high in density;
- Free from fog;
- Wonderful latitude in exposure;
- Ease and quickness of development.

A number of camera tests proves to us that we have in the “Red Seal,” an emulsion which responds in a remarkable manner to the demands which may legitimately be made upon a plate with a list of accomplishments such as the above. A series of brief hand-camera exposures made alongside a plate esteemed for its extreme rapidity showed the “Red Seal” well able to undertake the onerous tasks which the hand-camera worker can lay upon it; and in development by the pyro-soda formula of the makers good density and contrasts were quickly obtained. We need say less on this point because we have before us the results of sensitometric tests made for

us by Mr. C. E. Kenneth Mees. B.Sc., which corroborate practically every one of Messrs. Elliott’s claims. We quote the figures as obtained with pyro-soda, the inertia being taken at infinite development:—

Inertia (pyro-soda)	156
Watkins number (pyro-soda)	320
γ_{∞} (density giving power of the plate)	2.73
Opacity (to blue light, an index to the latitude of the plate)	22
K (velocity constant of development with standard ferrous oxalate)	146

These figures, taken with the camera exposures, satisfy us as to the excellence of the “Red Seal.” The combination of qualities recommends the plate for outdoor photography with hand and stand cameras, as well as for studio work, and the portrait photographer especially will be grateful for the quickness with which the plate develops to full density. It is, in short, a very excellent plate, and a triumph of scientifically directed manufacture.

“British” Ferrotypes Dry Plates. Sold by the Flashtype Co., Ltd., King’s Head Court, Beech Street, Barbican, London, E.C.

Ferrotypes operators will be glad to hear of this ready-prepared plate, by which practically the results of wet-collodion are obtained. The Flashtype Co.’s new introduction is a collodion plate, for which perfect keeping qualities are claimed. Regarding that claim, we cannot, of course, speak with authority, as the plates have been in our possession a few days only. Indeed, “tintype” is a branch of photography with which we cannot boast an intimate acquaintance, but we were, nevertheless, able to obtain several excellent ferrotypes on the samples sent us. The makers describe the plates as considerably more rapid than wet-collodion, and they put the exposures from three to twenty seconds, in the studio, presumably, although they do not say so, with a portrait lens at $f/4$. On outdoor portraits, we found one second at $f/5.6$ sufficient. The plates develop rapidly—in about thirty seconds—and are just as quickly fixed and finished off. They are sold in all sizes, from Victoria up to 14 by 10 inches, at prices which may be taken as based on quarter-plates at 3s. a dozen.

“Sculptotype”—a new form of photograph in solid relief. Invented and patented by the Sculptotype Co., Ltd., 31, Edgware Road, London, W.

A new specialty for the photographer’s show case or reception room, and one that compels attention. One, moreover, that can be produced by the photographer himself, and calls for a very limited amount of skill. One, further, which is susceptible of any degree of finish in crayon, water-colours, or oils, and so can be given whatever elaboration is desired. These qualities are the distinguishing features of a photograph in relief, now being introduced under the name of “Sculptotype.” In appearance the “Sculptotype” is a profile, or three-quarter portrait in bold and solid relief, cut out and mounted on velvet, silk, or plush. The effect, we are informed, is obtained by moulding the front of the picture, not by pressing outwards from the back, and the method is responsible for the retention of the details of the original photograph. In other respects, the reliefs present a handsome, we might say, massive appearance; and we cannot imagine one even in a window display failing to attract notice. In regard to the technical process by which they are made, no special negative is required, and there is absolutely nothing which can be called apparatus employed in the preparation of the reliefs. The finish, as we have said, may be what the photographer chooses, and we can best give an idea of the cost of “Sculptotype” by saying that the prices can vary to just about the same extent as those of enlargements. In other words, you can make your raw “Sculptotype,” so to speak, for the price of an untouched enlargement, and,

over and above this, you can pay for working up in crayons, oils, or water-colours. The "Sculptotype" seems just as amenable to these embellishments as a bromide print: a trade-enlarger could take the working-up in hand without any departure from his usual course. The specialty is quite new, and, for further particulars of it than we have given here, the Sculptotype Co., Ltd., should be addressed.

GEM-FLEXOID LIGHT FILTERS.—We have received a sample booklet of "Geka" Flexoid and Gelatoid Light Filters. We have already drawn attention to these useful accessories for the dark-room, but put up in this convenient form they make a useful book of reference, in which every other "page" is composed of a piece of Flexoid film, quarter-plate size. These booklets are, for trade circulation, free, but any private individual can obtain one for 1s.; or small sample cards of the seven colours of Series I. and II. will be sent, with full particulars, by the sole importers, Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C., on receipt of a penny stamp.

A NEW printing paper is now placed on the market, under the name of "Agol," by Banks and Co., 14a, South Hill Park, London, N.W., the treatment of which, after exposure to light, consists simply in immersion in water, or, better, weak ammonia. "Agol" is evidently an iron-silver paper of the Kallitype class, but, as made in the present instance, gives prints of a very black tone. Our own experience of such processes leads us to prefer hypo as a fixing agent, even though it has to be afterwards removed, but it is claimed for "Agol" that the sensitising salts are highly soluble and that the last traces of silver are removed by ammonia. The paper is recommended for copying tracings as well as for printing from negatives, and, for the former purposes especially, it may prove of service. Its price is based on the shilling packet of twenty-four quarter-plate pieces.

THE GEM "SALON" PLATE.—In giving speed numbers of these plates last week, we pointed out a considerable discrepancy in the numbers of Mr. Mees and Mr. Watkins. That difference, we find, is due to certain misconceptions, the recognition of which diminishes, if it does not entirely remove, the discrepancy. In the first place, the Watkins Meter Co. write us to the effect that "we have made a test of these plates (the 'Salon'), and the result was Watkins 325, and we wrote to the Gem Co. giving this figure." This speed, it should be noted, is for pyro-soda development, and in verbally communicating it to us the Gem Company pointed out that on conversion into H. and D. pyro-metol numbers it would come out considerably above 320. Secondly, by a clerical error, the speed number by Mr. Mees with pyro-metol was described as the "Watkins" instead of the "H and D." This "H and D" number (as defined by Hunter and Driffield) is $\frac{34}{\text{inertia}} = \frac{34}{105}$ or 324 in the present instance. The Wat-

kins number Mr. Mees takes as $\frac{50}{\text{inertia}} = 477$, thus confirming by actual measurement the figure calculated by the Gem Company from the Watkins pyro-soda number. If we place these figures against one another it will serve to show once again the desirability of the adoption of some uniform standard for the speed of plates, although we must confess that such uniformity seems further off than ever.

"H and D" number	$\frac{34}{i}$ (pyro-metol)	324
"Watkins" number	$\frac{50}{i}$ (pyro-metol)	477
	(Determined by Mr. Mees.)	
Watkins number (pyro-soda)		325
	(Determined by Mr. Watkins.)	
"Watkins" number (pyro-metol)		over 400
	(Calculated from Watkins number by the Gem Company.)	

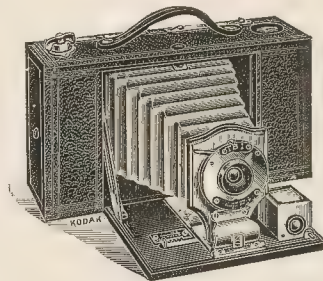
These results may be taken as fairly concordant, considering the

absence of fixed numerical ratios between the various speeds. Mr. Mees writes us that he chooses $\frac{50}{i}$ for the Watkins number, taking pyro-soda as the developer, because that appears to accord with the majority of the Watkins speed numbers, but he would be willing to adopt any other conventional ratio for the conversion of inertia into the Watkins number.

New Apparatus.

The No. 3 Folding Brownie Kodak. Made by Kodak, Limited, Clerkenwell Road, London, E.C.

The younger members of the great Kodak family—the Brownies—appear to be growing steadily larger, both in respect of size and numbers. We recently noticed the No. 2 Folding Brownie Kodak, which was an advance on any previous Brownie in point of size, and now comes the announcement that an even bigger camera of the same type is being put on the market.



The No. 3 F.B.K. is for roll-film pictures, $4\frac{1}{2}$ in. by $3\frac{1}{4}$ in., or quarter plate. It is of the well-known folding type, and can be regarded as at once portable and compact. It measures but $8\frac{1}{2}$ in. by 5 in. by $2\frac{3}{4}$ in., weighs only $26\frac{1}{2}$ oz., and should meet with the same measure of popularity that has been accorded to its smaller brothers. The camera is an efficient little instrument, and in our hands has given negatives that compare favourably with those of other quarter-plate cameras. The lens, which has extremely good defining power, is a single one, and the shutter—actuated by a single-trigger release—gives time, bulb, and instantaneous exposures. A special feature is the automatic focussing device, which enables the lens to be set at 6, 8, 10, 15, 25, or 100 feet with an ease and certainty that is an advance on many focussing scales. The camera front can be automatically locked at any of the given distances, and remains perfectly rigid. A reversible finder and two screw sockets for use of camera on stand are provided, and the entire camera is well and strongly made of covered wood, with nickel-plated fittings. Its price is 37s. 6d., and a reliable quarter-plate roll-film camera should have a good sale at this figure.

DEATH OF MR. F. H. GANDY.—Many members of the Photographic Convention of the United Kingdom will regret to learn of the death of Mr. Frederick Hughes Gandy, of Derby, a gentleman who with his wife (an ardent amateur photographer) was for many years a constant attendant at these annual gatherings. Mr. Gandy had been ailing for some months, and, after much suffering, died at his residence on Saturday last, at the age of 48.

New Books.

"*Trite Élémentaire de Photographie.*" By G. H. Niewenglowski. Paris: Garnier Frères. 3 francs

If anybody wants to write another beginners' guide to photography—and there are at least half-a-dozen persons who are liable to do so without provocation—they need not be ashamed of taking a few hints from the subject matter of this French work and the way it is arranged. Probably the author meant to give more than a little over one-third of his space to printing processes, and we blame him for disregarding enlargement, but for the rest is a plainly written and comprehensive manual, so closely in touch with present-day photography as to give prominent places to roll-films and orthochromatics. And it has a word or two for the Watkins system of time development, naming the multiplier or constant the "coefficient arithmétique du révélateur." We fear "arithmetical coefficient" is too long for Mr. Watkins.

DR. STOLZE'S "*Photographischer Notiz-Kalender*" for 1905, published by Wilhelm Knapp, Halle a/S, at 1s. 6d., should be found useful to German readers. It contains a mass of useful tables and formulæ for the various processes, and a list of German photographic societies, and also a useful and fairly complete list of dealers and manufacturers which are classified, not only in alphabetical order of the towns, but also under the particular articles and materials.

LIBERAL illustration of the attractions of four health resorts—Broadstairs, Southport, Aberystwith, and Bournemouth—is carried out in the series of booklets issued by the town clerks of these places. A postcard will bring any one of the guides, for such they are, and prospective holiday-makers may be glad to take this means of obtaining a graphic account of these popular resorts. The publications are prepared by the Health Resorts Development Association, 2, Gray's Inn Road, London, E.C.

SHAM PHOTOGRAPHERS.—Exactly a year ago, a few days before Chester races, two well-dressed men with a camera visited the neighbourhood. Stopping at respectable looking houses, without consulting the residents, they placed the camera in front of the house and proceeded as if they were about to take a photograph. Their object, they said, was to make a collection of pictures to illustrate the different styles of architecture. "Of course," they added, "gentlemen and ladies could be supplied with copies, but they would have to be paid for in advance." In some cases this was done, and printed receipts were given, but the copies were never delivered. Possibly, observes the "*Chester Chronicle*," the same two gentlemen may try to repeat the fraud in some of the surrounding villages while visiting the races this week.

STILL THEY COME.—It is circumstantially reported, says the "*Star*," that a Parisian artist has not only succeeded in solving the problem of colour photography, but has actually placed his invention on the market in a very literal sense. It is stated that, having found himself able to reproduce in facsimile any particular picture he desired, he at once produced a few copies of valuable paintings and sold them to dealers as originals—so perfect was the imitation.

THE price list of J. Lizars, 101 and 107, Buchanan Street, Glasgow, includes, in its 200 pages, a whole host of photographic requisites; but, for one item alone, is worth the penny stamp, on receipt of which it is sent to any applicant. The outstanding section is that describing in detail, the "*Challenge de Luxe*" camera, and showing the work of which an instrument with a wide range of movements is capable. As in previous years, Lizars' list devotes some twenty-five pages to hints and formulæ.

Dews and Notes.

OPTICAL Trade at Rochester, N.Y.—Articles of incorporation have been filed in Albany by the Bausch, Lomb, Saegmuller Company, manufacturing engineering, astronomical, physical, and other instruments of precision. The Bausch and Lomb Optical Company is to be the sales agent of the new corporation, whose manufacturing plant is to be in the north end of the recently completed large addition to the Bausch and Lomb factory. George N. Saegmuller, of Washington, D. C., reports the "*Rochester Democrat and Chronicle*," has been well and favourably known since 1890, when he succeeded Fauth and Company, old-established makers of engineering and astronomical instruments. Many observatories in this country and abroad have been equipped by Mr. Saegmuller. The Chamberlin Observatory in Denver possesses in the large equatorial of twenty inches aperture one of the finest instruments in the country. Find circles now universally used were devised by him for this instrument and first used, together with many other improvements since adopted by all other makers. The twelve-inch equatorial in Georgetown College, Washington, built by Mr. Saegmuller, was the first instrument ever made to record all observations photographically, while the photographic transit of nine-inch aperture and the zenith telescope of six-inch aperture are perhaps the first instruments made in this particular line. He has also erected equatorials of twelve-inch aperture at Valkenburg, Holland; the new Naval Observatory, Washington; the Observatory of Brown University, Providence; the Catholic University, of America, Washington; Boston University, and many smaller universities. The largest telescope made by Mr. Saegmuller was one of twenty-four-inch aperture, which went to Manila, Philippine Islands. It had just been erected when Dewey destroyed the Spanish fleet. Several balls went through the dome, but fortunately missed the instrument itself. One of the specialties of the firm was the production of accurate graduations. The two automatic dividing engines which are just being erected in the fireproof vault at the new Bausch and Lomb building and to which soon a third will be added—are among the most accurate ever constructed. This is evidenced by the Cincinnati meridian circle which was put in fifteen years ago, and of which Dr. Porter, the director, says that its accuracy is so great that graduation errors are not being taken into account. The large circles at the new Naval Observatory and at Princeton have the same reputation. As the circles which are used on engineering instruments are graduated on the same engines, it is not to be wondered at that the engineering instruments made by Saegmuller have long been known as among the very best. To the engineering world Mr. Saegmuller is perhaps best known as the inventor of the solar attachment bearing his name. By means of this small instrument, which can be attached to any transit, the astronomical meridian can be determined by a single observation with all the accuracy required for accurate land surveys. This little solar is in use in all parts of this country, Canada, and Mexico. It does away with the unreliable compass needle. A new branch was added to the business by the upbuilding of the navy. Before the Spanish war, Admiral (then Captain) Sampson was the chief of the Bureau of Ordnance of the Navy Department. Admiral Sampson was the first to recognise the fact that the old open sights had to be abandoned and telescopic sights substituted. He intrusted the problem to Mr. Saegmuller, who has since then step by step improved the telescopic sights. The new firm will be kept busy for a long time making the sights for the navy. In order to shoot well the distance of the object to be hit must be known. This calls for an instrument which measures this distance, called the range finder. One called the nautical range finder has been perfected which gives admirable results by using

the depression of the horizon. It is used at a great height from the water in the military top. As it is not always convenient to mount so great a height, a new instrument is being built, which can be used anywhere, and will be first used during the annual target practice next September. Apparently, Rochester, already a centre for the production and distribution of optical and photo goods, is to become a centre for the production and distribution of scientific instruments and apparatus of all kinds, for the first work of the new firm is expected to be the nucleus of a far wider range of products. The work of transferring the plant from Washington to Rochester has been begun. Already five carloads of machinery and instruments have been unloaded and are being placed in the new building. Mr. Saegmuller has brought with him a number of skilled men, and skilled labour will be in demand. Associated with Mr. Saegmuller, who will continue as heretofore in active charge, are his sons, John L. and Fred. The latter is in Europe gathering facts relative to the latest developments in scientific instruments. It is the intention to establish a scientific bureau for computation and research on the lines of the celebrated Carl Zeiss works of Jena, the results to be available to both the Bausch and Lomb Optical Company and the Bausch, Lomb, Saegmuller Company.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on Monday afternoon. It was announced that his Grace the Duke of Northumberland (President) had nominated the following Vice-presidents for the ensuing year:—Sir William de W. Abney, K.C.B., Mr. Shelford Bidwell, The Right Hon. Lord Alverstone, G.C.M.G., Dr. Ludwig Mond, The Right Hon. the Earl of Rosse, K.P., Sir Thomas H. Sanderson, G.C.B., Sir James Crichton-Browne (Treasurer), and Sir William Crookes (Honorary Secretary). The Right Hon. Lord Rayleigh, O.M., F.R.S., was elected Honorary Professor of Natural Philosophy, and Professor J. J. Thomson, F.R.S., was elected Professor of Natural Philosophy.

A WOOD-SPIRIT Incandescent Light.—Those interested in a self-contained light for projection and enlarging should note the verdict of the "Scientific American" on a lamp of Continental origin, very similar to articles which are already on the photographic market. It is as compact and light as an ordinary kerosene lamp and more easily operated, and has for a fuel supply wood alcohol. The burner, as compact as the usual kerosene burner, and adapted to fit any regular mount, is of a novel regenerative type, to which the wood alcohol is conducted by a wick. The latter needs no trimming, as the alcohol is gasified by the heat, and then being mixed with air, produces an intense flameless heat above, which renders brilliantly incandescent the usual netted Welsbach mantle, suspended from above and enclosed in a cylindrical slender glass chimney. This gives in very small compass an intense illumination, equal to forty-five candle-power with the small mantle, and a smokeless light of remarkable steadiness and brilliancy, and which can be perfectly regulated, with the advantage of being odourless even when lowered to bare incandescence. One of the points of novelty is an automatic device for feeding a minute quantity of alcohol from the fount to the burner in starting, which is done much in the same way as the usual mechanical extinguishing devices are operated on kerosene lamps. The small amount of alcohol thus brought up is simply ignited by a match, as in an ordinary lamp. In about a minute the light burns brilliantly.

DEATH from Cyanide.—Arthur Newman Smith, 35, of York, died at Castleford recently under singular circumstances. As an amateur photographer, he developed plates, using cyanide of potassium. Having a cut finger, blood-poisoning is supposed to have been set up. He had the attention of several specialists, but without avail.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
12 and 13	West London Photo. Society ..	Annual Exhibition.
15	Southampton Camera Club	Messrs. R. & J. Beck's Cameras and Lenses. Demonstrated. Mr. W. F. Slater, F.R.P.S.
15	South London Photo. Society..	Platinum Paper. Messrs. Kodak, Ltd.
15	Wallasey Amateur Ph. Soc.....	Members' Evening.
15	Exeter Camera Club	Stereoscopic Photography. Mr. J. W. Huggins
16	Royal Photographic Society ..	Marine Photography, and Opening of "One-Man" Exhibition. By Mr. F. J. Mortimer.
16	Birmingham Photo. Society ..	Sale by Auction of Various Photographic Sandries.
16	Manchester Amateur Ph. Soc.	Gaslight Papers. Mr. J. D. Barwick.
17	Everton Camera Club	Messrs. R. & J. Beck's Novelties. Demonstrated. Mr. W. F. Slater.
18	London and Prov. Photo. Assn.	Morocco. Mr. John H. Avery.
18	Watford Camera Club	Apparatus Night.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held May 9, Major-General Waterhouse in the chair.—Mr. E. P. Butler read a paper on "Three-Colour Photography, with Examples." He explained the construction of, and exhibited, the camera employed by himself for obtaining the three negatives at one exposure. Two transparent mirrors were placed at an angle of 45 deg. to the axis of the lens. The image reflected from the first, after passing through a green screen, gave the green-sensation negative; that reflected from the second, the blue-sensation; whilst the direct rays formed the red-sensation image. The lecturer stated that his best results were obtained when the exposure was about five or six minutes. In preparing positives by the staining method for projection he preferred to stain the gelatine films beforehand. After sensitising and printing, it was found practicable to control development by inspection, although it was necessary in some cases to re-dye the films and wash out again up to the correct point. A number of three-colour transparencies were projected in demonstration of the author's practice. A number of these obtained and merited commendation, although the series included others of glaringly false colour-rendering, the general defect being too vivid colouring. The author was not optimistic as to the likelihood of three-colour work becoming popular. His total of exposures last year was stated as 147, of which he considered 44 satisfactory, a return of practically one plate in three.

BRECHIN PHOTOGRAPHIC ASSOCIATION.—The pressing need of rooms which has been worrying the Council of the Photographic Association for some time has at last been satisfactorily solved by the lease of those premises at 14, St. Mary Street, formerly occupied by the Association. They comprise a comfortable meeting-room, with suitable dark-room accommodation, and will be a great help in carrying on the work of this flourishing and enthusiastic Society. The question of funds for the suitable furnishing and decorating of the rooms is likely to be taken up in a hearty manner by the members.

LONDON AND PROVINCIAL.—Meeting held May 4, Mr. Furley Lewis in the chair. Mr. W. T. Wilkinson exhibited several negatives made from line originals on the Gem photo-mechanical plate. He spoke very highly of the performance of the plate in photo-mechanical work; its rapidity was 90 H. and D., and hence exposure could be cut down to an eighth or a tenth of that required by some process plates. Mr. T. E. Freshwater read a paper on the "Photochromoscope." He described the projection photochromoscope of Ives, in which the light from a half condenser, giving a parallel beam, is reflected right and left by transparent

mirrors, the direct pencil passing through the green screen, whilst those on the right and left respectively pass through the blue and red screens. The three projection lenses are so adjusted that the three axial rays converge to one point on the screen when a lever system of movement is closed, but diverge when it is opened. As regards making the negatives for chromoscope slides, Mr. Freshwater said that the colour filters had to be adjusted according to the light in which the work was done. The greater luminosity of bright light called for adjustment of the filters, and differences had to be made when changing from bright to dull light. Mr. Freshwater used Lumière's "Panchromatic" plate throughout, and he gave exposures in a ratio of, say:—Blue, 1; green, 6 to 7; red, 10. As a test of the correctness of the ratio, he took the density in each negative, of a neutral background, which should be identical in all three exposures. Considerable care was needed in treating subjects such as flowers, etc., for the position might easily alter during the long exposures which were often necessary. Turning to projection, Mr. Freshwater demonstrated the use of the lantern. The projection screens had to be suited to the illuminant. For arc light they were deeper than for the mixed jet. Reference was made to Dr. Miethe's projection apparatus, as recently exhibited in London, and Mr. Freshwater thought it suffered from incompetent handling. The employment of three lanterns, he continued, was not new. About 1897 Mr. Ives showed such a system in London, and in 1899 Messrs. Newton and Co. made one for a Urania in Budapest, the results of which are believed to have been satisfactory. The triple-light had been advocated by Sir Wm. Abney as the most perfect system of colour projection. Some discussion followed, in which Messrs. W. R. Stretton, J. S. Teape, Rapson, and the Chairman joined.

CROYDON CAMERA CLUB.—May 3.—Mr. A. E. Isaac gave a practical address on orthochromatic work. A number of commercial and home-made light filters were tested by means of a lime-light spectrum projected on to a screen, and it was interesting to note how, in several cases, certain of the filters, although lengthening the exposure less than others, were from the orthochromatic point of view distinctly superior. Except in those instances where a deep filter had been used, little difference was observable. In the discussion which followed, a somewhat novel point was raised. A member complained—and his experience is probably shared by others—that when using ortho plates, and a filter of known stopping power, he had found, for some unaccountable reason, the requisite exposure could not be gauged so accurately as when filters were not brought into requisition. He did not think that the known variation of the stopping power of the filters, under varying conditions of light, could account for the difference observable. Mr. C. E. Kenneth Mees said he had investigated the matter. The state of things indicated certainly existed, and the explanation was simple. A plate might have a wide general period of correct exposure, but it by no means followed that this latitude extended throughout the spectrum; indeed, the reverse was the case, and almost without exception the latitude of a plate was very slight indeed in the yellow. The insertion of a filter would therefore alter the gradation, and the limits of permissible errors in exposure would be seriously reduced.

WORCESTER CAMERA CLUB.—A meeting of the Worcestershire Camera Club and Photographic Society was held at the Victoria Institute, on Wednesday evening last, when there was an attractive exhibition of members' lantern slides. During the evening the Rev. Johnson Barker judged the slides sent in for the annual competition, and with the following result:—Mr. T. B. Judson, 1, 36 marks; Mr. W. W. Harris, 2, 34; Mr. S. Hill, 3, 27.

RUGBY PHOTOGRAPHIC SOCIETY.—During the last few days of last week the Rugby Photographic Society is holding its annual exhibition at the Town Hall. The large loan collection includes enlargements from

snapshots taken by H.M. the Queen. Mr. B. B. Dickinson and Miss E. Sidebotham judged the members' exhibits, and the results were as follows:—Landscape: Medal, G. A. Towers; highly commended, F. Betts; commended, C. H. Ham and E. H. Hall. Architecture: Medal, C. H. Ham; highly commended, A. G. Evans. Snapshots: Medal, F. Betts; highly commended, G. A. Towers. Records: Medal, R. H. Myers; highly commended, E. H. Hall. Lantern slides: Medal, H. P. Harwood; highly commended, G. A. Towers. Wild life: highly commended, G. A. Towers. Enlargement: Medal, G. A. Towers; highly commended, F. Betts.

EDINBURGH PHOTOGRAPHIC SOCIETY.—At the last meeting of this society Mr. A. P. Noble read a paper on pin-hole photography. Photographs taken in this way, he said, gave a softer picture than those taken by the ordinary process, by means of a lens, and it was specially useful in photographing architecture, flowers, pictures, etc. A wide angle and narrow angle could be got with the same needle-hole, and focussing was not necessary.

INDUSTRIAL ALCOHOL.—Two questions on the subject of alcohol for industrial purposes were put in the House of Commons last week to the Chancellor of the Exchequer by Mr. Joseph Nolan, the member for South Louth, one of the most interesting facts elicited (reports the "Pharmaceutical Journal") being that the Government Bill to give effect to the recommendations of the Committee on Industrial Alcohol is now being prepared, and will be introduced as soon as it is ready. A point on which Mr. Nolan was particularly interested was the preparation from potatoes of crude alcohol for motoring and manufacturing purposes. In one of his questions he pointed out that millions of tons of potatoes are annually used in Germany in the way indicated. He asked whether, seeing that Ireland is a potato-growing country, the restrictions on the making of spirit there for industrial purposes could not be relaxed in such a way as to place Ireland in a position to compete with Germany and other foreign countries. The Chancellor of the Exchequer pointed out, in reply, that the Industrial Alcohol Committee, in their report, stated that they were satisfied that in the present agricultural conditions of this country it would not be possible to found a profitable industry on the employment of potatoes as material for distillation. The industry could not be carried on profitably unless the potatoes could be purchased at a price not exceeding £1 a ton, and in Ireland the price was not less than £2 a ton. The second question of Mr. Nolan brought forth the intimation that it is not intended to make proposals to give preferential treatment to the importation of West Indian patent-still spirit into the United Kingdom for industrial purposes. The Chancellor of the Exchequer added, however, that if the proposals of the Industrial Alcohol Committee are adopted by Parliament, spirit from the West Indies will derive a substantial benefit from the new arrangements, in common with all other spirit, whether imported or home-made.

BICHROMATE POISONING.—Last week, in the Hammersmith Coroner's Court, Mr. C. L. Drew held an inquiry with reference to the death of Henry George Johnson. Whilst at work on Good Friday the foreman told the deceased man that he might have some beer which had been placed in a gin bottle in a cupboard. After drinking some the man remarked, "What has been in that bottle?" and it was found that he had drunk a quantity of bichromate of potash which the french polisher had placed on another shelf in the same cupboard for safety. It was in a similarly shaped bottle. Thomas Vine, a french polisher, said he bought a pennyworth of bichromate of potash, and mixed it with water to use in his work. There were no restrictions on its sale; he could buy it at any oil shop. During the twenty years he had been engaged in the work he had never had a "poison" label on the bottle, but he should be more particular in future. Dr. W. R. Hall Harris said death was undoubtedly due to an irritant poison. The jury returned a verdict of "Death from misadventure."

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given
 * * We do not undertake responsibility for the opinions expressed by our correspondents.

CINEMATOGRAPHS OF WATER POLO.

To the Editors.

Gentlemen,—The secretary of our local water polo team has asked me to find out if any firm of cinematographers would be likely to entertain the idea of taking a match, a good one, say, London Polytechnic, London Amateurs, Nautilus, or some other first quality team, in our own waters. The three first-mentioned we have fixtures with this season, and have always won from them here, as our team always play in the open sea—I believe the only first-class team that does so—thereby affording a unique opportunity of getting a first-class film of a first-class match. Every facility would be rendered, such as providing staging where required, etc., etc. Can you please give me any names of firms likely to do it? Any hints you can give will be much appreciated.—Yours faithfully,

CINEMATOGRAFHER.

Teignmouth, May 8, 1905.

[Our correspondent should address one or two of the leading firms, such as Gaumont and Co., Cecil Court, London, W.C., etc. We shall be agreeable to placing any firm desirous of taking the matter up into communication with our correspondent.—Eds. B.J.P.]

THE DUBLIN MEETING OF THE PHOTOGRAPHIC CONVENTION.

To the Editors.

Gentlemen,—I shall be glad if you will kindly allow me, through your columns, to announce that both the London and North-Western and Midland Railways will run cheap excursions to Dublin from London, and nearly all the provincial and country stations on their systems, on Thursday evening, July 6. Tickets (available for return within sixteen days) from London (Euston) 26s., St. Pancras 22s. Return tickets from other stations 8s. 6d. to 26s., according to distance. For the advantage of those members who are able to remain after the close of the Convention, the various railway companies in Ireland have arranged to issue return tickets at single fares to any stations on their respective lines. Thanking you in anticipation.—I remain, Gentlemen, yours truly,

F. A. BRIDGE, Hon. Sec. and Treas.

East Lodge, Dalston Lane, London, N.E.

OSMOTIC PRESSURE.

To the Editors.

Gentlemen,—I am sure that your readers will extend a very hearty welcome to the series of papers by Mr. Mees, begun in your last issue, and dealing with the application of modern developments of general physical chemistry to the chemistry of photography.

But I fancy that Mr. Mees' explanation of the generation of hydrostatic pressure in a tube with semi-permeable base must have perplexed rather than enlightened many readers. Has a satisfactory explanation ever yet been given of the mechanism whereby a hydrostatic pressure is generated in an osmotic cell? I believe not. Modern investigations on solution have been conducted with a view to answering the question "how much?" rather than the question "why?"

Professor Ostwald, in his classical "Chemie," does not attempt any

mechanical explanation of the osmotic generation of pressure. In his "Theoretical Chemistry," Professor Nernst, it is true, does venture an explanation; but I fancy that to the average person this explanation will be somewhat reminiscent of the case of the gentleman who tried to lift himself by tugging at his own boot-straps. Here is Nernst's account of the matter:—"As a result there follows the pressure action on the semi-permeable membrane, as above described; but the membrane cannot yield since it is fastened to the resistant porous cell; therefore, according to the principle of action and reaction, there will be exerted on the solution an impulse which will tend to drive it away from the membrane. This impulse will cause the solution to rise in the upright tube from the simultaneous influx of water."

It is well known that a gas at low pressure will flow into a semi-permeable enclosure occupied by another gas at higher pressure and itself incapable of passing through its enclosure. But it is not the higher pressure of the gas inside the enclosure that causes the flow of the other gas into the enclosure. The cause of the flow is rather to be sought in the tendency, which every gas shows, to assume the same concentration—i.e., to distribute the same number of its molecules per cubic centimetre—throughout the region to which it has access. Dilute solutions would seem to behave as gases in this respect.

If we assume that the dissolved body in the osmotic cell combines in some loose manner with a certain number of the molecules of its solvent, then the concentration of pure solvent inside the cell falls below that of the pure solvent outside the cell, and hence solvent flows into the cell in the effort to establish the condition of equal concentration referred to above. From this point of view the flow of water would seem to occur, not because of what has been called osmotic pressure, but in spite of it.

Though the gaseous phenomena I have referred to give some sort of analogic precedent for the passage of solvent into an osmometer against hydrostatic pressure, yet the analogy is far from complete and must not be taken too far. The analogy must be looked on as a temporary and partial mental reconciliation to the peculiar behaviour of the osmotic cell, but as nothing more.

Mr. Whettam, in his book, "The Recent Development of Physical Science," writes with authority and pertinently in this connection:—"The proof involves no assumption as to the physical mechanism by which the osmotic pressure is produced. . . . The physical *modus operandi* of the pressure remains uncertain."

Blackheath, S.E.

D. J. CARNEGIE.

AMATEUR AND PROFESSIONAL.

To the Editors.

Gentlemen,—In a recent edition of your paper there is a note *re the above*.

Will you say if a lady, not a photographer, who attends public athletic meetings, and such-like gatherings, all over the country, sends copies to the various sporting papers, receives fees; also takes a quantity of local views, sells the right to reproduce as postcards to local stationers, who then publish large quantities—is such a lady entitled to enter these same views in an "amateur class" in a local photographic exhibition, and so compete with the usual schoolgirls, boys, and others for the prizes?—I am, yours, obediently,

N. LEWIS.

Russell Square, W.C., May 3, 1905.

[We may define a professional photographer as a person who makes the production of photographs his chief means of livelihood, and our correspondent's lady friend would almost seem to come within that definition.—Eds., B.J.P.]

THE R.P.S. ONE-MAN EXHIBITION.

To the Editors.

Gentlemen,—I am happy to inform you that Mr. F. J. Mortimer has sufficiently recovered from his recent illness to open his One-man Exhibition of Marine Photography on the 16th inst., at eight o'clock, p.m. The exhibition will be held at the Society's house, at 66, Russell Square, and will remain open for several weeks. Visitors will be admitted from 10 a.m. till 6 p.m. on presentation of visiting cards.—Yours faithfully, J. McINTOSH, Secretary.

MAKERS' FORMULÆ.

To the Editors.

Gentlemen,—Mr. Tennant is quite wrong in assuming that I believe "that the ounce measure of water contains 480 grains by weight." I contend that the original A formula cannot be a 10 per cent. solution according to photographic custom, because if the avoirdupois ounce of 437.5 grains be used, and the total bulk of solution be made up to 10 fluid ounces, any operator measuring out, let us say, 30 minims to obtain 3 grains of pyro, would not have 3 grains of pyro, but just under $2\frac{3}{4}$ grains, and this is not what the photographer wants. He does not want to develop a plate with an ounce of pyro, but with a few grains, so that it is incongruous to talk of the A solution giving us an ounce in 10 oz., or a gramme for 10 ccs., because the majority of photographers do not use metric measures.

I was perfectly well aware of the Order in Council as to barometric pressures, but my query was "wrote sarcastic," and I meant to hint that if we were to use the millilitre instead of the cubic centimetre, every photographer would have to correct for barometric pressure when measuring out 10 ccs. to obtain absolutely correct results.

The whole trouble lies in the fact that we photographers do not weigh, but measure, our solutions, and the avoirdupois ounce does not bear a definite ratio to the liquid ounce when measured.—Yours faithfully, CHEMIST.

Edinburgh.

PLATE MEASUREMENTS.

To the Editors.

Gentlemen,—I am very pleased to note that in your account of the "Salon" plate you have given the measurements of the constants of the plate, made according to the system of Mees and Sheppard, and I hope you may follow the same course in the case of any other new plates you may notice.

I think there is a small printer's error; should not γa be $\gamma \infty$ (gamma infinity)?

In future measurements it would be a help if the temperature at which development took place were stated, and also if the constants obtained by a pyro-soda developer, similar to the Hurter and Driffield standard developer, were given.—Yours faithfully,

W. B. FERGUSON.

Arosa, Switzerland.

May 6, 1905.

[We are glad to have Mr. Ferguson's notification of an error which did not escape us as the issue was prepared, but which we regret should have found its way to the press.—Eds., B.J.P.]

FREE Lessons in Liverpool.—We hear that a course of instruction from which beginners are greatly profiting is now being given by the Liverpool staff of Mr. J. Lizars. The preliminary lessons are free, and a charge of 5s. is made for the more advanced series. Particulars are obtainable from 71, Bold Street, Liverpool.

Answers to Correspondents.

* * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

* * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

* * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

H. J. Sheppy, Rensburg, 47, Crescent Gardens, Bath. *Photograph of a Fringed Marchal Niel Rose*
R. Wilkinson, The Studio, Horncastle, Yorkshire. *Photograph of the Primitive Methodist Chapel, Horncastle*
E. Higgins, 18, Bury Road, Birkdale, Southport. *Photograph, a Row of Cottages known as Diamond Row, which stood in Stockport Road, Gee Cross, in the Borough of Hyde, Cheshire, but which were taken down about two and a-half years ago for Tramway Purposes.*
F. P. Hallier, 41, High Street, Sydenham, London, S.E. *Two Photographs of Mr. F. W. Aveling, M.A., B.Sc.*
George Bernard Shaw, 10, Adelphi Terrace, London, W.C. *Three Photographs of George Bernard Shaw, Dramatic Author.*
F. Kirkman, 34, Top-o'-th'-Wood, Heywood, Lancashire. *Photograph (post-card) of The Old Smithy, Little Lever, near Bolton, Lancashire (now demolished).*

CANADA BALSAM.—Some Canada balsam, which was stiff but fluid when bought, has become so stiff that I have to dig it out of the bottle. Should this be so, and how can it be thinned? I find it does not flow, even when warmed.—C. MARSHALL.

Add a little turpentine and stand in a warm place.

STAINED P.O.P. POSTCARDS.—Can you account for stains on enclosed postcard? A batch of prints toned previously in same bath showed no signs of stain.—F. P. W. B.

The stains appear to be due to contamination of the toning bath, probably with hypo. See that all dishes are perfectly clean before toning, and use a fresh toning bath for each batch.

DEVELOPER FOR FILMS, ETC.—1. Which is the most suitable developer for snapshot work on films. I unfortunately cannot use metol? I am using pyro-soda with bromide. 2. Could you suggest a safe-hardening solution for glossy postcards, one which would not retard toning? Alum is no good; I have not tried formaline, but the manufacturers recommend it before first washing. It is to prevent the postcards breaking at the edges, and so creating for my spotters a great deal of work. 3. Enclosed is a film, is the fogging due to too short exposure? The light was pretty good, and the exposure 1-25th second at f/8.—BOWLER.

1. We see no reason why you should not obtain good results with pyro-soda. Try the following formula:—A. Pyro, 1 oz.; potass. metabisulphite, 1 oz.; water to 9 oz. B. Soda carbonate (dry), 570 gr.; potass. metabisulphite, 220 gr.; water to 10 oz. C. Potass. bromide, 10 per cent. solution. Start development with A. 20 minims, B. 120 minims, C. 5 minims; water to 2 oz. After details have appeared, add 20 minims more of A. Both ortol and adurol are good developers for films. Use the maker's formula. 2. It should be quite possible to use formaline. Why not add some to the fixing bath, say 1 oz. to the pint. The probable cause of the gelatine softening is because you use a sulphocyanide toning bath. Try the following:—Soda phosphate, 60 gr.; water,

40 oz.; chloride of gold, 2 gr. This is sufficient for about 30 postcards. It is ready for use one hour after mixing, but does not keep long. 3. The fogging appears to be due to forcing in the development. The negative is very under-exposed and out of focus. The camera also appears to have moved during exposure.

REMOVING FILMS.—Will you please inform me how to remove film from lantern plates? I intend them to be used as cover glasses.—J. B.

Soak your plates in spirits of salt diluted with, say, five times its volume of water. After an hour in this mixture the film can be rubbed off easily with an old nail brush. Another plan, and one which we prefer for its cleanliness, is to soak the plates for a few minutes in a strong solution of chrome alum. The gelatine can then be peeled off in one piece without tearing, and leaves the glass perfectly clean.

P. W. H. (Birmingham).—Certainly, we have used plates in the camera with complete success. The instrument is a very convenient one.

COPYING.—I have a cabinet I want to copy for enlargement: I have an Optimus R.R. lens, half-plate, 8 in. focus. The extension of my half-plate camera is about 14 in. Can you kindly tell me the best method of completing the above task, and what plates to use?—W. G. PAYNE.

As it is not possible to copy the original the same size with the lens and camera extension you give, do not attempt it, but make your copy about quarter-plate size on the half plate. Use an ordinary or slow plate, and if the original is at all faded, use a photo-mechanical plate and a blue screen. Give a full exposure, and develop with hydroquinone or glycin. Make the copy negative as sharp as possible, and there ought not to be any difficulty in enlarging from this to any desired size in the usual way by daylight or artificial light, according to the kind of enlarger you have.

RETOUCHING.—Would you be so kind as to let me know what you think of the enclosed retouching, and also point out faults?—J. H. W.

Second-rate only, but carefully done. Your work should be better modelled for the time taken. The likeness is well preserved, and the work clean. All prints sent for criticism should be toned and fixed, as otherwise they flatter the retouching.

RETOUCHING.—Would you kindly examine enclosed retouched proofs, and state the class of business such work is suitable for? The time taken to work each was from twenty minutes to half an hour.—RETOUCHER.

You send us a pretty heavy batch, and our space is valuable and has many claims upon it. Three of the unretouched and three of the retouched would have served your purpose. Your retouching is only suited to a second-class business, and if you aspire to higher things you should certainly devote more time to them, and so furnish better modelling and general finish. Your treatment of a variety of faces and ages is too similar.

COPYRIGHT.—1. I have offered the use, for 10s. 6d. of my photograph of fringed rose you have so kindly copyrighted for me, to the ———, and they reply, saying, "We will give you 10s. 6d. for photograph. In this case the photograph would belong absolutely to us, as we should claim the copyright." Is it possible for them to claim the copyright? If so, would this stop my further use of it? I thought a copyright meant it was the owner's property for ever, as long as he does not part with or sell the negative. 2. Also, how many

times could I use this copyright through various papers at a fee of 10s. 6d. for its use? A little enlightenment on the subject before I reply to ——— would very greatly oblige.—H. J. SHEPPY.

1. If you accede to the offer you part with your rights in the photographs. Of course, the parties are trying to trade on your supposed ignorance. Write and tell them they can reproduce the photograph in one issue only of ——— for a fee of 10s. 6d. 2. An unlimited number.

RETOUCHING AND OPERATING.—Please criticise the enclosed specimen of (1) retouching, and (2) operating—time twenty-five minutes. I am a printer, and only retouch occasionally. I have had three years' experience, and my age is twenty. (3) What salary do you think I should ask for twenty heads (such as specimen) per day of eight hours?—NOSMADA.

(1) Your retouching is of very poor quality, and entirely lacking in finish. Its best point lies in the fact that the likeness is respected, but the whole face needed much finer working and higher lighting. The specimen is a very easy face, presenting no character or difficulties to overcome. Retouchers submitting samples of work should choose a fair-sized cabinet, vignette, or larger negative, and one affording good scope for showing the treatment, and prints before and after retouching, toned and fixed, and for preference made on a glossy paper. You really require finishing lessons. (2) We should call your operating below the average. (3) You might ask 25s. per week as all-round assistant, but on your retouching alone, we doubt if you would receive that sum. Printers wishing to become retouchers should first make certain that the quality of their retouching warrants the change.

RETOUCHING.—I should esteem it a favour if you would kindly give me your opinion of enclosed specimen of retouching, and state where same might be improved?—FRANCIS.

Your retouching is very second-rate. It is not absolutely "dirty," but it is ragged in texture in places, and we should think that you either use a fat, blunt point, or work hastily. We should say you place too much retouching on, and so affect the modelling and likeness—very much to the detriment of the picture. Working slowly and *thoughtfully* very often makes for quicker finishing. Your greatest error is in flattening the general effect by wholesale removal of characteristic indentations and formation. The boldness of the nose is lost through over-removal of the shadow beside it. On the light side of face, and level with the moustache, there is a hollow-ness in the cheek that you have puffed out most unnaturally. The face line on shadow side is very ugly, and might have been pencilled into better form. The man has a certain amount of strength and knowledge of the world which you have done your best to remove. This is what you must look to in the future. Be more delicate in your gradation into the half-tones and shadows; and if you cannot secure with the ordinary lead you favour, then try a harder grade and very finely pointed, and work lighter in the touch. Try to get your finished effect with less pounding on of the pencil and with less effort. A few personal lessons, as you are not very far from town, and from a really skilled *teacher*, would benefit your style.

T. W. BARBER.—We are unable to locate the cause of the trouble but might do so if you would send us two or three slides to look at.

COPYING, ETC.—(1) Will you say if it is practicable to obtain from black and white prints or drawings negatives (either on dry plates or wet collodion) of sufficient density to give pure whites, reproducing same size—which implies but a short distance

between subject and lens, say 10 in., consequently bad illumination? I find difficulty, even in good light, with reflectors, white cloth over small camera, etc., R.R. lens. (2) Would you kindly name some practical manuals in any language for the processes of multiple impressions in printing ink half-tones from bichromated gelatine? I find Germans often give more precise and ample working details.—PHOTOPHIL (Tunis).

(1) The most even illumination should be obtained by placing the copy at an angle to the plane of the window, not too close to it. If artificial light is used good oil or incandescent gas lights placed on either side of the copy, and shielded from the lens, will give even illumination, but the exposure will, of course, be much longer. Use slow "transparency" or photo-mechanical plates, and develop with glycine, using the maker's formula. This should give you all the density you require. An alternative method is to use a slow plate, and considerably over-develop. Then reduce with Howard Farmer's reducer, which will clear the shadows, and the desired result will be obtained. (2) "Chromo-Lithographie," by Hesse, is a very comprehensive work now appearing in ten parts each Mk. 1.50), from W. Knapp, Halle-a/S., Germany. "Lichtdruck," by Albert, deals with collotype, and one or other of these two works should answer your purpose.

CRYSTOLEUM.—Would you kindly let me know if there is a special process, or what are the necessary requirements of a photograph intended for crystoleum painting.—J. McL.

An albumen print is the only one suitable for crystoleum. Emulsion papers are too heavily loaded.

DEXTRINE MOUNTANT.—I am given to understand that dextrine, when mixed with water and boiled, will stiffen again into a white paste suitable for mounting prints. Is that correct? I have tried to make paste in that way, but find after many days' waiting that the stuff is still a dark liquid.—C. MARSHALL.

If the best white dextrine is used, the paste will stiffen when cold. You have probably used common or brown dextrine, which will act as you say.

MOTTLED NEGATIVE.—I herewith forward a plate—one of three contact plates. Can you tell me the cause of them being spotted in that manner? All three are the same; they were exposed at the lamp and developed with 1 oz. pyro solution (usual developing solution), 3 drs. soda-sol., 1 dr. bromide potash sol. (25 grs. to the oz.). Developed very slowly by rocking for five or eight minutes, then left sitting in developer till fully developed.—I. M. P.

The markings are what you may expect if a plate is left in the pyro developer without rocking. The last part of the process has evidently caused the defect, which is particularly liable to occur with old pyro solution. Why use pyro-soda for positive transparencies? It is about the worst developer for the purpose. If you must use pyro, let it be pyro ammonia, but with other developers, imogen sulphite, for example, you will not get this mottling, even if the plate is not rocked.

USE OF LATE EMPLOYER'S NAME.—I shall be glad if you will kindly advise me in the following matter. About two and a half years ago I was employed by a well-known firm for several months. After leaving them I received a good reference, signed by the artistic manager, and confirmed by the general manager. May I now use the name of the firm as an advertisement in my own business—say, "late with . . ." without obtaining permission from the firm?—PHOTOGRAPHER.

It would not be illegal for you to do so, provided you do not use the firm's name in a more conspicuous way than you

do your own, or in such a way as would lead the public to infer that the business you are carrying on belongs to the firm. As it appears that you have not been in the employ of the firm for two years, and then only for a comparatively short time, we would suggest that you say "formerly with," instead of "late with."

COPYRIGHT BROMIDES.—(1) I have a series of early locomotive and automobile negatives, copied from engravings dated 1780-1840, which I wish to reproduce as postcards. Have obtained permission of client for whom they were copied provided I hold him good against copyright complications. I believe there were no copyright protections previous to 1862. Am I right, or do you think I run any risk? (2) Is it necessary to size a bromide enlargement previous to painting it in oils, or is the gelatine of the picture sufficient?—COPYRIGHT.

(1) There was no artistic copyright prior to 1862. We should say you are perfectly safe. (2) The print must be sized with a solution of fine white glue, applied warm with a soft brush. A test of the suitability of the print for colouring is to apply a little of the oil to one corner, and, if it sinks in, to give another coating of the size.

SHEET GELATINE.—Could you oblige me with the address of a firm who supplies sheets of thin clear gelatine, such as were employed years ago for transferring negative films?—W. GRIFFITHS.

Messrs. Penrose and Co., 109, Farringdon Road, London, E.C.

PHOTOGRAPHS OF PAINTINGS.—1. A friend of mine (a museum-director in Breslau), who writes at present a historical work, wants a photograph of picture 590 (King's Gallery), Hampton Court; see Law's catalogue, 1898. This picture is mentioned as "School of Memling, Head of a Man in an Oval (276)." Are there such photographs in existence, and who sells them? Or is it possible to get the consent of copying this picture, and to whom would I have to apply? 2. Would you be kind enough to tell me the address of the "Press Union," who, I am told, gives away authoritative tickets for photographers engaged in press-work?—BRANDES, LONDON.

Possibly, firms such as the Autotype Co., New Oxford Street, London, W.C.; Hanfstangl, Pall Mall East, London, W.; may have a reproduction of the painting, though we rather doubt it. Reference to "An Index of Standard Photographs" (published by Dawbarn and Ward, Ltd., 6, Farringdon Avenue, London, E.C.) might indicate the existence of a photographic reproduction. We cannot say whether permits to copy the pictures are granted, but you could find out by application to H.M. Office of Works, Westminster. 2. We do not know the "Press Union" in this country.

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EX CATHEDRA.

An Editorial Millennium. Fraternal greetings are thick in the pages of our New York contemporary, "The Photographer," which has just celebrated the first anniversary of its birthday. We add our congratulations to those of Editors John A. Tennant, John Nicol, and Dundas Todd. Mr. Abel, of "The Photographer," has the distinction of producing the only photographic weekly in America, and his organ can boast a standard of excellence which places it among the three or four good photographic periodicals in the States. Mr. Tennant's "Note on Photographic Journals," is sternly practical and to the point, as might be expected from the office of "The Photo-Miniature." And his words are as applicable on one side of the Atlantic as the other. "It does not seem to occur to the average reader that the photographic journal is absolutely dependent upon the photographic worker for its news, for its freshness of information, and for its practical value. Unless there be a generous and large-hearted coming together between readers and editor, the photographic journal must necessarily lack the very qualities which the reader seeks in its pages." Let every reader of a photographic journal, he suggests, (1) name one particular point in which that journal lacks, and (2) send some practical hint or method which he can recommend as actually fulfilling its purpose. Then will be the editor's millennium. Any journal, concludes Editor Tennant, would then "be so completely changed that we would hardly know it. It would then be brimful of fresh and interesting facts, of formulae which would actually work, of methods and processes which would set hundreds of readers to improving their work, increasing their pleasure in photography and adding to their bank balances. You cannot have a live and progressive trade journal unless the readers build it brick by brick. All that the best editor in the world can do is to sift out the bad bricks from the good ones and supply the mortar to bind

the bricks into one harmonious and pleasing design—the journal itself."

Sodium Alum.

Statements in chemical text-books as to the double sulphate of sodium and aluminium are at variance, some writers describing the salt and others denying its existence. A recent paper before the Chemical Society, by Mr. J. M. Wadmore, makes it clear that sodium alum is formed on mixing molecular proportions of sodium and aluminium sulphates. One remarkable property of the alum is the behaviour of a hot concentrated solution. When suddenly cooled, a jelly first separates, and afterwards passes into a crystalline mass of partially dehydrated salt.

The National Photographic Record Association.

Without flourish of trumpets or blowing upon ram's horns, the National Photographic Record Association prosecutes its admirable work. At a council meeting held at the Royal Photographic Society on Thursday in last week, 335 prints were presented, bringing the total collected by the association to 3,504. Not a bad figure for only five years' work, done without ostentation by a comparatively small number of people. The council may congratulate themselves on the steady influx of prints from photographers scattered all over the country. Yet these contributions are not as numerous as they might be, and we would wish to see the association supported, in its work of recording the features, customs and institutions of this country, to a much greater degree. The annual meeting will be held at the Midland Grand Hotel, St. Pancras, on May 30, when the president, Sir Benjamin Stone, M.P., will take the chair. We have no doubt that anyone desirous of interesting himself in record work will be welcomed to that meeting, particulars of which, and of the association's work in general, can be obtained from the honorary secretary, Mr. George Scamell, 21, Avenue Road, Highgate, London.

Seasonable Precautions.

During the last ten days or a fortnight a considerable change has taken place, both in the strength of daylight and in the temperature. Over-exposure needs to be guarded against, and it is not a bad plan to make one or two exposures on quarter plates, say twice a week, in order to ascertain how much the exposures may be reduced. Notwithstanding the great latitude of the best modern dry plates there is nothing to be gained by giving three times the necessary exposure, as negatives so obtained are usually too dense, and consequently slower printers. So rarely does one come across frilling nowadays that no warnings or suggested precautions are necessary, but the fact should not be lost sight of, that increase of temperature in the developing

room has a material effect on the speed of development, and may lead to actual over-development. The increased brightness of the light, if daylight is employed for lighting the developing room, will also tend in the same direction. In lighting, especially where the subjects include such contrasts as black hats and light dresses, some care will need to be exercised to bring the contrasts within the compass of the plate. In all probability the light will need screening to a considerable extent from the white draperies, or they will be much over-exposed before detail is obtained in the dark portions of the picture.

* * *

Assistants' Certificates.

We learn that while the applications for certificates are not coming in to the Professional Photographers' Association so numerous as might be wished, the assistants who are applying are of a desirable kind. They have generally served an apprenticeship, or its equivalent, to a firm of good standing and have subsequent good records, and, so far, there has been no occasion to refuse an applicant. It must be gratifying to the committee to find that those who are the first to appreciate and avail themselves of the efforts to do something for their class are those who are likely to take a creditable position as members of the association later on.

* * *

Specialisation. On looking into the windows of the majority of photographers we find probably half a dozen printing processes represented, and in many cases represented badly. It is doubtful if in a moderate sized business the operator can with certainty make the best negative for any particular process which may have been selected by the customer, and it often happens that no variation is attempted; bromide, P.O.P., platinotype, or other print being made from the negative indiscriminately. We recently heard of a professional who charged the same price per dozen for all processes, and reserved the right to select the process most suited to the negatives after they were produced. This method might serve if prints were limited, say, to gaslight, bromide, or platinotype, but personally we should like to decide for ourselves whether our portraits would be glossy P.O.P. or sepia platinotype. A much better plan, in our opinion, is to specialise in one or at most two printing methods. Platinotype will give black and sepia prints; P.O.P., brown or purple prints with either glossy or matt surface; bromide enables the worker to supply matt or glossy black prints, or brown if the sulphide toning is used. Probably the greatest variation may be secured with carbon, and if worked on a large scale would not be appreciably more expensive than the other processes. There is no doubt that the standard of the work would be higher if one process were thoroughly mastered in all its little intricacies, and the odd customer who might chance to be lost because his pet process was not supplied would be more than compensated for by others attracted and secured by the general perfection of the results.

* * *

P.O.P.

We have referred to the mastering of the little intricacies of each process, and, to be more exact, let us take P.O.P. printing. This is a paper used in, say 90 per cent. of the businesses in the country, yet it is doubtful if more than 5 per cent. of those using the paper have any sound idea as to the uniform working of it, or know how to locate any difficulty when it occurs. The maker's instructions are more or less carefully followed, and in the majority of cases the results are passable. If prints are double toned, something or other is blamed, but how often is any systematic attempt made to ascer-

tain precisely what is wrong? How many workers even think of simply fixing a print to see whether the double-toning is a defect of the paper or of the manipulation. Again, when changing from one batch number of paper to another the usual method is just to go on as though the paper were exactly alike. Prints are toned as usual, and on drying may possibly be too cold or too warm in tone. Had the printer made two prints from the same negative, one on the old and one on the new paper, carefully marking each, and then fixed them without toning, he would have noticed a slight variation in colour, which would have warned him that the new batch needed rather more or rather less toning to keep the colour of the output uniform. In each of the processes these little refinements are possible, and can be managed where the energies, both mental and physical, are not scattered over half a dozen different methods.

POISONS USED IN PHOTOGRAPHY.

POTASSIUM BICHROMATE.

It is pretty generally known that many of the chemicals employed in photography are of a highly poisonous nature; indeed, some of them if taken internally would cause death within a very brief period, in some instances, and under some conditions, within only a very few minutes. Others produce very unpleasant effects on the skin of some of those who use them. It does not, however, follow that because a chemical may produce an ill-effect on one person that it will do so on another, although both may be employing it under precisely the same conditions. For example, some can use mercuric iodine with impunity, while others, on the contrary, experience extremely unpleasant effects even after using it for only a very short time. The same may be said with regard to bichromate of potash. It has no pernicious effect on some persons, while on others it has. We happen to know two or three carbon printers who have been working the process on a large scale, daily, for over a quarter of a century, and they have never experienced the slightest trouble from the bichromate, yet they take no special precautions against it. On the other hand, we have heard of instances where trouble has arisen after working the carbon process for a few months only.

We propose to deal with the characteristics of some of the poisons that are used in photography, with a view to pointing out how trouble arising from them may be avoided, or, at least, reduced to a minimum. We shall first deal with the bichromate of potash, as just now that is being more extensively employed in photography than at any previous period. In "Ex Cathedra," last week, we referred to two cases which ended fatally, through a solution of the salt having been drunk in mistake for beer. The incidents illustrate the danger of keeping these solutions where they can be mistaken for anything of a potable kind.

As regards the outward effects of the bichromate, and that is the more immediately interesting to those by whom it is employed, it may be explained that two distinct kinds of trouble may come about. The first is that arising from a cold solution, such as is used in sensitising carbon tissue, for example. The poison may enter a wound—be cut or an abrasion of the skin—and very painful results may follow. Here are the symptoms:—In the first place a smarting sensation is felt. This, if neglected, may be followed by inflammation, festering, and ultimately by ulceration. This latter sometimes results in a deep and painful wound very difficult to heal. But all trouble may

be avoided if, when the smarting is felt, the place be immediately washed under the tap and a little diluted ammonia applied. After this treatment the place should be well sucked for a few minutes. It is always a good plan, after sensitising with the bichromate, to rinse the hands in very dilute ammonia, then well wash them with soap and moderately hot water. This will at once remove the yellow stain from the nails and skin, as well as cleanse the hands from the bichromate. If the stain is allowed to dry, and is exposed to light, it is often very difficult to remove.

The second form of trouble is brought about by the action of a warm dilute solution of the salt, such as the water in reality becomes after a number of carbon prints have been developed in it. Here the trouble takes the form of what the late Dr. B. W. Richardson, who devoted a great deal of attention to the subject, described in the "Asclepiad" as a disease. The first symptoms are an irritation of the skin at the backs of, and between, the fingers. This is slight at first and is usually followed by the appearance of minute watery pustules. Next the skin dries and exfoliates in small bran-like scales. In more acute stages mattery pustules form, the skin dries up something like hard leather, and cracks into painful sores when the knuckles are bent. The skin then peels off in thick scales, not unlike the shell of a shrimp. During the progress of the disease the itching is intolerable; indeed, this is really the most painful part of it. With regard to a cure, none seems to be known so far as medical treatment is concerned. There is, fortunately however, a very simple and certain one. It is to avoid all further contact with the bichromate and Nature herself will work a cure, and that, too, in a surprisingly short time. This may be done by working for the future in india-rubber gloves. We have here described the disease in its most aggravated form, but there is no necessity to allow it to progress to that state if precautions be taken when irritation gives the first warning to the worker that he is subject to the disease.

When this irritation is first experienced the parts should have a little of the strong nitrate of mercury—the Unguentum Hydrargyri Nitratis of the Pharmacopœia—well rubbed into the skin at bedtime, and further contact with the bichromate avoided. The following lotion will greatly allay the itching:—Alcohol, six ounces; carbolic acid (pure), fifty minims; glycerine, four drachms. It is a good plan after working with the bichromate in any form to make it a rule to well wash the hands and wrists in tolerably hot water with a carbolic oil-soap, and a hard nail brush. This frees the skin from the bichromate and renders it supple when dry.

In "Ex Cathedrâ," last week, was given a calcium soap containing wax, which Dr. Schleich has suggested for application to the hands before commencing work with a bichromate. It looks promising, and is worth a trial. If it proves efficacious it will be far more convenient than having to work in india-rubber gloves.

In the above we have referred to the troubles that may be caused by the bichromate, but they are never likely to occur to any but those who work with it on a large scale, and constantly for a long time. Those who work the gum-bichromate process, or amateurs who produce a few carbon prints occasionally, need have no fear of ill-effects. We can say that we have never heard of an authentic case of an amateur, or of anyone working the carbon process on a small scale, suffering any inconvenience whatever, except when a strong solution of the salt has perchance got into a scratch or cut on the fingers, and that need only have been temporary had the place been treated as above. An old aphorism has it that "prevention is better

than cure," and it is always well when dealing with substances of a poisonous character to be as careful as possible in handling them. We must defer some notes on other poisons to a future article.

PRINTING PROCESSES.—III.

PLAIN OR SALTED PAPER.

It may seem somewhat superfluous to give any instructions for printing, but we recognise that there are a few matters which need to be explained to those who take up this process for the first time. In the first place the paper must not be too dry. It has even been recommended that it should be placed for a short time between damp blotting paper or placed in a box and this filled with steam. The danger consequent on such procedure is obviously silver stains on the negative, and we have never found it necessary except in extremely hot and dry weather to damp the paper. Even then if a sheet of the required size is placed on the bottom of an empty plate-box and a sheet of wet, but not dripping, blotting-paper be pinned to the lid and the box closed for about ten minutes, the paper will have absorbed quite enough moisture.

The negative should be a fairly plucky one and the stronger it is the brighter may be the light used for printing and vice versa. If the negative is thin, it is advisable to prolong the printing either by using a very weak diffused daylight, or weakening it by ground-glass or tissue-paper over the front of the frame. As regards the use of coloured glass for printing through, it may be at once stated that there is a good deal of misconception on this point, particularly now that the majority of negatives have a black and not a pyro-stained image. Further than this the amount of organic silver salt is relatively so small compared to the chloride and nitrate that the spectrum composition of the light does not matter much; it is the organic salts of silver that are more sensitive to green and blue-green than the chloride, the maximum of sensitiveness of which is in the violet and ultra-violet. Still as a coloured glass, particularly a chromium green or even a cathedral green, reduces to some extent the violet rays, and thus weakens the light, the prints may show greater brilliancy if such a filter is placed over the frame.

In the matter of the depth of printing there is no guide; it is dependent on the toning bath and on the actual colour or tone that is required. The more nearly this is to approach black, the deeper must be the printing; paper that has been sensitised with an ammoniacal solution, or has been fumed, must be printed much deeper than the acid silvered paper. Still, one may safely say that printing should be continued until the highest light to be approximately white in the finished print is fairly deeply tinged.

After printing, the prints should be well washed in running water or in frequently changed waters. As there is practically no film to retain the silver salts, they wash out rapidly and the waters should be changed at least every two minutes, till the print drains clear. To obviate this washing, the whole of the silver salts in the paper may be converted at once into insoluble chloride. To this end the prints are immersed, without previous washing, in a salt bath, but the solution must be weak, not stronger than 1 in 80. On the whole it is preferable to wash rapidly in pure water.

Any toning bath may be used, but as there is no protective coating to the image, it tones very quickly, and overtoneing, which is always known by the flat grey sunken-

in look, soon takes place. Therefore, no matter what formula is adopted, it must never be stronger than one grain of chloride of gold to the pint. The simplest bath of all is the following:—

Chloride of gold	1 grain.
Prepared chalk	$\frac{1}{4}$ oz.
Water	20 oz.

Shake well, allow to stand till clear and use the clear solution.

Gold nearly always gives tones which have a violet tinge, that is to say they are those known for so many years as "photographic browns" "photographic purples." A much more pleasing tone can be obtained by using platinum as the toning agent. The tones given by this are yellowish-browns tending towards black, some of which are called sepia, but they are not sepias at all.

For platinum toning any formula may be adopted, but it should not contain nitric acid, which reduces the intensity considerably; it is far preferable to use the ordinary phosphoric bath weakened, as follows:—

Potassium chloroplatinite	2 grains.
Dilute phosphoric acid	$\frac{1}{4}$ oz.
Water	20 oz.

and for this bath and in fact all platinum baths, the prints should be immersed for five minutes in the above mentioned salt bath.

Pure black tones are not readily obtainable on plain paper, but rich warm blacks may be, either by first toning the prints lightly in the gold bath suggested above, and then washing and immersing in the platinum bath, or by using the platinum bath direct. This may seem troublesome, but it is easy and takes but little time. There is yet another method that may be adopted, and that is to immerse the prints in the gold bath and as soon as they begin to change colour, remove them and add to the bath some chloroplatinite solution and again immerse the print. The chloroplatinite reduces the gold and possibly is itself also reduced, with the result that very rich deep tones are obtained.

There is one point in connection with the use of platinum that should not be overlooked, namely, the extreme facility with which yellowing of the whites is caused. Too slow a toning bath will always give this, and, therefore,

some attention should be paid to the temperature of the bath. About 65 deg. Fahr. is right, or if one does not care to fiddle about with the temperature, then as a general rule it may be stated that if in three minutes there is not a decided toning action, the bath must be at once strengthened or heated.

As regards the fixing of the prints we will, notwithstanding the danger of being accused of reiteration, point out that there is no protective medium in plain salted paper, and therefore the hypo bath must not be used so strong as it usually is. A 10 per cent. solution of hypo is quite strong enough, and five minutes' fixing is sufficient provided the bath is not chilled. A freshly mixed hypo bath has a very low temperature and fixes slowly; but at the temperature of an ordinary room, say 56 deg. to 60 deg. Fahr., the above bath is quite strong enough and will do its work in the time above prescribed.

There is only one further point which we must insist on, and that is the complete elimination of the platinum bath prior to fixing. When gold is used as the toning agent, the toning bath is always alkaline, or should be, and if the print is dropped direct into the fixing bath no harm is done; any gold hyposulphite that may be formed is perfectly soluble. But in the case of platinum, the toning bath is acid, and if traces are introduced into the fixing bath the hypo is decomposed and general yellowness may be caused. Also, platinum hyposulphite is an extremely insoluble salt, and is one of the best means of producing general yellowness and patches.

We trust that these few notes on plain paper printing will be acceptable to many and lead some who have not yet tried the process to experiment with it. Considering the enormous number of printing papers now commercially available and the various surfaces also to be obtained, it would seem somewhat supererogatory to direct attention to yet another; but there are many to whom the home preparation of a paper or other material presents considerable charm, and there is no doubt that suitable choice of a particular class of paper and the home sensitising on the lines we have laid down give opportunities for the exercise of individual taste from which a photographer may expect benefit. We cannot conceive of the process being extensively employed, but whilst the bulk of a studio's output is gelatine, collodion, platinum, carbon or bromide, there may yet be room for occasional and effective use of plain paper.

PAPERS ON PRACTICAL PHOTOGRAPHIC OPTICS.

III.

THE third article of a short series. The two previous contributions (THE BRITISH JOURNAL OF PHOTOGRAPHY, April 28 and May 5) dealt with "Focussing Scales and Depth of Field," and "Lens Calculations without Arithmetic." Next subject, "The Speed of Telephoto Lenses when Employed on Near Objects."

Let A' A A'' be three points on the axis of a lens, and let rays proceeding from them be brought to a focus at B' B B'' respectively. Let C be the centre of the lens, let its diameter be denoted by a , its focal length by f , and let $CA' = u'$, $CA = u$, $CA'' = u''$, $CB' = v'$, $CB = v$, and $CB'' = v''$. Then by the fundamental equations connecting conjugate foci we have:—

$$\frac{1}{u'} + \frac{1}{v'} = \frac{1}{f} \quad (1) \quad \frac{1}{u} + \frac{1}{v} = \frac{1}{f} \quad (2) \quad \frac{1}{u''} + \frac{1}{v''} = \frac{1}{f} \quad (3)$$

These equations generally hold only when the lens is an indefinitely thin one, but if we measure u , v , not from C but from the nodal points, they will be true, and the conclusions to be drawn from the subsequent calculations will not be vitiated by taking the simpler case instead of the more accurate one, which would render the diagram more complicated.

It is evident that if we place the ground-glass focussing screen so that it passes through B , A will be represented by a point, but A' by a disc (called a circle of confusion), formed by the rays which after passing through B' have begun to diverge, and A'' by another circle of confusion formed by rays which have not yet come to a focus. Let us call the diameter of the former d' , and that of the latter d'' .

Then by similar triangles, D' B' B, E' B' C:—

$$\frac{d'}{a} = \frac{BB'}{B'C} = \frac{BC - B'C}{B'C} = \frac{v - v'}{v'}$$

whence

$$d' = \frac{a(v - v')}{v'}$$

But from (1) and (2)

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{u'} + \frac{1}{v'}$$

or

$$\frac{1}{v} - \frac{1}{v'} = \frac{1}{u'} - \frac{1}{u}$$

whence we get

$$\frac{v' - v}{v'v} = \frac{v(u - u')}{uu'}$$

and consequently

$$d' = \frac{av(u' - u)}{uu'} \quad (3)$$

Again, from similar triangles, D'' B'' B, E' C B'':—

$$\frac{d''}{a} = \frac{BB''}{CB''} = \frac{B'C - BC}{CB''} = \frac{v'' - v}{v''}$$

from (2) and (3), proceeding in a similar way, we get:—

$$\frac{v'' - v}{v''v} = \frac{v(u - u')}{uu''}$$

and

$$d'' = \frac{av(u - u')}{uu''} \quad (4)$$

and from (2) we get:—

$$v = \frac{uf}{u - f}$$

Substituting this value for v in (3) and (4) we get:—

$$d' = \frac{af(u' - u)}{u'(u - f)}$$

and

$$d'' = \frac{af(u - u')}{u''(u - f)}$$

If, in accordance with the usual custom, we express the aperture as a fraction of the focal length and put $a = \frac{f}{n}$, these two

equations will become:—

$$d' = \frac{f^2(u' - u)}{nu'(u - f)} \quad (5)$$

$$d'' = \frac{f^2(u - u')}{nu''(u - f)} \quad (6)$$

These are the equations from which we shall derive certain conclusions.

Suppose we wish to focus A accurately, and to have an equal amount of diffusion in the images of A' and A''.

Then putting the values for d' and d'' in (5) and (6) equal to one another, we get:—

$$\frac{u' - u}{u'} = \frac{u - u''}{u''}$$

or

$$1 - \frac{u}{u'} = \frac{u}{u''} - 1$$

whence

$$\frac{1}{u'} + \frac{1}{u''} = \frac{2}{u}$$

showing that $\frac{1}{u}$ is the arithmetic mean between $\frac{1}{u'}$ and $\frac{1}{u''}$, or u the harmonic mean between u' and u''. Or, to state the matter more simply:—

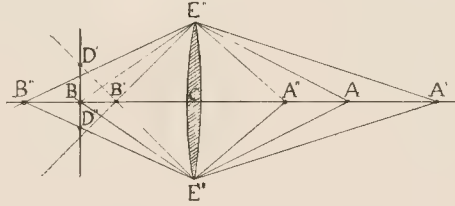
$$u = \frac{2u'u''}{u' + u''}$$

That is, in words, u is equal to twice the product of u' and u'' divided by their sum.

This result is of practical use, as it tells us the distance from the lens of the point intermediate between two others that we must focus in order that these two may be represented with equally sharp definition.

Suppose, for example, we are using a camera with a focussing scale, and we want to focus so that objects at ten and thirty yards may be equally sharp. The equation shows that we must set the lens so that an object at $\frac{2 \times 10 \times 30}{10 + 30}$ or $\frac{20 \times 30}{40}$, or fifteen yards, is in absolute focus.

It will be seen from this example that the required point is nearer to the nearer object than to the more remote. We can show that this is always the case.



Suppose, as in our diagram, u' is greater than u''. Then, if A' and A'' are the two given points, and that A is the point we have to focus:—

$$AA' = u' - u = u' - \frac{2u'u''}{u' + u''} = \frac{u'^2 - u'u''}{u' + u''}$$

$$AA'' = u - u'' = \frac{2u'u''}{u' + u''} - u'' = \frac{u'u'' - u''^2}{u' + u''}$$

Then

$$AA' - AA'' = \frac{u'^2 - 2u'u'' + u''^2}{u' + u''} = \frac{(u' - u'')^2}{u' + u''}$$

As this difference is always positive, AA' is greater than AA''.

Returning to equation (5). We may divide numerator and denominator by u', and we get:—

$$d' = \frac{f^2 \left(1 - \frac{u''}{u'}\right)}{n(u - f)}$$

Now if u' is made infinite, we must neglect $\frac{u''}{u'}$ and $d = \frac{f^2}{n(u - f)}$

This will give us the diameter of the circle of confusion of the image of a point at a distance u, when the lens is set so that objects in the extreme distance are in absolute focus.

It is generally assumed that if d does not exceed 1-100th inch, an ordinary eye will not detect want of sharpness if the photograph is held at the nearest distance of ordinary vision of a normal eye—that is, about twelve inches.

From this, or some equivalent, formula, the tables of distances beyond which all objects are practically in good focus, when the lens is set so that distant objects are in absolutely correct focus have been calculated.

To take an example. Suppose the lens is one of 5 in. focus, and the stop used is the one marked f/8.

Then

$$\frac{1}{100} = \frac{5^2}{8(u - 5)}$$

whence

$$u - 5 = \frac{2,500}{8} = 312\frac{1}{2} \text{ in.}$$

$$u = 317\frac{1}{2} \text{ in.} = 26 \text{ ft. } 5\frac{1}{2} \text{ in.}$$

Sir David Solomon's table, published in the BRITISH JOURNAL ALMANAC (p. 1,158), gives 27 ft., and Dr. Higgins's 26 ft. Our formula gives in like manner, 13 ft. 8 in. for a lens of 4 in.

working at $\frac{1}{10}$ J. H. Dallmeyer's table, 14 ft.

But supposing instead of focussing for a distant object, we focus for an object at the distance given by our equation. Let us see what would be the diameter of the disc of confusion for an object at infinity. First we get $u - f = \frac{100f^2}{n}$, substituting this

in the equation:—

$$d' = \frac{f^2(u' - u)}{nu'(u - f)} \\ d' = \frac{f^2(u' - u)}{nu'(u - f)} = \frac{u' - u}{100u'} = \frac{1 - \frac{u}{u'}}{100}$$

we get

or, making u' infinite $d' = \frac{1}{100}$.

That is to say, according to our assumption, the most distant objects will be practically in focus.

Now finally let us determine what is the nearest object that will be in focus.

We have already shown that if u' , u , and u'' , are the distance of three objects, and if we focus accurately the object at the distance u , then the one at distance u' will be in as good focus as one at distance u'' , provided that $u = \frac{2u'u''}{u' + u''} = \frac{2u''}{1 + \frac{u''}{u'}}$.

Now make u' infinite, and we get $u = 2u''$, or $u'' = \frac{u}{2}$.

This shows that if instead of focussing so that the object at an

infinite distance is in absolute focus, we focus so that the circle of confusion for a point at infinity has a diameter not exceeding $\frac{1}{100}$ in., then an object at only half the distance given in the

tables will also be in appreciable focus.

To return to our numerical example. If we have a 5 in. lens working at $f/8$, and first focus an object on the extreme distance, and then rack out as far as possible without visibly impairing the definition of this object, we shall find that all objects beyond about 13 ft. will be in appreciable focus at the same time.

T. PERKINS, M.A.

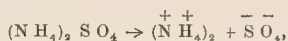
MODERN CHEMISTRY FOR PHOTOGRAPHIC WORKERS.

III.—THE APPLICATION OF THE IONIC THEORY TO CHEMICAL REACTIONS.

Anions and Kations.

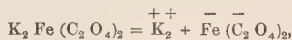
We have seen that if salts are dissolved in water they may be imagined to split into parts called ions, these ions consisting of atoms of the elements, which differ from ordinary atoms in that they carry an electric charge. Broadly, it may be said that all salts split into two parts, and these two parts constitute what we are accustomed to consider the basic and acidic constituents of the salt. For instance, potassium chloride splits into potassions and chlorions, while copper sulphate splits into cuprions and sulphions. Of these two parts, the basic or metallic ion has a positive charge, and is consequently deposited on the negative kathode in an electrolytic cell, while the acidic ion has a negative charge, and is liberated at the anode.

The metallic ions are consequently termed kations* and the acidic ions are termed anions*. Thus hydrogen, sodium, copper, silver, gold, etc., form kations with a positive charge, while oxygen, chlorine, bromine, sulphur, etc., form anions with a negative charge. But ions frequently consist, not of single atoms, but of groups of atoms associated with an electric charge. Thus ammonium sulphate splits up according to the equation:—



Giving rise to two ammonium ions with one positive charge each and one sulphate ion with two negative charges.

In the same way, we can get an element which generally forms kations forming part of a complex anion. Potassium ferro-oxalate, for instance, which is the active principle of the ferrous oxalate developer, dissociates according to the equation:—



and it is this ferro-oxalation with two negative charges which really forms the developing substance.

Reactions are Between Ions.

While all this discussion of the state in which salts exist in solution is of very great interest, it is only when it is applied to chemical reactions that the real importance of this point of view becomes evident. It is, indeed, not too much to say that the development of the ionic theory has caused us to alter entirely our ideas as to chemical reaction, and has greatly changed the very equations in which we have been accustomed to express the reactions which occur. A great number of formerly complicated equations have been so altered by the ionic theory as to become expressible simply as a shifting electric charge.

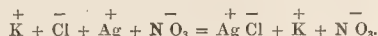
(* Ana=up; kata=down; ion=mover; hodos=a way.)

It is clear that the great majority of reactions, especially those occurring in water solution, occur between ions, and not between molecules at all. All chlorides in water solution, for instance, react with silver nitrate solution to precipitate silver chloride. If we considered the subject from the older standpoint, it is not at all clear why all chlorides should behave alike in this respect. The ionic theory, however, gives us the clue at once—silver nitrate is a test, not for chlorides, but for chlorions in solution.

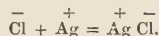
Let us think what happens. The old form of the equation is



Ionise both sides of this equation, we get:—



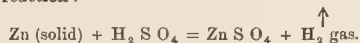
The AgCl is unionised because it is insoluble in water and is consequently precipitated. We can see that on both sides of this equation we have potassium ions and nitrate ions which have not been changed, so that we can more simply write the equation:—



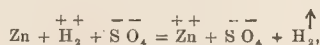
That is to say, silver ions form a test for chlorions because the charges are neutralised, insoluble silver chloride being precipitated.

The Ions of Acids and Alkalies.

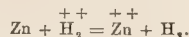
In the same way, if sulphuric acid acts on zinc, we can write the reaction:—



Ionising

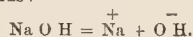


or more simply,



That is, the reaction is simply a transfer of two positive electric charges from two hydrogen ions to one zinc atom.

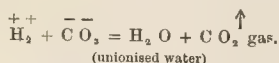
This leads us to another discovery. Acids owe their properties to the presence of hydrogen ions, and the strength of the acid depends on the number of these hydrogen ions present. In the same way, alkalis owe their properties to the presence of hydroxyl ions, thus:—



The Action of Solutions on Solids.

We next come to another question. What happens when a solid is acted on by a solution? If we pour dilute hydrochloric

acid on marble we get off bubbles of carbonic acid gas. Since we must consider our hydrochloric acid as ionised, we can most simply represent the facts by imagining the marble to be surrounded by a film of dissolved calcium carbonate, so that the reaction proceeds between this dissolved marble, which, because it is in dilute solution, will be very completely ionised, and the hydrogen ions, according to the equation:—

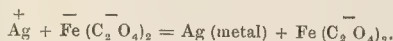


As fast as the calcium carbonate is decomposed in this way more dissolves from the marble, and so the reaction progresses.

Photographic Development.

Development may be considered to take place in exactly the same way. In this case we have silver bromide going into solution and being ionised into silver ions and bromions, while in the case of ferrous oxalate, the ferro-oxalate reacts.

Development with ferrous oxalate may therefore be represented by the equation:—

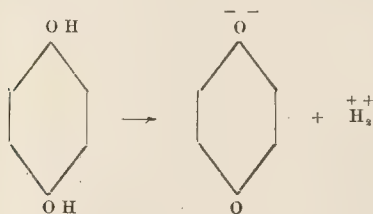


This last ion couples up at once with an oxalate:—



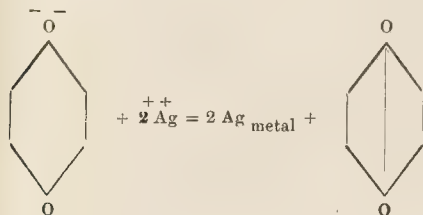
so that development with ferrous oxalate is simply the neutralisation of a charge on a silver atom at the expense of one of the charges of the ferro-oxalate. Of course, the discharged silver atom is at once precipitated as metallic silver. In the same way exactly hydroquinone is ionised, but with this difference, that hydroquinone can only form ions in the presence of alkalis. This, in fact, is the reason why alkalis are necessary for development with the phenolic organic developers, not in order to soften the gelatine or anything of that kind, but simply to form the ions by which development is performed.

The developing ion of hydroquinone is formed according to the dissociation equation:—



and since hydroquinone is a very weak acid indeed, this reaction is only possible in presence of a strong base, such as soda or potash.

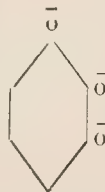
It will be seen that this hydroquinone ion can easily react with two silver ions according to the equation:—



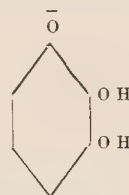
that is to say, the hydroquinone ion loses two electric charges

—which neutralise the charges on two silver ions—and forms quinone, the well-known oxidation product of hydroquinone.

In the same way pyrogallol, in presence of alkali, will be ionised, giving an ion



which has three negative charges; but Valenta has suggested that if only a small quantity of caustic alkali be added another ion,



with only one negative charge, and with very different developing properties, may be obtained.

Since the developing properties of a solution depend upon the number of active ions which it contains, it is clearly a matter of importance to be able to measure the amount of ionisation which it has undergone. As a general rule, it may be observed that the more dilute the solution the greater the ionisation, until at infinite dilution the ionisation will be complete. The amount of the ionisation may be very easily measured by means of the osmotic pressure, as has previously been explained, the osmotic pressure being calculated from the difference of freezing or boiling point existing between the solution and the pure solvent.

If, for instance, we have a solution of potassium bromide, and, on measuring the osmotic pressure we find that it is 1.4 times that which would have been calculated from the formula K.Br., it is clear that the solution contains 1.4 times too many molecules, or that 40 per cent. of the molecules have split into two, that is, become ionised. There is, however, another way of measuring the state of ionisation of a solution. We have seen that the conductivity which a solution exhibits towards an electric current depends solely upon the ions which it contains. Consequently we can calculate the state of ionisation of a solution by measuring the conductivity which it possesses. At infinite dilution we assume that all the salt which we have introduced into the solution is completely ionised, and, consequently, if at very great dilutions the gram gives us a conductivity of 1, while at the dilution at which we desire to determine the ionisation we have a conductivity of .6, we conclude that only 60 per cent. of the molecules are ionised. Since even completely pure water has been shown by Köhler to have a small conductivity, we may conclude that water itself is very slightly ionised according to the equation:—



It may be remarked, however, that practically nothing is yet known as to the state of ionisation of the usual developing agents, and in most cases their oxidation products are undetermined.

C. E. KENNETH MEES, B.Sc., F.C.S.

THE WEEK IN HISTORY.

Daguerreotype in 1826.

WHEN Daguerre and Niepce entered into partnership on December 14, 1829, one item of the compact between the two inventors was that each should disclose to the other the progress made in his researches. It is beyond doubt that Niepce did actually hand to Daguerre an account of the process which represented more than ten years' experiment. It is his "Notice sur l'Héliographie," and Daguerre published it in 1839 with a number of sharp footnotes drawn up to show that the Daguerreotype process had nothing in common with Niepce's methods. What Daguerre disclosed to Niepce I have never been able to discover. In April, 1827, Daguerre sent to Niepce a print in sepia, which he alleged to be produced by his photographic process. Dr. Lindsay Johnson, in the "Photographic Journal" for March of this year, refers to this offer of Daguerre's as a successful "bait," and it certainly is doubtful whether Daguerre had any sort of a process at this time. The deed of partnership drawn up two years later only credits Daguerre with "a newly-designed camera," and there is no evidence to support the view that Daguerre had made any progress whatever towards the realisation of his cherished ideal—the fixation of the camera image.

There is one curious fact, however, which may be set down. On February 18, 1839, a paper was read by Biot before the Paris Academy of Sciences, describing how to prepare a sensitive photographic paper by a process strongly resembling that of Wedgwood, forty years before. This process, Biot declared, was used by Daguerre in 1826, and I have seen it stated that a description of it was handed to Niepce on May 21 of that year, though I confess I have not been able to confirm the correctness of the statement. The process consisted in treating paper first with feebly acid "ether muriatique" (from the action of hydrochloric acid on alcohol), and then with silver nitrate. There was no fixing process. The copies had to be kept in the dark.

Roll-film of Fifty-one Years Ago.

Who says that focussing the picture when using roll-films is original with the inventors of the present decade? It was one of the features of the very first roll-holder—that of Spencer and Melhuish. They provisionally patented their apparatus on May 22, 1854, but they allowed the patent (No. 1139) to lapse. The specification, however, is for an appliance "by means of which a person may more conveniently carry out and use any quantity of prepared paper or surface in such manner as to obtain in succession a series of photographic pictures, the parts of the paper or sensitive surface, not for the time being in use, being rolled up within the frame for the camera. For this purpose the frame in which the prepared surfaces are employed is fitted up with two rollers, and the sensitive surfaces are connected together so as to produce a long sheet, suitable for receiving in succession several or many pictures; and in using the apparatus, after one picture has been taken, that part of the prepared sensitive surface is wound up on to one of the rollers, and a fresh quantity of the prepared surface, suitable for receiving another picture, is unwound off the other roller, and so on, till all the prepared paper or surface on the roller has been used."

EXHIBITION of the West Surrey Photographic Society.—At the recent Exhibition of the West Surrey Photographic Society (the seventeenth annual) the awards were as follows, the judges being Messrs. A. Mackie and W. Rawlings:—Silver plaque for the best picture in exhibition, "From the Sunny South," Mrs. W. H. Goy. Champion Class (members who have previously won awards at this

But note the ingenious way which the patentees propose to focus the picture with the sensitive surface *in situ*:—"In some cases, particularly when using waxed paper, in place of focussing on to a plate of ground glass I focus directly on to the prepared surface, having previously placed a plate of yellow glass in front of the lens, to prevent the light from injuriously affecting the surface, and also another plate of yellow glass behind the paper with a similar object." The slow papers of the fifties had some advantages after all.

Varieties of Roll-holders.

A correspondent lately drew my attention to some roll-holders other than those I have mentioned in these articles, and though it is not my object to deal exhaustively with every piece of apparatus from the historical standpoint, I may extract briefly from my good friend's notes. In the year 1857 C. J. Burnett described a roller-slide for the exposure of lengths of sensitised waxed paper (Sutton's "Photographic Notes," 1857, p. 203). His idea included panoramic pictures, and he suggested the photographing of the complete horizon with a view to preparing in this way the panoramic exhibitions which were popular in these days.

Another arrangement was that of Silvy, patented in 1867 (No. 2,170), by which the complete circle was photographed (see Sutton's "Photographic Notes," 1867, p. 292). Silvy's apparatus was primarily for panoramic work, and he does not appear to have troubled about the daylight changing of sensitive film or paper for ordinary photography.

It is worth mentioning that Silvy actually uses the term "cartridge": "Thus the operator carries in his pocket a cartridge containing a long roll of sensitive paper, and when he wishes to take a view he inserts the cartridge within the camera, connects a simple mechanical contrivance with it, unrolls the paper against the curved glass, and exposes it."

Then there was the film or paper chamber of Thomas Wiseman ("The Illustrated Photographer," April 29, 1870), which was a sort of film camera worked in conjunction with a reversing mirror, by which negatives suitable for single transfer printing were obtained, though why they wanted to make reversed paper negatives I am at a loss to say.

Dry Collodion Again.

In the fifties and sixties of the last century experimenters were busily at work in attempts to rob wet collodion of its outstanding drawback—the need of exposing the plate immediately after exposure. I have already referred to Gaudin's efforts in this direction, and I may record a paper of his published in "La Lumière," for May 22, 1854, in which he recommends a sensitising bath of 5 per cent. silver nitrate containing 5 to 10 per cent. of zinc nitrate and the same proportion of white sugar. These hygroscopic bodies in the collodion film preserved the plate for several hours, and, after a further treatment in a silver bath after exposure, it was developed with a strong iron developer without markings from its protracted retention in a moist condition before exposure. The process is practically that of Crookes and Spiller, to which I referred in "The Week in History" for April 28.

HISTORIUS.

exhibition).—Bronze plaques: "Snow and Fog in January," A. Lockett, "Hay Time," H. Wright; highly commended, "Polyscope Designs," R. H. Baskett. Class II. (members who have not previously won awards at this exhibition).—Bronze plaques: "Daffodils," W. H. Goy, "On the Cornish Coast," V. Nichols. Lantern Slides.—Bronze plaque: "Russet Leaves of Autumn," W. H. Goy.

MARINE PHOTOGRAPHY.

THE opening of the one-man show of "Marine Photography and Wave Studies," by Mr. F. J. Mortimer, F.R.P.S., at the Royal Photographic Society, on Tuesday last, gave that worker an opportunity to make some practical remarks on the subject of photography of the sea. He said that the first aim of the marine photographer should be to secure a truthful rendering of the actual scene of motion, endeavouring, if possible, to catch the picture at the right moment, when the composition had assumed its most likely correlation of parts. A quick eye was essential, and the mind had to be made up rapidly, as there was no chance of exactly the same combination of form appearing again.

Different Kinds of Waves.

The difference in wave forms were remarkable—locality and circumstances had much to do with their formation. Natural and regular waves were only to be found far at sea, away from any disturbing obstructions in the shape of rocks. Waves nearer the coast far exceeded in violence and size the natural deep sea waves, and assumed far more fantastic shapes. Breakers and surf were the result of the upper part of the wave being urged on by wind or storms, while the lower part was obstructed by rocks, sand, weeds, or adverse currents. The spray was carried by the wind and its own impetus to great heights, and proved the worst obstacle to be overcome when taking photographs among the breakers. It not only rendered the lens temporarily useless, but would soon entirely spoil any exposed brass-work on the camera.

Difficulties and Costume.

The great trouble in all pictures of big waves, whether at sea or among the rocks, was the lack of scale; and the only way to carry conviction was to photograph the same scene later in calm weather, showing the same rock formation, but with a man or boat included to convey the idea of the relative scale of the wave in the storm picture.

A tripod was of very little use in this sort of work, and not much rope was offered or possible for focussing on the ground glass. The worker, therefore, should accustom himself to holding the camera readily in the hand at eye level, by means of a strap handle, and aiming it at the scene to be photographed. The ball of the pneumatic release of the shutter could be held between the teeth, and smartly bitten at the instant of exposure.

A certain amount of physical strength and recklessness was necessary for the wave photographer, as occasional bruises and broken apparatus, to say nothing of frequent drenchings, were very likely to occur. In some cases a companion and a stout rope were essentials for success when working among dangerous rocks.

Oilskins and sea-boots were the only possible kind of clothes that could stand the wear and tear of the work, and Mr. Mortimer suggested oilskin trousers, short coat, and sou'-wester worn over a lightannel outfit as the best costume. In any case, the ordinary mackintosh was worse than useless on very rough days, and would only prove a hindrance.

Points of View.

It would be found a mistake to point the camera down when standing at any height above the sea level, with the idea of including the more foreground or to make the waves appear bigger. The correct effect would be that the water was running uphill to the horizon, and anything in the shape of boats, etc., in the distance would appear as if stuck on the top of a wall.

An interesting series of wave and rock pictures could be easily obtained on a suitable day without moving a great distance from a chosen spot. First of all, a great variety of lighting presented itself according to the time of day. Then, by slightly altering the direction

in which the camera is pointed, pictures that showed considerable difference in character could be obtained. While perhaps the greatest variety of all could be obtained from about the same standpoint by taking a series of pictures at different states of the tide.

Lenses of different focal lengths were also useful to give different renderings to the same subject, but a lens of the greatest focal length that could be reasonably used should always be employed. Telephotography was not very useful in rough weather, owing to the cumbersome apparatus and vibration caused by wind, etc. A note of warning was necessary to the photographer climbing over the slippery rocks, to sound all footholds before venturing forward, and also to see that there was a safe line of retreat before going too far out on the rocks when the tide is rising.

Studying the Subject.

Fine wave studies could often be obtained on windless, sunny days, when a strong ground sea was running. The ground sea, usually in the form of huge rollers, were at the time the only indication that reached the land of a storm far at sea.

Before attempting to photograph waves breaking on to rocks, the moving masses of water should be carefully studied for a time until the character of the advancing wave could be gauged to a nicety, and its point of breaking foretold. There was no doubt that an extra big wave recurred at more or less regular intervals, and the interval became more certain when the rollers advance from a settled direction—wind blowing inshore and tide rising. It would probably be found, however, that if there was a cross current, or if the rocks against which the waves were dashing were on a jutting headland, the breakers occurred first from one direction and then from another a point or two to the right or left. They approached the rocks and broke alternately, and it would be noticed that frequently both masses of water would meet and break simultaneously, and an extra big wave would result. This was the opportunity to take advantage of to secure the most striking result.

Exposure.

As regards the actual moment of exposure, it would be found that in every wave form, when it strikes amongst rocks, there was an instant when the mass of water is at its maximum height, and remains stationary, suspended in mid-air. That was the moment the exposure should be made, and far finer results will be obtained than with indiscriminate "potting" at the rushing water. As regards the lens, a high-class anastigmat was not absolutely necessary, owing to the high actinic quality of the light usually present. The ordinary R.R. lens, stopped down, was generally good enough for most work; and as a rough guide it would be found that with a rapid plate (about 200 H. and D.) $f/16$ and 1-100th of a second would give a fully exposed plate at noon in early spring. In bright sunshine a smaller stop could frequently be used, or a shorter exposure given.

The bright, sunless day, with driving wind clouds, was possibly the ideal day for wave photography, and frequently fine results were obtainable on dull, grey days.

Hints on Apparatus, etc.

Very little tripod work was practicable in rough weather, so it was best to always use the camera in the hand, and use a direct vision view-finder of large size at the eye level.

Half-plate was quite large enough for all purposes, and in all cases the entire camera, etc., should be enveloped in a protective waterproof covering of oilskin or rubber, made to fit, and leaving only apertures for the lens and shutter release. Flaps should be made to button down all round, to get at slides and set the shutter, etc., and even then the camera and lens should not be exposed to the

direct action of the flying spray more than necessary. A frequent coating of vaseline on all brass binding, leather, and woodwork would do much to ward off the attacks of the salt water and air.

Although it had been found possible to occasionally secure wave pictures with an exposure of 1-15th of a second, Mr. Mortimer found that 1-30 to 1-130th were the exposures that were most likely to give good results, and to convey the idea of motion well.

Of the four types of shutters tried, viz., the metal diaphragmatic, time and instantaneous roller blind, the foreground and focal plane shutters, the first was useless for wave work, being all metal, and also leaving the front of the lens exposed; the other three were all good at times, particularly the foreground shutter, when there was a dark, rocky foreground and clouds in the sky. The focal-plane shutter, however, gave a rendering to these subjects that could not be surpassed by the other shutters—that is, provided it was not used at too great a speed, in which case the water would appear frozen, or look as though stamped out of tin. The focal-plane shutter scored most on dull days, owing to its high efficiency. A comparatively smaller stop could be used with this shutter with approximately the same exposure given by the before-lens variety, as in practice it would be found that it admitted about three times the amount of light with a given exposure than any other form of shutter giving the same approximate exposure.

In all cases the lens should be well protected from flying spray, and the best type of camera for the work should have a focal-plane shutter at the back and a before-lens shutter in front. The exposure would then be made by uncovering the lens, releasing the focal-plane shutter, and quickly covering the lens again, an operation that could be accomplished in about one-second.

Practical Work.

The camera should not as a rule be pointed straight at the incoming breakers, or the picture will appear to lack stability, and the repetition of horizontal parallel lines of rollers was displeasing, while those breaking in the immediate foreground would have a "lace-curtain" effect. The breakers or rollers should therefore always be taken, if possible, at an angle if the most pictorial effect was aimed at. The shore or rocks should run more or less diagonally across the base of the composition, and the breaking wave should be taken more in "profile" than "full face." The idea of action was thus better conveyed. In reference to telephotography for this subject, practical experience pointed to the fact that the conditions were altogether adverse to its employment, particularly as very little focussing or composing of the subject could be attempted on the ground glass, and the camera could not often be used on a tripod or the lens left uncovered for long.

If it was absolutely necessary, a piece of thin glass, such as a lantern-cover glass, could be held temporarily over the front shutter with elastic bands, and the picture composed through it, but focussing should not be attempted with this glass in position.

The late autumn or early spring were the best times of year for big wave photography, and the whole of the winter was also available, but usually the days were so short that not much work could be accomplished.

Plates and Films.

Films and colour-sensitive plates were more liable to attack by the salt air than ordinary plates. Plates and films should therefore be very carefully packed both before and after exposure, wrapped in oiled paper and kept in an air-tight tin box, if possible. Otherwise, if kept for any time before development, mould spots or even a salt crystallisation would appear, even after fixation, washing, and drying in a damp salt atmosphere. The plates should not be kept in the dark slides longer than was absolutely necessary.

Colour-sensitive plates and screens would be found useful at times,

when all else had failed to render the relative tone values of rocks and waves satisfactorily, but they were not always necessary, as in most instances a fairly quick ordinary plate (backed) and foreground shutter would prove sufficient. The light was so actinic and the contrast between the intense white foam and blue sky so marked, that unless considerable care was taken, colour-sensitive plates and screens would be likely to give over-correction, and render the sky unnaturally dark. They usually scored, however, when dark green rocks were included in the picture! These, under ordinary circumstances, would photograph black, but they could usually be correctly rendered with the assistance of the iso plate and screen. The plates should always be backed, owing to the violent light and shade contrasts that frequently occurred.

The Negative.

As the negatives were usually high-speed snap-shots of subjects teeming with light and atmosphere, and yet sometimes containing strong contrasts in the shape of dark rocks and white foam, development should be undertaken with considerable caution. Slow development in a very weak developer was best suited to the class of negative desired, and stand development, using a dilute adurol developer, also gave very good results. A negative full of detail, and thin, should be aimed at. This gave the rocks a chance, and it was also the right kind of negative from which to make a good enlargement.

The lecture was illustrated throughout with lantern slides which gave considerable force to the points mentioned.

THE OPTICAL CONVENTION.

THE full programme of the arrangements for the Optical Convention is now published, and will no doubt be in the hands of members by the time these lines appear. Membership of the Convention, as we have already announced, costs 5s., and applications should be addressed to the hon. secretary, Mr. F. J. Selby, M.A., Elm Lodge, Teddington, Surrey.

The following is the programme:—

Tuesday, May 30.—Opening Ceremony, Presidential Address and Conversazione, Large Hall, Northampton Institute, 8 p.m. (admission by invitation card only).

Wednesday, May 31.—Exhibition open to Members and Public, 10 a.m. to 10 p.m.

Meetings for Reading of Papers, 10 a.m. to 1 p.m.

Demonstrations, 2.30 p.m.

Thursday, June 1.—Exhibition open to Members and Public, 10 a.m. to 10 p.m.

Meetings for Reading of Papers, 10 a.m. to 1 p.m.

Historical Collection of the Royal Microscopical Society. Open to Members, 2 p.m. to 5 p.m.

Lecture by Prof. Silvanus P. Thompson, B.A., D.Sc., F.R.S., on "The Polarisation of Light by Nicol Prism and their modern Equivalents," at 8 p.m. (Members and Invited Guests only).

Friday, June 2.—Exhibition open.

Meetings for Reading of Papers, 10 a.m. to 1 p.m.

Meeting of Members.

Demonstrations, 2.30 p.m.

Business Meeting of Members, 3 p.m.

Dinner of the Optical Society.

Saturday, June 3.—Exhibition open.

Meeting for Reading of Papers.

Laboratories of University College, Gower Street, open to Members, 11 a.m. to 1 p.m.

Excursion to National Physical Laboratory in the afternoon, by kind invitation of the President.

The papers to be read make a long list, but we name those of most interest in photographic optics:—

Wednesday (10 a.m.).—Discussion on Aberrations. Papers by Dr. W. Drysdale and Mr. S. D. Chalmers, M.A.

Thursday, Section I.—Polishing of Glass Surfaces, by Lord Rayleigh. Section II.—Stereoscopic Vision, by Mr. C. S. Crawley.

Friday, Section I.—Early History of Tele-photography. Major General Waterhouse, I.A. Section II.—Tricolour Photography. Mr. A. J. Bull.

Saturday.—Some Directions of Progress in Optical Glass. Mr. W. Rosenhain, B.A.

The Northampton Institute, where the Convention is held, is easily reached from all parts of London, as it is but a few yards from the "Angel" Station of the City and South London Electric Railway, and situated near to several bus routes.

Photo-Mechanical Notes.

Three-colour Direct on Dry Plates.

Now the hot weather is approaching, and collodion emulsion begins therefore to give more trouble, it is worth while looking into the possibilities of bathed dry plates. Of the recent new sensitizers, Homocol appears to be one of the cleanest in working. Almost any plate can be bathed in this; but for direct work, to give a good dot, with short exposures, we have found Ilford "half-tone" particularly suitable. These can be bathed in the following solution:—

Homocol (1-1000 alcoholic solution)	4 parts.
Ammonia, .880	3 parts.
Distilled water	200 parts.

The plates should be bathed for two or three minutes, washed for three minutes, wiped over with cotton wool, and then put to dry in a dark cupboard. After washing, plates can be bathed in methylated spirit (old form) if they are wanted to be quickly dried. Screen distance may be about the same as for collodion emulsion, and exposures with good arc lamps, even through the red filter, ought not to run into more than ten minutes. An unbathed plate, of course, may be used for the blue filter.

Flashing in Three-colour.

In making screen negatives direct on collodion emulsion or dry plates for three-colour work, it is found necessary to flash—that is, to expose on to white paper in order to get a fine dot in the shadows. If this flashing is done through the filter, it is needless to say that the exposure must be long; but there is no necessity for this if there is some provision made to remove the colour filter while the flashing exposure is given. Then recap the lens when the filter is replaced for the exposure on the subject proper. It cannot possibly make any difference to the colour rendering to expose on white paper without the filter being in position; and, in the experience of the writer, it has made no difference whatever in the sharpness of the result, while the flashing exposure has been reduced in some cases from three minutes to ten seconds.

Removing Enamel from Etched Plates.

"Process Work," in the course of publishing queries, answered and unanswered, on various photo-mechanical topics, gives a number of replies from its readers for and against removing the enamel from etched plates, one or two of which run as follows:—

"It all depends on circumstances whether it is necessary to remove the enamel or not. In cases where burnishing is necessary it is better to remove the enamel. Also, when the plate is scratched on the surface it comes away with the enamel, and no perceptible mark is left on the bare metal. By leaving the enamel on you raise the

surface of the dot further from the base of the plate, thus making the plate really deeper by the extra thickness. In cases where a fine tint has been etched the enamel gives support to the roller, and obviates the tendency to 'dip.' The enamel may easily be removed by making the plate very hot, and brushing with a stiff brush, and a solution of caustic soda or ordinary potash. I find a solution of 1 lb. to 1½ gallons of water in either case very effective."

"One lb. of black ash or potash dissolved in 1 quart of boiling water will remove the hardest enamel. The method of employing it is to place the etched plate on a hot plate, and with a scrubbing or stiff brush scrub the potash solution on the plate until all the enamel is removed. Then wash under the water tap and dry the plate. When thoroughly dry rub the face of the plate with whiting, using a piece of india-rubber as the medium. By this means you will burnish the face and give it a good colour. As regards the removal of the enamel, some printers prefer the enamel removed, as they say that when the enamel begins to wear off it causes the ink to take unevenly, but the majority don't mind whether it is on or off. Most etching firms leave it on."

"There is absolutely no reason for taking the enamel off etched plates. Printers, as a rule, prefer to have the enamel on, as it will stand a considerable amount of pulls before wearing off, thereby giving longer life to the block. Again, some of the clients of process firms think that because the block has a good, bright enamel on, it must necessarily be a good block, because of its good appearance and finish. But should the enamel be weak and partly come off before the plate is finished, it will all have to be taken off and rolled up for fine etching. If it be a copper half-tone plate, it is best to place it in a dish of warm cyanide of potassium solution. But if a zinc plate, the best will be hot potash solution, wherein the enamel will easily wipe off with a brush."

Exhibitions.

PLYMOUTH.

THE Plymouth Photographic Society's exhibition was opened on Wednesday, May 10, and was continued also on Thursday and Friday, the 11th and 12th respectively, in the fine gallery of the Plymouth Institution, the Athenæum, which is the headquarters of the society.

The exhibition was formally opened by the Mayor of Plymouth, Mr. R. W. Winnicott, and is one which does the society credit. The general average of quality must have made the adjudication somewhat difficult. The judges were Captain J. S. Hawker; Mr. J. T. Fouracre, and Mr. J. D. Pode. In Class A, landscape, etc., the first award (bronze plaque) goes to "Tropical Vegetation," by Albert E. Coleman. This is a striking rather than a pictorial scene, in which the play of light is a feature. Second position (bronze plaque) is secured by a very fine piece of work—"Qui Vive," A. B. Fellowes-Prynn. This is a fine snap, at the happy moment, of two sharp, keen terriers upon a wet shore. Third place (hon. mention) goes to "Sunny Day at Lynmouth," by Frederick Johnson. Excellent technique and good in colour. Among other works in this class, reference may be made to the following:—"By Still Waters," C. H. Dymond; "Clovelly," by Wilfred Grist; "With the Tide," Wm. Clayden; "Sunshine and Shadow," by Fredk. Johnson; "A Summer Squall," by A. E. Coleman; "Evening in Harbour," by E. V. Hearn; "The Restless Sea," J. Trouern Trend.

Class B, portraiture, still life, etc., is a highly creditable one, both in point of numbers and in variety and quality. The first place (bronze plaque) is secured by "Afternoon Tea," by A. E. Coleman. This is a group of female mill workers, who are sitting and standing at

a table. There is, in the majority of cases, a freedom from posing, and the general effect is pleasing. No second award is given. The third place (hon. mention) being secured by "An Old Retainer," A. B. Fellowes-Pryne. This is a portrait study, treated in a quite unconventional way, with, perhaps, just a trifle too great strength in the surroundings; but the technical quality is very good. It is a pity that C. H. Dymond's "An Eastern Street Scene," evidently a Moroccan study, is so blurred in focus and so deeply printed. In the matter of composition the picture is a striking one. "Invocation," a figure study by the same worker, is a fine bit of work, very natural in pose and of the best technique. His "Study of Still Life" shows his versatility and his skill, for it is very successful, both in composition and photographically. "An Interesting Operation," A. E. Coleman, is a good study of children. "A Man of the Sea," by the same contributor, is a fine face and head study, of very good quality. Wm. Clayden's "A Breezy Day," is a soft, delightfully cool study of a seashore. The same worker's "A Study," a row of very juvenile puppies, is quaint and droll, and of much merit.

Class C, architecture, while not striking, shows distinct advance, most of the subjects being treated in a broad pictorial spirit. First place (bronze plaque) is secured by "Norman Doorway, Kilpeck," by E. G. Turney. Third place (hon. mention) goes to "South Choir Aisle, Winchester," by W. H. Mayne, a fine subject well handled, but not nearly so clever nor so difficult as his "Belfry, St. Germans." His "Sunbeams, the Nave, York Minster," is equally striking. A fine rendering of a church door is "St. Breage," by J. Trouern Trend, the rugged softness of which is admirably brought out. In "West Door, St. German's Church," C. H. Dymond has shown restraint and originality; and "The Great Hall, Haddon Hall," and "Christchurch Priory," by Frederick Johnson, are admirable examples of delicate photography.

Class D, lantern slides.—This proves to be a very excellent class, both in the matter of subject and technique. The first place (silver bowl), presented by Mr. J. Kinton Bond, M.A.) is secured by Frederick Johnson; second (Vice-President's bronze plaque, presented by Mr. F. Blanchard), by Wm. Clayden; Society's bronze plaque, by W. Anning; and third (hon. mention) by J. T. Johnson.

Class E, any subject, for those who have not before exhibited.—A small class, in which the judges have not given more than one award (bronze plaque), which has gone to "The Lilac Sun-Bonnet," Norton W. Carey, a figure study, in which, by the way, the bonnet is not more pronounced than the old lady's apron, and perhaps both are rather too pronounced.

Class F, any subject, for exhibitors not having before received an award.—The first place (bronze plaque) is secured by "The Rule of Three Doth Puzzle Me," by Stanley Sowton. The second award (bronze plaque) goes to "A Cottage well Thatched with Straw," by W. Anning.

Class G, photography applied decoratively.—This evoked but a mild response: postcards, a fire screen, and a cushion by C. H. Dymond; an overmantle in fretwork, two photographs occupying panels, by J. T. Johnson; and process blocks, with very fine postcards printed by, and the negatives produced by, J. Trouern Trend, who very properly secures a first award (bronze plaque), the only one given in the class.

For the competitor who showed not less than six prints in the first three classes the President of the Society (Mr. J. T. Johnson) offered a special silver plaque, which was won by Mr. Fredk. Johnson. Mr. H. S. Hill, Vice-President, offered a special bronze plaque, which was secured by Mr. A. B. Fellowes-Pryne.

On Friday evening a conversazione was held, at which there was a large gathering of members of the society and their friends. Altogether, the exhibition is one upon which all concerned can be congratulated.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between May and 6:—

DEVELOPMENT.—No. 9,116. Improvements in developing and finishing photographic plates or films and in photographic developers for use therein. C. D. Abel, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London, for the Actien Gesellschaft für Anilin Fabrikation, Germany.

TRIPODS.—No. 9,124. A device for holding photographic cameras upon their stands or tripods. Montague Curtis Rock, 306, High Holborn, London.

FILMS.—No. 9,246. Improvements in photographic plates and films. The Sandell Films and Plates, Limited, and Leonard Smith, 53, Chancery Lane, London.

DEVELOPMENT, ETC.—No. 9,248. Improvements in the methods of applying chemical solutions to photographic plates. Douglas William Hart, 17, McDowall Road, Camberwell, London.

TRIPOD.—No. 9,295. An improved walking-stick camera tripod. William Henry Tomkinson and Alec. J. Jones, 81, Dale Street, Liverpool.

CHANGING FILMS.—No. 9,323. A method of packing and changing sensitised films, and apparatus therefor. Jules Carpentier, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

PIGMENT PROCESS.—No. 9,324. Improvements in sensitising layers of gelatine, gum, and the like for the pigment and like photographic processes. C. D. Abel, Birkbeck Bank Buildings, Chancery Lane, London, for the Actien Gesellschaft für Anilin Fabrikation, Germany.

SHUTTER RELEASE.—No. 9,363. An electro-magnetic release for photographic shutters. Francis Noel Gasquoine, St. Oswalds, Upper Bangor, North Wales.

CINEMATOGRAPH.—No. 9,406. Improvements in apparatus relating to animated pictures. George Frederic Rayner, 37, Chancery Lane, London.

CHANGING FILMS.—No. 9,440. Improvements in apparatus for packing and changing sensitive films. Jules Carpentier, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

COLOURED PHOTOGRAPHS.—No. 9,449. Improvements in and relating to apparatus for the production and exhibition of coloured photographs. Charles Julius Drac, 18, Buckingham Street, Strand, London.

COLOUR CINEMATOGRAPHY.—No. 9,465. Improvements in or relating to cinematographic apparatus for producing natural colour records. William Friese-Greene, 20, Middle Street, Brighton.

TONING WITHOUT GOLD.—No. 9,497. Improvements relating to the rapid production of photographs on silver chloride paper without the use of gold. Herbert John Mallabar, 59, Deane Road, Liverpool.

DEVELOPER.—No. 9,537. Manufacture of a new compound of the aromatic series and of a photographic developer consisting of, or containing, this compound. C. D. Abel, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London, for the Actien Gesellschaft für Anilin Fabrikation, Germany.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

STORING NEGATIVES.—No. 20,114, 1904. The device for which pro-

tection is claimed is a box of rectangular form (the lid of which forms a part of the total depth when closed) to hold a series of negatives enclosed in consecutively numbered envelopes and an index card. The former, which may be of paper or any other suitable material, are provided with tabs intended to receive reference numbers; these tabs are not folded down, but stand erect, thereby allowing of convenient manipulation when looking out a negative. A ruled and numbered index card, preferably folded, is provided, for the purpose of receiving the titles of the subjects of negatives contained in the respective envelopes, and is of similar shape and dimensions to the latter. To prevent the lid from fouling the tabs of envelopes when the box is closed, clearance blocks are fixed at the inside corners or ends of the box, which keep the tabs clear of the joint. A rebated recess may be formed in the front of box to receive a card or tablet to indicate the series of the contained negatives, or the recess may be large enough to accommodate the index card (which, in this case, would not be folded) and a cover glass for the purpose of keeping it clean. Houghtons Limited, 88 and 89, High Holborn, W.C., and Alfred Sidney Spratt, 207, Evering Road, Clapton, N.E.

New Materials.

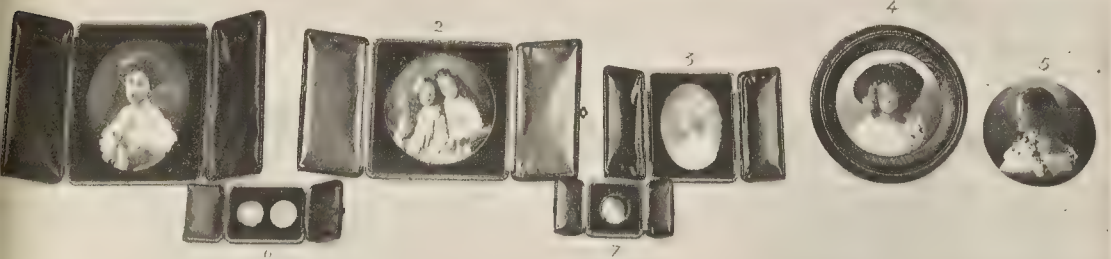
Photo-Medallions: a Side-line for Professional Photographers. Made by Dorrett and Martin, 60, Strand, London, W.C.

Some pleasing and attractive form of portrait which can be shown to a client at the time of the sitting or when proofs are examined would be sure of attention from the professional photographer. True, there has been no lack of such novelties in the past, but fashions alter,

"satin," these different effects being obtained by the celluloid, not by the print. The "glossy" resembles a ceramic enamel; the "matt" has the delicate effect of ivory or opal; and the "satin" imitates the texture of that material, and presents a very rich appearance. Let us repeat—these effects are in the celluloid, and the medallions can be washed with water whenever they become soiled. These three varieties can be coloured for small sums, and they further lend themselves to endless forms of mounting, a few of which are here illustrated. The most attractive, in our judgment, are the cases, leather and satin lined, which are made to take one or more medallions of circular or oval shape. The prices of these impress us as extremely moderate. As an example, the undiscounted figure for a cabinet circle in the best quality case is 8s. Circular wood frames in various mouldings and colours supply a cheaper mounting, and the medallions are also obtainable with a wire strut only for their support. Messrs. Dorrett and Martin's list gives the detailed prices for these, and no photographer should regret an hour spent in studying its contents. He should find in it the way to new business.

Ilford "Carbon Surface" P.O.P. Manufactured by Ilford, Limited, Ilford, E.

In introducing a new variety of their old-established P.O.P. the Ilford Company are evidently responding to the demands of the large class of both professional and amateur photographers who favour, for different reasons, a print of "broader" surface than that of the matt printing-out paper. The effect of carbon is a desideratum in the eyes of a photographer in business to meet the wants of a clientèle more cultured than the average, and the attainment of this effect without varying the methods of the printing-room is surely a matter of importance to those who produce their work from first to last on their own premises. The Ilford "Carbon Surface" paper yields prints



Some Styles of Mounted Photo-Medallions.

and it behoves the manager of a studio constantly to have something fresh to put before his people as a temptation to them to enlarge their original order. Of such temptations, a new series of photo-medallions by Messrs. Dorrett and Martin commands our emphatic approval for the effect and variety of the styles as much as for the reasonable prices at which they are offered. Many of these are put in figures which make us wonder how the work can pay. However, that is the firm's business; ours is to explain briefly the nature of the medallions. They consist of a print—which may be P.O.P., bromide, carbon, or platinotype, and supplied by the photographer if desired—mounted, photo-button fashion, behind celluloid. Let it not be thought that the appearance of the medallion recalls the other cheap finish of the photo-button as usually manufactured. The medallions are turned out in three styles, "glossy," "matt," and

of close resemblance to the customary carbon print, and the manipulation is no wise departs from that of the ordinary matt P.O.P., save, perhaps, that there is a slight difference in the extent to which printing is done. Our own experience of the paper is necessarily brief, but in all other respects we could detect no difference between its behaviour and that of the regular brands of Ilford P.O.P. The new paper should therefore be acceptable to the profession, which should welcome it as affording a new style in portraits, and that of a handsome and striking character.

Heliotrope "Professional" P.O.P. Manufactured by John J. Griffin and Sons, Limited, 20-26, Sardinia Street, London, W.C.

Messrs. Griffin prepare a gelatine printing-out paper specially for the profession and its qualities of soft contrast in printing, quick

toning, and hard surface no doubt recommend it to printers in many establishments. The present new issue is warm mauve in colour, and if we may speak from our experience of it, ought to prove generally acceptable. The tint is distinctly deeper than that of the "mauve" of the same make; yet there is not too much of it, and it will be found that a faint hue of this kind often has no more effect than to overcome the suggestion of colour in the higher lights. As many photographers know, a bluish tint produces the impression of brilliant whites in these parts of the subject. In manipulation and price Messrs. Griffin's new paper is precisely similar to the ordinary mauve-tinted paper.

SEVERAL patterns of dark-room lamps, specially fitted with the new gelatoid screens of Dr. Meithe, are now being introduced by Messrs. A. E. Staley and Co., the sole agents for the screens. The lamps are designed for gas, oil, and electric light, and cost from 12s. 6d. to 21s. Messrs. Staley will send full particulars on application to 19, Thavies Inn, Holborn Circus, London, E.C.

New Books.

"The Practical Photographers' Annual," 1905. London: Hodder and Stoughton. 1s. 6d.

A writer, even a writer on technics, must sometimes be unable to suppress a legitimate curiosity as to who are his readers. We must own some desire to see the manner of practical photographer who derives assistance from this "concise and practical dictionary of the photographer's daily practice," compiled with obvious industry by the Rev. F. C. Lambert, M.A. We can imagine a thoroughly practical photographer who finds himself at no disadvantage because he does not know how to make a cork-squeezer from a hatchet-shaped piece of wood (p. 26), and though any expedient should be welcomed in the extremity of finding oneself out with the camera *minus* its lens, we hardly endorse the advice to "cut a piece of thin card and fit this in the flange hole. Then pierce the centre with a pin or needle and make a pinhole negative." There may be people who will benefit by these hints, but we cannot help wondering what sort of photographers they are. A practical photographer would probably have found other occupancy for the space taken by such paragraphs as:—"If you break off the neck of a white glass round bottle of some such shape as that in the annexed figure, do not throw it away, because it is quite an easy matter to cut it down and make a vessel which is useful for various purposes."

"*Signs of Rain*.—Clearness of the air. Distant objects look larger or nearer than usual. Distant sounds heard more clearly and louder than usual. Creaking of furniture. Fire burns dull and dim. Snails come out. Dogs are sleepy. Cats are frisky. Sheep huddle together in the field. Cattle are lowing in the stalls. Swallows fly low over the water. Plants close their petals (chickweed, scarlet pimpernel)."

"No focussing cloth! Borrow a friend's coat, or use a half-open umbrella."

The last extract puzzles us. Why should the photographer not use his own coat, or has he forgotten that as well? However, nobody will grumble at paying eighteen pence for the book, which is ornamented with a piece of Mr. Furley Lewis's clever portraiture—subject, the Editor in an attitude which for any purpose but the frontispiece to a "practical dictionary" we should consider happy in the extreme.

A POPULAR guide to the Continent is just published at sixpence for the use of travellers by the extensive routes of the Great Eastern Railway Company to the Tyrol, North Germany, Norway, Sweden, and Switzerland. It is published at 30, Fleet Street, London, E.C.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
23.....	Royal Photographic Society ...	<i>Röntgen Rays in Medical Work.</i> Dr. Thurstan Holland, F.R.P.S.
23.....	Manchester Amateur Ph. Soc.	<i>Platinotype Printing.</i> Mr. T. L. Cooper.

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at 51, Baker Street, W., on Friday, the 12th inst. Present: Messrs. A. C. Banfield, E. C. Elliott, M. Jacolette, A. Mackie, D. Prodger, E. Scamell, R. Fellows Willson, William Grove, H. A. Chapman (Swansea), and P. Lankester (Tunbridge Wells). Mr. Martin Jacolette (vice-president) presided. After the routine business had been transacted, a further discussion took place on the proposal to associate certificated assistants, and it was finally decided, subject to confirmation at the next committee meeting, to recommend to the next annual general meeting for embodiment in the rules, that certificated assistants be granted all the privileges of the Association, except that of voting, subject to the payment of a registration fee annually.

The issue of a quarterly circular to members was again discussed, and, after several suggestions had been made, the matter was adjourned until the next meeting, when it would be finally settled.

The Chairman drew attention to the fact that the professional photographers of New York has just organised a similar association to the P.P.A., and that, according to the report of the foundation meeting, the questions that the New York Association proposed to deal with were exactly those which this association had been dealing with. The question of insurance rates, the difficulties of copyright, and something like the certificate scheme had been referred to as matters for attention. He proposed, and it was cordially adopted, that the hon. secretary be desired to convey to the president of the New York Association congratulations on the successful establishment of their institution and best wishes for its prosperity.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held May 16, Mr. J. C. S. Mummery in the chair. An illustrated lecture on "Marine Photography" was given by Mr. F. J. Mortimer, F.R.P.S. An abstract of the lecture is given on another page. The house exhibition of marine photographs and wave studies by this worker was also opened to the public on the same evening. A detailed report of the pictures will be given in our next issue.

LONDON AND PROVINCIAL.—Meeting held April 11, Mr. Rapson in the chair. Mr. E. R. Human read a paper on "Combination Printing," in which he described a method of printing clouds into landscape negatives, preferable, in his experience, to the usual one of masking landscape and cloud negative, when printing, separately, from these negatives. Assuming, then, that the negatives are ready for printing, a twelve by ten frame is taken for a whole-plate negative, a sheet of good, clear, white glass placed in it, and the landscape negative upon this, so that about one to one and a half inches are caught by the hinged back to prevent any movement during examination. A ten by eight frame may be used for half-plates, and a whole-plate one for quarter plates. If addition is to be made to the length of the sky, a sheet of black, opaque paper is placed at the sky end of the negative to protect the paper from becoming degraded, the printing paper is then put into place, and the frame turned over. A sheet of cardboard is then placed in front, with the edge turned

wards, and the frame put out to print in a diffused light. When efficiently printed, the operation is reversed, the sky negative taking the place of the landscape, and the printing done as before. The effect of this procedure is that the two printings are so vignettted one into the other that it is impossible for anyone to detect that double printing has been done. This was described fully by Mr. Human, the whole being illustrated by a blackboard sketch, which greatly assisted those present in following the remarks. For all papers with a visible semi-visible image, this plan was followed. For carbon work a slip of paper was fastened to the edge of the frame, and marks made thereon, to give the position of the vignettes. In printing bromide, other papers of that description, the same marks as for carbon were used, and a sheet of cardboard kept on the move for about one and a half inches to and fro. Clouds in lantern slides were put in by first taking the slide and then using this as a mask for the cover glass, either in the printing frame or slide, as the case might be. In enlarging, a sheet of cardboard was kept on the move, as in contact bromide printing, between the lens and the easel. To introduce figures into landscapes, the figure negative was first blocked out, and a positive made on a slow film, or on carbon tissue, the effect being a positive of the figure with a clear background. Next a print of the figure was carefully cut round and put into place upon the background negative, and a positive of this taken, thus giving a clear space the size of the figure. The two positives were then bound together, and a direct enlarged negative made, when all was plain printing, and any number of prints were obtained exactly alike. Prints were passed and done by the method, one being from three negatives, having a background worked in, and in no cases could the joint be detected. A discussion took place, Mr. Teape saying that he, for one, had learned something, as, although he had for many purposes used the bent edge, he had never thought of it in conjunction with the class of print under discussion. Mr. Freshwater asked, with regard to the print in three negatives, which one the boat was in, and Mr. Human replied that it was in the centre one. Mr. Haddon asked if, when printing in P.O.P. papers, Mr. Human had not found a difference of colour in the sky and the landscape, due to the different density of the negative, and Mr. Human replied that that was so, explaining that he very seldom used this class of paper except for rough proofs. A hearty vote of thanks to Mr. Human brought the meeting to a close.

HEFFIELD AND HALLAMSHIRE PHOTOGRAPHIC SOCIETY.—An instructive evening was passed by the members of this society at their usual monthly meeting last week at Cemetery Road Baptist Schools, when H. G. Paterson gave a demonstration on the æsthetic style of "mounting prints" so much in vogue at various exhibitions. During the course of the demonstration Dr. Paterson showed how the eye could be deceived in mounting prints of equal size on different size mounts, and also illustrated how, by various widths of margin and positions of prints, to get the best results from both vertical and horizontal prints.

NORTHAMPTON PHOTOGRAPHIC SOCIETY.—The adjourned annual meeting of the Photographic Section of the Northampton Natural History Society was held at the Society's Rooms, Sheep Street, on Friday evening last. The question of how best to deal with the deficiency of £10 reported at the last meeting again came before the society. It was decided to apply to the parent society for a portion of the amount required to liquidate the deficiency, and the president undertook to secure the balance by private subscription. A suggestion put forward that the Photographic Section should be merged with the Archeological Section in some of their excursions was received with approval; but the excursions of the Photographic Section are still to be arranged.

LOUGHBOROUGH PHOTOGRAPHIC SOCIETY.—The annual meeting of

this society was held at the Temperance Hall, Loughborough, on Friday evening last. The report, presented by the hon. secretary, Mr. Herbert W. Cook, recorded a year of useful and interesting photographic work, and there was a balance in hand. Officers and committee were elected for the ensuing year, and the medals won at the members' exhibition were presented.

HUNTINGDON AMATEUR PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held at the Volunteer Drill Hall on Wednesday last. The accounts showed a balance in hand, and the secretary said that endeavours had been made to secure a permanent "home" for the society, and on the application of Sergeant-Major Page, Colonel Linton has consented to allow the society to use the Drill Hall free of all charge. The election of officers resulted as follows:—President, Mr. W. C. Bernard; vice-presidents, Revs. Hedley Vicars, G. S. Morley, and G. R. Holt Shafto, Messrs. F. B. Thackray, J. W. Tysoe, A. G. Dille; hon secretary, Mr. E. Trench Smith; treasurer, Mr. H. Goggs; committee, Messrs. J. Pascoe, W. D. Storey, W. Murton, Allen, Hawson, and Sergeant-Major Page.

HULL PHOTOGRAPHIC SOCIETY.—The excursion of this society to Little Weighton and Risby Park last week proved a great success from the pictorial standpoint.

BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—On May 3 Mr. Thomas Manly delivered an interesting lecture on the "Ozotype" process to the members of this society.

THANET PHOTOGRAPHIC SOCIETY.—An extraordinary general meeting in this Society was held at the Club-room, on Wednesday of last week, when the rules as amended by the committee came up for consideration. It was decided to raise the subscription from 2s. 6d. to 5s., with an entrance fee of 2s., ladies and youths under eighteen years of age being admitted upon payment of a subscription of 2s. 6d. It was stated that the object of increasing the subscription was to provide better club-room accommodation, and a dark-room and enlarging apparatus. Attention was called to the fact that the meetings of the society were held alternately at Ramsgate and Margate, but as the majority of the members belonged to the former town it was thought that the meetings at Ramsgate should be held more frequently, and it was decided to insert a rule to the effect that the headquarters of the society should be in that town.

RICHMOND CAMERA CLUB.—The fifteenth annual report of this club shows that a most successful season has been passed. The lectures have been well attended, and the interest of the members well sustained. The financial position of the club remains satisfactory, there being a cash balance of £27 3s. 8d., with a small outstanding liability.

WATFORD CAMERA CLUB.—"Flower Photography" was the title of an instructive lecture given by Mr. E. Seymour, before the members of this club, on Thursday of last week.

SOCIETY OF ARTS AND LONDON INSTITUTION.—We have been informed that by a resolution passed by the Council of the Society of Arts at their meeting held on May 8 it was decided that "In view of the feeling which appears to have been aroused amongst some of the proprietors of the London Institution with regard to the proposed amalgamation with the Society of Arts, and the consequent probable difficulties of effecting a harmonious fusion of the two corporations into a single institution, the Council of the Society of Arts have decided not to take any further action in the matter, and hereby discharge the committee which, at the instance of the Board of Managers of the London Institution, they appointed to consider the scheme for amalgamation."

Commercial & Legal Intelligence

FALSE PRETENCES.—At Ludlow, last week, William H. Nicholls, a photographer, was sent to gaol for three months for obtaining 3s. 6d. by false pretences from Albert John Windle, schoolmaster, Richard's Castle. The evidence showed that prisoner called on prosecutor soliciting orders for enlargement of photographs. Prosecutor agreed to have a photo enlarged, and paid prisoner 3s. 6d. Since that day he had not seen prisoner, neither had he had his photograph.

THEFTS BY PLYMOUTH PHOTOGRAPHERS.—Alexander McGillivray and Edward Thomas, both photographers, were charged at Plymouth during last week with stealing within the past six months four dozen bromide prints and five dozen mounts, valued at 5s., the property of James Hawke, 8, George Street. McGillivray had been in Mr. Hawke's employ 14 or 15 years, and was the chief silver printer, and Thomas, who had been employed at the establishment 10 or 11 years, was the chief of the bromide printing department. In consequence of information received, Mr. Hawke found that a negative taken by himself some years ago of a lady had been obtained possession of by McGillivray, who had arranged with the person who desired to have the photograph of that lady to print five dozen bromide copies from it. McGillivray obtained from Mr. Hawke's establishment the necessary papers through Thomas. Five dozen mounts, bearing Mr. Hawke's name, were also obtained. Mr. Hawke had no desire to be vindictive, or have the men unduly punished; he was anxious to prevent a repetition of the offence. Each defendant was fined £3 or three months.

ALLEGED FALSE PRETENCES CASE.—Thomas Houston, of 274, Burnley Road, Newchurch, was charged under a warrant with obtaining, by means of false pretences, 10s. from James Sharples. Mr. T. R. Bertwistle, for the prosecution, said that in January the prisoner called upon Mr. Sharples, of the White Boar, Prince's Street, and took an order from him for three dozen cabinet photographs to be taken from an oil painting of Mr. Sharples's late wife. Sharples paid 10s., and got a receipt. On January 19 the prisoner called again and got 5s. Sharples heard nothing for a long time, and he went to the address given on the card, that of Cecil Bradshaw, and was told that the man was a fraud; he could not take any order from him. Mr. Sharples could neither get his oil painting back nor his money, and he took the trouble to go to Newchurch, where the prisoner lived, and could get no satisfaction. Mr. Bradshaw now said that on and off this man had been his agent. The order had now been executed, so that he could not see how they could say the prisoner was guilty. He, however, wanted to clear Mr. Sharples. James Sharples said that Bradshaw told him that the prisoner brought him an order now and again, but he was not an agent. Mr. Bertwistle said he did not think there was sufficient evidence to convict. The prisoner.—So that I cannot take an action against him, is that it?—You can take whatever action you think fit. The prisoner was discharged.

A RECEIVING ORDER IN BANKRUPTCY has been made against Mrs. Kathleen Ada Macdonald, carrying on business at High Street, Eton, as a photographer.

COLOUR OF EASTBOURNE SAND.—The colouring of picture postcards was discussed before Mr. Justice Wills last Thursday, when Messrs. Petty and Sons, of Reading, sued the Photographic Tourist Association for £198 5s. for picture postcards delivered. The defendants, who complained about the colouring and quality of the cards, entered a counter-claim for loss of profits. Mr. Oustlewaite, a dealer, said that the view of Eastbourne Parade was not equal to the sample, and complained about the colour of the sand, which, he said, looked muddy and dirty. Mr. Powell, K.C., suggested that

"perhaps the photograph was taken after Bank Holiday." The jury gave their verdict for defendant. Costs followed the verdict, and it was agreed to pay plaintiff £5 for such cards as had been sold.

ENLARGED PHOTOGRAPHS.—At the Clerkenwell County Court, on May 11, Francis Kotch, photographer, of 75, Essex Road, Islington, sued the British Art Company, photographic enlargers, 61, Essex Road, for £4 10s. 6d. in respect of goods detained and damages. Plaintiff said that on December 12 last one of his customers had a photograph taken, and, as he required an enlargement of the same, it was sent to defendants, who made the enlargement. The customer was so pleased with it that he ordered a second one. This was also entrusted to defendants for execution, but the second enlargement did not give the customer satisfaction. Defendants undertook to make a further one, and were supplied with the first enlargement, as well as the negative. Defendants kept them for two months, and, as a result, he had to return the money to his customer. The defence was that no mention was made of the second order being a repeat one. Nothing was said about a special size of the head being required, or it would have been attended to. They voluntarily offered to make a third one, but before this could be completed a question arose as to a previous account with plaintiff for work done, and they declined to give up the goods as they had a lien on them. The Judge found in favour of defendants.

EMBEZZLEMENT AT NORTH SHIELDS.—James C. Murray, a bio-photoscope operator belonging to Hull, was charged, at North Shields, on Monday last, with having embezzled and stolen £3 5s., the money of Walter Payne, his employer, on March 4. Accused pleaded not guilty. He was committed for trial at the Quarter Sessions. Before the court rose, however, he pleaded guilty, and was committed to prison for one month in the second division.

A ROUNDABOUT PROCEEDING.—At Newport (Mon.) County Court on Friday last, before Judge Owen, a man named Seidle appeared to answer a judgment summons obtained against him by a firm of photographic dealers, of Newcastle. The amount owing was £6 14s. 9d. The Judge remarked that the plaintiff lived at Newcastle-on-Tyne, the defendant lived at Newport, and judgment against him was obtained in Birmingham, and thought it a very curious proceeding. An order for £1 a month was made.

THE following contribution reaches us from a correspondent in Paisley, who tells us he has been a reader for between thirty and forty years:—

Thanks for your copy of the famed "B.J.";
Its weekly numbers are a charm to me,
My solace, guide, and friend for forty years,
Where all that's useful in our art appears
In literary form, or brief chit chat,
Or even "Answers," it is good at that.
'Tis very gentle to the young beginner,
Whose questions oft would bore a saint or sinner;
To ready writers it gives ample scope
To air a grievance, or to fan a hope.
Why! even I have used it in my time
To tell of something both in prose and rhyme.
Go! golden photographic gospel go
And spread the news photographers should know.

THE "Globe" learns that 'The two-year-old son of a photographer having been photographed by different members of the family over 200 times, the N.S.P.C.C. is taking the case up vigorously.'

ILLEGAL Giant Postcard.—A stationer at Southport recently erected in a prominent position a sign consisting of an enlarged facsimile of a postcard, drawing attention to the address of his shop. The trades man has now been notified by the Postmaster-General that he must either remove the sign or obliterate the representation of the King's head. It was pointed out that under Section 7 of the Post Office Protection Act the representation of a postage stamp for advertising purposes is contrary to the Act.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

ADVERTISE—TO WHOM?

To the Editors.

Gentlemen,—I read in a novel this week: "Marcia was not feminine in her arrangements of a room; there were no fripperies, and few photographs." The sentence implies a truth which we as photographers ought to realise with all possible clearness—it is Her Royal Highness Woman who keeps us going. That essential fact seems to have been ignored in very large measure by the writers on advertising who have recently done good service in your pages. Why did they not single out woman as the great and predominant customer of the photographer? A woman comes herself to be photographed; she brings her children to be photographed; coerced or cajoled by her, men crucify their natural instincts, and visit the photographer's studio. There is only one person, Sirs, to whom the photographer need offer his wares. I read that Pirie MacDonald, the New York photographer of MEN ONLY, advertises to the ladies only. He knows the way of the world, and my professional brethren must learn the way in order to draw the clients to the studios. I have answered my question—to whom? There remains the second and more complex problem—How? That must depend upon circumstances. Your farmer's homely spouse is not induced by the bait which is taken at a gulp by Macame Brixton. Sufficient for me to point out a factor in a photographer's advertising which, in my experience, is of the highest importance.—I am, gentlemen, yours faithfully.

SQUIRE O' DAMES.

MAKERS' FORMULÆ.

To the Editors.

Gentlemen,—I have been much interested in the correspondence that has appeared in your columns under the above heading, but I must confess that there is still some ambiguity left in my mind.

There are one or two points not touched upon in any of the letters to which I crave permission to draw attention. For instance, we are frequently told to take equal quantities of A and B and add an equal quantity of water. What I should like to know is whether the amount of water should be equal in quantity to A and B, or to A plus B?

Again, we have such directions as: "Mix equal parts of A and B and from 2 to 3 times the quantity of water." There is here considerable room for doubt as to whether the "2 or 3 times the quantity of water" refers to the part of A or the total amount.

Then what is a "part"? Take the following typical formula:—

Hypo ...	...	...	...	...	4 parts.
Sulphite ...	...	...	...	...	1 part.
Water ...	...	...	...	...	20 parts.

Here there are parts in solids and parts in liquids.

It would be useful if we could have some authoritative ruling on the subject, which would help to throw a little clear light on this complicated matter.—Yours faithfully,

FRED. BELL.

Lewisham, S.E.

[This correspondence is now closed. We shall refer to the subject next week.—Ebs., B.J.P.]

PAINTINGS AT HAMPTON COURT.

To the Editors.

Gentlemen,—I notice in this week's JOURNAL a gentleman asking for picture No. 590, King's Gallery, Hampton Court. I think you

will find it is to be obtained from Mr. A. Tear, Bridge Road Studio, East Molesey, Hampton Court, as are also others in the gallery.—Yours faithfully,

RAYMOND COX.

May 12, 1905.

THE PRESS UNION.

To the Editors.

Gentlemen,—In reference to the query on above subject on p. 380 of last issue, the Institute of Journalists, Fleet Street, E.C., issues a special ticket to its members, which said ticket is generally recognised by policemen and others. Possibly your correspondent refers to this.—Yours, etc.,

MEMBER INST. JOURN.

London, E.C.

COLD STARCH PASTE.

To the Editors.

Gentlemen,—The note on cold water starch in "Foreign Notes and News" reminds me of a method of making starch paste which perhaps is unknown to many readers of the BRITISH JOURNAL, but as it is offer of service I may mention it. All you have to do is mix starch and cold water to a thin cream, and then add solution of caustic potash (stick) in small doses. This will cause the starch to jellyify, and if it is too viscous water can be stirred in to thin it down. Of course, such paste must not be used for mounting photographs, but for any job such as sticking on labels there is no quicker way of preparing a paste.—Yours truly,

C. F. CAMPBELL.

[We believe this alkaline paste is largely sold as office adhesive, but, as our correspondent points out, it is not a photographic mountant, nor is neutralisation of the alkali of any service for the adhesiveness of the mixture is thereby greatly diminished.—Ebs. B.J.P.]

QUITE a little batch of congratulatory letters chance to reach our table this week from readers whose interest in the BRITISH JOURNAL is undiminished. Mr. G. Mansfield of Naas, Ireland, writes: "I think I have been over 30 years a subscriber to your valuable journal." Mr. John Bell, of Barrhead, tells us: "I have been a subscriber to the 'British' since I was apprenticed to the business, and that will be about 23 years now." From New Zealand comes appreciation in the shape of some lines from Geo. F. Randall, Kaka Point, Clutha. "The BRITISH JOURNAL," he says, "keeps me up-to-date, as I get it about 40 days after publication, which is not bad for 16,000 miles away." Mr. T. Birtles, Warrington, boasts that he has "taken the BRITISH JOURNAL weekly for the last 35 years and over. Have you many that have been readers longer than this?"

The death is reported of Mr. Robert Stewart, of Elgin. Mr. Stewart was one of Scotland's oldest photographers, and having been born in 1813, has lived under the sovereignty of five monarchs. When photography was first introduced he took up the practice of it with enthusiasm, and lost no opportunity of making himself proficient. Forsaking the role of bookseller, he started a photographic business in Elgin. He soon proved himself a photographer of no mean merit, and the name of "Stewart, photographer, Elgin," was very generally known. Before quitting the business some years ago he trained three of his sons in the profession, and one of them—Mr. R. Stewart—still carries it on with much success.

THE R.P.S. Honorary Fellowship.—The following resolution has been passed by the Council of the Royal Photographic Society: "It is desirable that the award of the Progress Medal should be accompanied by the Honorary Fellowship." The Council have elected the following Honorary Fellows:—Major-General J. Waterhouse, I.A., Mr. W. Willis, Mr. Robert Demachy, Mr. Alfred Steiglitz.

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- E. O. Jones, Emporium, Talybont, Cardiganshire. *Photograph of the House where the late John Adams, Shoemaker, Talybont, lived. Photograph of Talybont Village.*
- W. T. Carter, 43, Drake Street, Rochdale. *Photograph of Rochdale Corporation Tramways. Old and New Cars.*
- J. Bell, 176, Main Street, Barrhead, N.B. *Photograph of Municipal Buildings, Barrhead, Renfrewshire.*
- E. McGeachie, The Studio, Hillfoot Street, Dunoon, N.B. *Two Photographs (Flashlight) entitled "St. Paul," taken in the Burgh Hall, Dunoon. Dunoon Grammar School Continuation Class, 1905.*
- W. Baker, Toll Street, Derby Road, Nottingham. *Photograph of Wollaton Hall, Wollaton, Nottinghamshire.*
- J. J. Wright, 125, London Road, King's Lynn. *Four Photographs of the North West Norfolk Village Choir Festival, held in Corn Exchange, King's Lynn, May 8, 1905.*
- T. V. Biggins, 257, Boulevard, Hull. *Photograph of the New School of Art, Anlaby Road, Hull.*

DUFFER.—The work you send us is useless in any but the lowest class of studio. You had better take a few lessons; they would certainly benefit you.

GEORGE S. COX.—1. All three cameras you mention are good. No. 1 has probably more movements than the others, but each can be relied upon. 2. This lens will be suitable for almost every class of work. 3. The quarter-plate size is more handy, and, with the lens you mention, negatives should be obtained capable of enlargement to any reasonable size.

REFLECTOR FOR ENLARGING.—I wish to do daylight enlarging, bromide enlargements, etc., and I want you to tell me how big my reflector for throwing light through, say, 12 by 10 negative would have to be, and which would be best for reflector, a sheet of white paper or opal glass? I have enclosed a rough sketch of situation of room, and I should like to know if I can get good results under the circumstances, because I have read that to do daylight enlarging you must have unobscured sky light, but in my case I have the back of opposite houses, but I think that a reflector would alleviate that defect.—C. R. DODD.

The reflector needs to be considerably larger than the negative. You can easily see how large by placing a piece of clear glass in the negative-carrier and observing, from the point the lens is to occupy, whether the light comes from the reflector. Clean white paper is a better reflector, but opal is preferable for permanent use. Your position should not prevent your doing good work.

TONING BROMIDES.—Would you kindly let me know the best means of obtaining sepia tones on bromide and C.C. papers? I have tried all the formulæ, but am unable to get the desired shade. I should like a formula as simple as possible. I find the complicated ones are too difficult to work.—B. W. HOY.

For bromides, bleach the prints in: Potass. ferricyanide, $\frac{1}{2}$ oz.; ammonium bromide, 300 grains; water, 20 oz.; and,

after well washing, darken in: Sodium sulphide, 30 grains water, 10 oz. There are several rapid toners of this kind on the market. For warm tones on platinotype paper, you must employ a developer with mercuric chloride in it or use the special sepia paper.

RETOUCHING.—Will you kindly pass your opinion upon my touching? You will find prints of same enclosed. I have had just twelve months' experience at the work.—RETOUCHER.

For the time your knowledge extends we consider you have made very fair progress; but you have yet much to learn. Differentiate your touch more in the treatment of men and women, and see that you do not thin the noses unduly or alter feature lines. In the oval of lady in hat, the nostril is pinched through over-removal of its formation line or shadow, and the nose itself is too pointed. The shape of same feature in the circle print is altered, being too fat just below the bridge and also flat in effect. The very nicest attention is called for about the nose, lips, and chin in every face. A wrong touch or two may alter the whole expression. The man is the best study, but here again the nose is faulty, and not as in the unretouched. When time has brought you much greater experience, we consider you will become a first-class retoucher. All prints sent for criticism of retouching should be made on glossy P.O.P., although a mixture of papers is not objected to.

RETOUCHING.—Would you kindly give your opinion of the retouching of the enclosed prints, and state where the same might be improved?—IMPROVER.

"Improver" should always sign his name to all communications; we like to know whom we are dealing with. Your work is indifferent, and offers great scope for improvement. The touch is too loose and wandering, and the effect is shabby and ragged in many places. We could have judged better if you had stated the time devoted to each negative. Give them more work, and be finer and closer in your texture. As repeated over and over again in these columns, prints sent for criticism of retouching should be toned and fixed to show all possible detail.

BLACK AND WHITE BACKGROUNDS.—Could you let me know how to make two backgrounds? I want one to photograph perfectly black, and the other perfectly white. I am told there are certain colours for these. I tried black and white, but the black did not photograph dark enough, and the white came out dirty-looking with correctly exposed negatives. I want to make them distemper on canvas.—L. SARGEANT.

Fine vegetable black mixed with some red pigment, such as sienna or Venetian red, is the best mixture you can use for a dead black ground, but you will never get a ground which reflects no light. The most perfect black ground is dark space, i.e., a darkened room draped with black, before an opening in which such as folding doors, the sitter is posed. For a brilliant white ground, the best pigment is zinc white, or the best white lead.

LENS FOR HAND CAMERA.—I have just bought a hand camera to take pictures size of enclosed. It is fitted with "achromatic lens." The result is bad, showing great distortion. Please tell me if I can have another lens fitted in exchange; if so, what sort will be best for upright results? Will a camera fitted with rapid rectilinear lens overcome the difficulty?—A. C.

It is not the fault of the lens, but of yourself in tilting the camera and holding it "out of square." Get an elementary book on hand-camera photography.

INQUIRER.—We cannot recommend agents. The only suggestion we have is that you should advertise the concern.

DAMAGED GLASS POSITIVE.—I had a photograph to copy which was taken forty years ago. It is a glass positive, and being very dusty between the cover glass and the surface of the positive, I asked my assistant to dust carefully before copying. He brought it to me a few minutes afterwards with the photograph rubbed off the part he cleaned (evidently with a duster or handkerchief). Is there any means of bringing the picture on again, as the substratum, whether albumen or collodion, is still there and undamaged? It seems to be too thin for collodion, and if breathed upon the positive shows faintly. The high-lights came off in a sort of powder as soon as rubbed. The photo was painted black on the back, and not on the film, as the ordinary wet plate positive.—OLD PHOTO.

From what is said we suspect the picture is irretrievably ruined, as the image seems to have been wiped off and there is no means of restoring it. In our issue for April 21 last there is an article on "Repairing and Copying Glass Positives." That may be of some service to our correspondent, but we fear it will not. This case illustrates how what may be a valuable picture may be completely ruined when it is entrusted to people who do not understand their business.

BROMIDE PRINTING.—1. Would you please advise me how to do a large number of bromide prints? As far as a few is concerned I am right, but I want to do some hundreds and want to fix them in large batches of, say, 60 or more. What solution ought the prints to be put in to stop development until I have the lot ready for fixing? 2. Will you please advise as to other papers that are developed? My object is to avoid all doubt as to fixation by giving the same fixing to all, as possibly if I relied on my own judgment about perfect fixing I may be mistaken here and there.—SMEATON.

1. A weak solution of citric acid will arrest development—5 grains per ounce is strong enough. We should prefer to use running water, however, as it is unwise to use acid before fixing. 2. We are not clear as to your query, but we should advise you to use a 4 ounces per pint fixing bath, and put your prints to fix in batches of twenty or so for ten minutes, giving them an occasional turn over.

RETOUCHING.—I am a beginner in retouching, and am sending to you for your kind opinion of my work. I have been practising retouching for about six months. 1. The specimens of elderly lady and gentleman were my first attempts, in which I know I have lost character, half-tone, and likeness, but I send them so that you may inform me if you consider I am improving. 2. The other two specimens (young men) are my latest work. 3. Will you also tell me if you consider with practice and patience I may eventually hope to become a good retoucher? 4. I am afraid I am rather slow at present—the last two negatives took me one hour each. 5. I find your criticisms of other retouching in the correspondence columns of the "Journal" very helpful to me, and hope your advice to me may be helpful to others. 6. I have been told by a retoucher that my work is too fine. Could you inform me how to avoid this, if it is so?—HOPEFUL.

1. Your specimens show the usual first attempt—very bad! and your own criticism is sufficient. 2. A decided improvement, certainly, but still a loss of character and modelling, and a wholesale removal of wrinkles, which even in young men are admissible if true to life. 3. You will certainly make a good retoucher in time, especially if you have a clever teacher to advise you. 4. One hour for this size is not too slow if properly done, but the finish must be higher-class for the time taken. 5. We are pleased that our columns have

afforded you such help, and hope they will continue to be of service to all young assistants in every branch. We represent the profession, and it is satisfactory to meet with appreciation. 6. At the same time we are not teachers of retouching, but critics, and it is impossible properly to advise you from a mere print. You need a skilled instructor to see a series of your efforts, and to point out your faults as you make them. Teaching yourself is slow work, and the most expensive in the long run. Correspondents should bear in mind that while we can find space for brief hints, the chief duty we have to discharge is frank criticism of the work submitted to us.

MERCURY VAPOUR LAMP.—Will you kindly give me the address of the makers of the "Cooper Hewitt Mercury Vapour Lamp," or could you inform me where I might obtain full information about this lamp?—WM. ALEXANDER.

Messrs. Penrose and Co., 109, Farringdon Road, London, E.C. A series of articles on the lamp appeared in our issues of February 3, 10, 17, and 24.

POSITIVES.—Will you please tell me the best way to make a good positive, whole-plate size? Can I obtain lantern plates of that size and print by gaslight?—A. G. NEWARK.

Your question is not quite clear. You can easily make a whole-plate positive by contact by gaslight if your original negative is that size, or by enlargement if it is smaller. An ordinary slow dry plate answers for the purpose, or you can obtain transparency plates coated with the same emulsion as lantern plates. The positive should not be too hard in contrast unless it is intended for decorative purposes.

COPYRIGHT.—Will you kindly inform me if I can legally copy a photograph of a group, taken in South Africa, and stamped "Copyright"?—COPYRIGHT.

No, certainly not. Although the administration of copyright law in South Africa is very lax, copyright in British colonies extends to this country under the terms of the Berne Convention.

MAKING CAMERA.—I propose making a half-plate camera for general use. Please advise which is the better method, front or back extension, also what length should it be capable of extending. Which bellows would you suggest, square or taper?—E. W. HENLEY.

You will find that a rigid-back camera, with front extension and good rising and swing front, will be most generally useful, unless you intend using lenses of very short focus, in which case the back should be made to move up to the front, or the baseboard will cut off some of the picture. The camera extension depends to a great extent on the class of work you intend doing. In any case it should be at least double the focal length of the lens you intend using, as this will permit you to copy same size. Bellows with a very slight taper will be found best for most purposes.

"CONSTANT READER."—You must give your name and address; also the prints for criticism as to retouching must be toned and finished.

REGISTERED NAME FOR POSTCARDS.—I am about to publish some postcards, and, wishing to give a name to the series, I shall be glad if you can inform me: 1. Where I could see a list of names already used by publishers of postcards? 2. What is the procedure and the cost of registering a name for this purpose?—S. C.

1. There is none that we know of, except in the catalogues of the leading postcard publishers, and the columns of a paper

such as the "Picture Postcard" (monthly). 2. You can obtain the regulations as to registering trade names from the Comptroller of Trade Marks, Southampton Buildings, Chancery Lane, London, E.C. The fees are 5s. on application and £1 on registration.

SOLAR ENLARGEMENT.—Can you inform me of the best method of making plain silver enlargements on paper and canvas by development; also how to obtain a sepia tone on some, either by development or after treatment?—**ENLARGER.**

In all probability the process required is the old calotype process, in which the paper is floated on potassium bromide 60 grains, water 8 oz., and then dried and sensitised on silver nitrate 110 grains, citric acid 15 grains, water 8 oz., and dried; after exposure it may be floated on a weak solution of silver nitrate 1:20, and then developed with a saturated solution of gallic acid at about 80 deg. F. This gives warm blacks, but is very slow. A more satisfactory formula is:—

Potassium iodide	...	...	80 grains
Ammonium bromide	...	...	35 grains
Ammonium chloride	...	...	10 grains
Gelatine	...	...	60 grains
Albumen	...	...	1 ounce
Distilled water	...	...	10 ounces

Soak the gelatine in the water and dissolve by the aid of heat; add the salts and allow to cool, and then add the albumen. Spread this solution over the paper or canvas with a soft sponge, and when dry sensitise with:—

Silver nitrate	...	...	1 ounce
Glacial acetic acid	...	...	$\frac{1}{2}$ ounce
Distilled water	...	...	10 ounces

A small pool of this should be poured on to the canvas or paper and distributed with a clean sponge or cotton wool, and the paper should be exposed wet; the exposure for an enlargement about six times with a good light is about one minute. The developer is:—

Gallic acid	...	...	60 grains
Acetate of lead	...	...	10 grains
Distilled water	...	...	10 ounces

and should be applied with the same sponge as the sensitiser is distributed, or a little silver solution should be added to above. For sepia tones it would be advisable to bleach with ferricyanide, and then apply sodium sulphide solution, about 1 per cent.

T. W. BARBER.—The transparencies have not been properly washed and are now showing the effects in the shape of probably sulphur deposit of some kind in the gelatine; we hardly think it likely that you can clear them now.

FLASHLIGHT GROUP.—The lighting of the group is very harsh. A better result would have been achieved if another flashlight had been used to lighten the shadow side. The photograph is not likely to have much more than a local sale, or be very interesting to many beyond those concerned in the group. Kindly supply your name, not necessarily for publication, when sending queries in future.

COPYRIGHT.—(1) What is the penalty for marking a photograph "copyright" if it has not been registered? (2) What would be the sharpest way to get them registered and to know they were registered before disposing of them? (3) Is it possible for a photographer to take a photo here and sell them three hours afterwards and have them registered?—**W. H. J. E.**

(1) The act is illegal, but we do not know of a case

of proceedings having been taken for the illegality. (2) and (3) All photographs must be sent to Stationers' Hall, Ludgate Hill, London, E.C., to be registered, hence the rapidity with which they can be registered depends on the facilities of transit. A receipt bearing the registered number of the picture is sent from Stationers' Hall if a stamp be enclosed for that purpose, and a certified copy of the entry of registration is obtainable for 5s., and is legal evidence of the claim to ownership of the copyright.

ARTIFICIAL LIGHT.—I have two arc lights, 5,000 c.p. together, a room 25 by 14, with high side window. Shall be glad to know best way to illuminate the sitter. Should the light shine direct, or be reflected by some means? Any help will be greatly appreciated, as I have never used electric light.—**J. D.**

We should say that the best way would be, as the lights are so small, to have them enclosed in ground glass globes or cylinders, and to place one at side, and a little in front of the sitter, to serve as a dominant light, and the other more forward, and more in front of the sitter, so as to soften the shadows. You do not say the size and position of the window, or whether you wish to supplement the electric light by that, or we might help you further.

STUDION.—1. The position for the sitter, as shown on the sketch, will be as good as any, and the light will serve fairly well for small pictures such as you propose to take. Of course, it would not do for full length pictures of a large size. 2. The sulphocyanide bath is what is generally used by professional photographers for P.O.P. With it you should not get double tones if you properly wash the prints before toning them.

"EN AVANT," G. Z., and others.—In our next.

THE Kodak Photographic Exhibition was opened last week in the Ulster Hall, Belfast, by Sir James Henderson. Mr. H. C. Shelley is lecturing and demonstrating, and the show is meeting with great success.

COLOUR PHOTOGRAPHY.—"Mr. F. Styant-Browne (President of the Pharmaceutical Society of Tasmania), who has for some time been experimenting with a view of producing colour-photographs, has succeeded in producing a photograph of a group of fruit, the colours of which are distinct and true to nature. The print is untouched in any way, and is stated to have been produced entirely by photography." So reports the "Chemist and Druggist," with unnecessary insistence on the photographic character of the process.

THE address of F. G. Willatt, High Wycombe, should be 157, Gordon Road, not 15½ as stated recently in another column.

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EX CATHEDRA.

The Free Enlargement in Ceylon.

Several copies of the "Ceylon Independent," which a correspondent is good enough to send us, we see that the old offer of an enlargement free is not varied when the scene of action is shifted to the East. There as here, M. Tanqueray occasionally makes a friend at court by actually fulfilling the strict letter of his offer, and thus obtains defence against those of his victims who naturally enough are not averse to exposing his methods of business. Ceylon has recently been deluged with the Tanqueray circulars, but we are glad to find the "Independent" cautioning its readers against the swindle.

Local Customs and Photography.

The inspection of some interesting photographs sent us by a correspondent in Cornwall has aroused our wonder as to the vogue of quaint local customs that exist to-day in various remote corners of the kingdom, and whether they are being recorded by the camera for the delectation of future generations. We have already referred to the praiseworthy labours of the National Photographic Record Association, and are well aware of the extent of Sir Benjamin Stone's collection of record photographs, but so far, we are unaware of any organised attempt being made to get together representations of local customs in addition to photographs of archaeological interest. The photographs sent us depict the crowning of the May Queen and plaiting the May Pole, in a remote Cornish village. The glories of Jack-in-the-Green and his compeers have, alas, departed, or have been driven into the quiet backwaters of country districts by the exigencies of modern rush and bustle, that have no time or place for these picturesque junketings, but it is surely a matter for regret that these customs, and others such as rush-bearings,

beating the bounds, fairs and feasts, etc., that have found universal acceptance at the hands of the people at one time, should pass away unrecorded by that most conscientious servant of the graphic arts: photography.

The Non-Return of Specimens.

Complaints of the retention of photographs—specimens of operating or retouching—by those advertising in our columns are greatly diminished in number of late, and we are glad to find that few employers are so destitute of the ordinary instincts of a gentleman as to retain specimen prints when their return is expressly prepaid. On the other hand, it is satisfactory to note that assistants are now more specific in their requests, and punctilious in enclosing the necessary postage and addressed envelope, for the return of the prints. Some persons, nevertheless, still appear to think that an advertiser's duty is to return at his own expense the forty or fifty specimen prints which may reach him, and whilst complaints that come to us because he does not do so have not the faintest justification, the breed of unscrupulous creature who will not take the trouble to return prepaid photographs to their owners is not quite extinct. However, there is consolation in the fact that photography is not the only profession in which these reprehensible practices still linger. Theatrical advertisers, we are told, are worse sinners, and even the "Lancet" thinks it necessary to caution certain of its advertisers engaging assistants and locum tenens. Its sharp note is one which we hope will duly deter those in the wrong:—"Photographs are the property of the gentlemen whom they represent and who pay for them; they are lent to advertisers for mutual convenience and when their purpose has been served they should be returned. As no one can want to make a collection of the photographs of perfectly strange gentlemen it is clear that the retention (of which serious complaint is occasionally made to us) is due only to carelessness, but people have no right to keep the property of other people whether the act results from carelessness or otherwise. In the case of a frequent offender we should like to hear what argument he is prepared with that should prevent us from violating the ordinary rule of editorial discretion and giving his name to his outraged victims."

A Rival of Persulphate.

A new reducer of the silver image which is stated to resemble ammonium persulphate in its effects, but to be slower and more manageable in its action, forms the subject of a communication by Mr. Harry E. Smith to the "Photographic Journal." The substance used by Mr. Smith is one or other of the numerous complex cobaltamine salts in acid solution. Erdman's salt, $\text{Co}_2(\text{NH}_3)_4(\text{NO}_2)_2\text{K}_2$, is named as one of the best for the purpose, and the reducer is prepared by dissolving .25 gramme of it in 50 ccs. of hot water,

and when cool, adding 50 ccs. of 15 per cent. sulphuric acid. The reduction takes place slowly, and on the highlights of the negative in preference to the shadows. It is recommended for bromide prints. After a brief wash, following reduction, the negative or print is immersed in 10 per cent. ammonia for about three minutes, and finally washed. We shall be glad to hear that the new agent is equal to persulphate in its "softening" action on a hard negative, but it is a pity that so acid a solution is necessary to give it activity. We demur to putting negatives into $7\frac{1}{2}$ per cent. solution of sulphuric acid, and to subject them afterwards to 10 per cent. ammonia. Such a course of treatment is likely to injure the substance of the gelatine, and to favour the separation of the film from the glass.

Photographing Further information is now to hand as the Corona.

to M. Hausky's method of photographing the solar corona in daylight, to which we referred last month. He uses celluloid films from which the silver salts have been dissolved, stains them in solutions of aniline dyes, red, orange, malachite green, and gentian violet, and then superimposes them on a red-sensitive plate; the light absorbed by this combination of screens reaching from wave length 660 to the ultra-violet. In contact with the front of the screens he places an opaque disc which cuts out the image of the photosphere itself. So far some twelve successful results have been obtained with exposures from thirty seconds to two minutes. Further trials are to be made with screens limiting the light as far as possible to the red C. line, and adopting the plan of placing the occulting disc at some distance in front of the lens so as to avoid reflections in the interior of the camera.

Photographs of the Solar Corona.

Reference was made last month to the attempts by Dr. Hausky to photograph the solar corona by the use of screens, and in connection therewith mention was made of Professor Hale's work. We have now received from Dr. Wm. J. S. Lockyer, of the Solar Physics Observatory, South Kensington, a reprint of a paper by him in the monthly notices of the R.A.S., in which he describes the spectro-heliograph used at the aforesaid observatory, which may be said to be an improvement on the Hales-Deslandres instrument. In this the sun's image is thrown on a slit by a siderostat, and is then dispersed by a prism. The image of the spectrum is formed at the plane of a secondary slit, which is curved to the exact radius of the curvature of the K line of calcium. Close behind this slit is placed the plate, and the primary slit is moved across the image of the solar disc, and a complete image is formed of the solar surface, on the stationary plate. When pictures of the corona are required the actual image of the sun is, as it were, eclipsed at the primary slit by a circular plate of metal. Otherwise the disc would be considerably over-exposed, as it requires but one-sixtieth of that for the corona. Some interesting results are illustrated, and doubtless many of our readers will remember that some have been exhibited in the technical section of the R.P.S. Exhibition during the last few years.

Honorary Fellows of the R.P.S.

The brief intimation in our last issue that four new honorary fellows had been elected by the Council of the Royal Photographic Society might be received with little comment beyond an appreciation of the new resolution that "it is desirable that the award of the Progress Medal should be accompanied by the Honorary Fellowship."

But when it is seen that the names of Robert Demachy and Alfred Stieglitz are included in the quartette, the announcement takes on a more portentous aspect. That Robert Demachy can be regarded as the representative of pictorial photography in France, and that Alfred Stieglitz occupies a similar position among the American photographic pictorialists, are undeniable facts. Hence the special singling out of these two personages can only be regarded as a premonitory step in the direction foreshadowed by the R.P.S. in their last exhibition at the New Gallery. The foreign and American invitation section on that occasion left no doubt as to the trend of the society towards an acknowledgment of the modern pictorialism as demonstrated in this country by the "Linked Ring." Is the present step intended to lead towards a possible conciliation and amalgamation between the two annual picture shows? Such an idea has been put forward, but we cannot seriously expect anything to come of it, and we certainly fail to see that pictorial photography would stand to gain by the removal of healthy rivalry.

Weather Prog- The proverbial vacillations of English nomenclatures.

weather have often proved a stumbling-block to the enterprise of both professional and amateur photographers. Fine bright days are, at this time of the year, expected; but how often it is the unexpected that happens. Not only is the ardour of the photographic society excursion summarily damped, but the individual members thereof are frequently deprived by sudden spells of gloom and storm from perpetrating further incursions into the realms of practical photography. For this we might at times be thankful were it not for the fact that the photographer, whose bread and butter depends to a great extent upon the vagaries of the light, is also concerned. A definite knowledge of what the day after to-morrow is likely to give in the way of weather is, therefore, likely to prove of value to every user of the camera. Steps towards the consummation of this ideal state of things were successfully taken by the "Daily Telegraph" last year, with a series of weather forecasts sent per Marconigram by Atlantic liners when 1,000 miles or more west of the Lizard. The system has again been started by that paper, and if the predictions given are used in conjunction with local indications, they should prove of great usefulness to photographers throughout the country. In addition to this the Meteorological Council announce that, as in previous years, they will send out during the summer months a special service of forecasts for the benefit of agriculturists and others. These forecasts cover the period of the hay and corn harvests, from June 1 to September 30, inclusive. For this service special telegraphic reports are obtained up to 2 p.m., and the anticipations are sent out daily at 3.30 to those "who desire to receive them and who defray the cost of the telegrams." This outlay is practically 6d. a day, for the message contains only nine words, plus the address. Up to the present time the Midland Counties and the South of England have shown the greatest appreciation of this service, and last year over 80 per cent. of the prognostications were successful.

The Dublin Convention.

An advance copy of the official handbook of the forthcoming twentieth Annual Convention of the United Kingdom has been sent us. The little booklet—in an appropriate green cover this year—again bears witness to the energies of Mr. F. A. Bridge, the hon. general secretary and treasurer, and his local collaborators. The book is similar in form to that adopted in previous years, and much useful information is contained therein, albeit the bulk of the matter is

uide book." Dublin itself is dealt with in a general view, historical and otherwise, and Glendalough, Bray, the Dargle, and Drogheda and Monasterboice also in for a full share of graphic description which could prove of undoubted service to conventioners intending to take advantage of the special excursions to these parts of Erin's Isle in July next. The frontispiece is a portrait of the president elect, Professor John Joly, R.S., D.Sc., etc., from a negative by Alfred Werner, many admirable illustrations of places of interest in and around Dublin are included. Old conventioners who visited the city in 1894 will look forward to renew their acquaintance with the places depicted. We have already published the programme of arrangements for the week, commencing July 10, and in our next issue will, for the benefit of our readers, reprint the entire programme as set forth in the handbook, and in particular will draw attention to the announcement that the hon. general secretary has arranged with the London and North Western Railway Company to reserve special accommodation for members of Convention, by the excursion leaving London (Euston) on Thursday evening, July 6. Several conventioners have already signified their intention to travel by this train, and Mr. Bridge is pleased to welcome any others desirous of joining the party. Applications should be addressed, Mr. F. A. Edge, East Lodge, Dalston Lane, London, N.E., and must be received not later than Saturday, July 1, and must be accompanied by a remittance for the return fare Dublin (26s.).

WEIGHTS AND MEASURES.

"Bothers of our weights and measures are like weekly —with us always," was one of the happy phrases used by Lord Crawford in his presidential address to the Royal Photographic Society in 1897, and it is one which comes to mind on looking over the correspondence which has lately appeared in our pages. One has only to turn back past volumes to see that this subject is a sturdy perennial.

The whole question would be at once simplified were the metric system adopted, or if the suggestion of some uniform form of expression were adopted by manufacturers and photographic writers generally. For were all units expressed in grains per ounce, or the total bulk of solutions made up to one common measure, such as 100 ounces, it would be extremely easy, on the adoption of a new formula, to see in what and by how much it differed from existing ones.

It would, of course, be absurd to adopt the suggestion of making the total bulk of all solutions up to the pint, as, for instance, in the case of gold and platinum solutions, it would also be ludicrous to give a fixing bath in 100 grains per ounce. We have taken these two examples as practically typical of our working solutions, and the natural corollary is that absolute accuracy is in many cases only unnecessary, but practically impossible. If we were to strive for this, we must necessarily take into consideration barometric and thermometric conditions; and, moreover, in many cases — in fact, it may be said practically all cases — scientific accuracy is impracticable and unnecessary. The difference in result by the addition of a grain of pyro per ounce, or a slight excess or deficiency of hypo, cannot be appreciated in practice.

It is, however, to the specific points raised in the last discussion. With regard to the dubious point of the total bulk of solution, mentioned in the original letter in our issue for April 21, it seems only reasonable to suppose that in all cases the total bulk of the solution should

measure that given, and that "water x ounces" should be inferred to mean "water to x ounces." If the reverse is accepted, then it would mean that (in many cases) for the making up of a formula in which "water 20 ounces" was given we should have to use a bottle of a slightly greater capacity than one pint.

The question of the 10 per cent. solution should not present any trouble, if it is remembered that all chemicals are sold by the avoirdupois ounce of 437.5 grains, and not by the old apothecaries weight of 480 grains. In our judgment, photographers mean by a 10 per cent. solution one which contains 1 grain by weight of the solid in 10 fluid minims of the solution, and, therefore, such a solution is made by dissolving the avoirdupois ounce in sufficient water or solvent to make the total bulk measure 4,375 minims, equal to 9 oz. 55 minims fluid. In precisely the same way, any other strength solution may be made, by multiplying the solid in grains by the necessary factor and making the total bulk of solution measure this volume.

The next point we have to consider is that of the conversion of metric formulæ into English; the reverse is rarely required. We may at once state that the use of the cubic centimetre, whilst academically incorrect, should be adopted by those who wish to write in metric measures, as this brings the formulæ into line with those used on the Continent. Taking the specific instance given in the original letter:—

	A.	B.
Hypo	400 grammes.	8 oz. 3840 gr.
Sodium chloride	20 grammes.	175 gr. 192 gr.
Lead acetate	10 grammes.	87.5 gr. 96 gr.
Gold chloride (1 p.c. sol.)	100 c.c.	2 oz. 2 oz.
Water to	1000 c.c.	20 oz. 20 oz.

It is obvious that it is perfectly immaterial whether we adopt the A. or B. reading, in regard to the first three ingredients, so long as we keep to the correct quantity of gold, which is the important constituent, and this we shall do if we make up our 1 per cent. solution as advised above.

Incidentally we may remark that in the metric formula the first three ingredients form a 40 per cent., a 2 per cent., and a 1 per cent. solution, and, therefore, to obtain these, the quantities must be as in B. formula. But few of us would think of weighing out 3,840 grains of hypo. We should at once take the familiar half-pound avoirdupois, though by doing this the actual error would be over three-quarters of an ounce in the amount of the hypo.

As regards the formulæ in the next issue of our ALMANAC, we may state that the above considerations will guide us in conversion of the metric into English formulæ, and as regards the reverse, we shall adhere to Lord Crawford's suggestion of dividing the grains per ounce by half the number of ounces in the total bulk of solution. This is a practical method, if not theoretically correct. To use the exact factor would give, in the majority of cases, two or three places of decimals, and to find fault with this system when dealing with such quantities as a total bulk of 1,000 c.c., because of this slight discrepancy of a few milligrammes would be nothing more than academic hair-splitting.

With regard to the queries in the letter in our last issue, these must be answered with reference to each particular case, and it will not be difficult to decide this if the quantity of the developing or other agent be calculated when A. and B. are mixed together, and also if an equal volume of water be added, or only half. The word "part" should present no difficulty, as long as this is read as meaning one particular unit, such as "ounce," "pint," "grain," or "gallon."

INTERNATIONAL AND FOREIGN COPYRIGHT.

WITH the growth of illustrated journalism, the photographic record of the doings of the world becomes more and more important. The outlook upon the affairs of the civilised globe now accorded to the reader of a daily or weekly newspaper is wider than ever it was, and many subjects, which a few years ago would be deemed of national interest only, are given a place in the illustrated periodicals of different countries. Photographers, as the chief creators and purveyors of this illustration, have reason to keep a keen eye on this tendency, inasmuch as it opens markets to them in foreign countries. While the British illustrated press accepts, and even seeks, work from abroad, the foreign press of the same character does not ignore the doings of the week in the dominions of His Majesty, King Edward VII. Take up a good illustrated paper in Berlin, such as "Die Woche," and you will find depicted therein Mr. Balfour at golf, or a typical picnic scene on the upper Thames. Such uses of foreign illustration are indications of the growing international character of picture journalism. As means of transit become more rapid, and reproduction methods are improved, the growth will be propor-

tionately more vigorous. At any moment the tendency to receive a sudden impetus by some new process of reproduction which may revolutionise current methods. Telegraphic transmission of pictures, for example, is a process at present in an embryonic condition, which may reach the practicable stage. The lesson of the past twenty years teaches us that the illustrated press of the future will bring to an even sharper focus the doings of the inhabited globe. Political economists may see in this prediction of the closer union of the nations and a more pacific state of international politics from the better acquaintance of the various peoples. With that aspiration we have nothing to do. We would come to a more sordid aspect of the question—one affecting photographers—that is, the protection which is granted to photographers in foreign countries. It is conceivable that foreign copyrights may become of much greater monetary importance than they are at present, and, for that reason, it may not be out of place to draw attention to the legislation under which works of art, including photographs, are granted protection. The present law came into operation in 1886, and is known as "The International Copyright Act."

THE INTERNATIONAL COPYRIGHT ACT.

This Act was passed in 1886. In 1887, the Berne Convention was signed by Great Britain. Under this Convention, the subscribing countries (forming the "Copyright Union") agree to certain mutual protection of literary and artistic works. The essence of the Convention is found in Article II., wherein it is provided that authors of any country of the Union shall enjoy in all the other countries for their works, either published or not published for the first time in one of those countries, the rights which the respective laws grant to natives, except that the term of protection is not to exceed that in the country of origin. In other words, a foreigner gets the same privileges as a native, except as regards duration of copyright.

An essential condition of the acquirement of protection in the foreign countries is that the author's procedure must be such as entitles him to protection at home. He has not to trouble himself about the formalities in other countries, but he must observe those of his own, or the "country of origin," as it is better to term it. The Act defines the "country of origin" as that in which the work is first published.

Registration of a photograph is not necessary to ensure its protection in the countries subscribing to the Convention. Though this point has been in dispute, the above seems to be the inference from the case of *Hanfstaengl v. Holloway*, some ten or more years ago. Coppinger, writing on the subject in his "Law of Copyright," concludes that "the Englishman who complied with the requirements of English law was to be protected in the foreign countries of the Copyright Union."

Another point which may be extricated from the intricacies of international copyright law is that an author cannot claim the benefit of a greater length of protection, if it exceed that conferred by the legislature in the country where he publishes.

These few extracts from the law on the subject will serve as a guide to the photographer having relations with publishers abroad in the matter of complete or partial assignment of copyright. To make them complete, we give a brief summary of the copyright laws of the countries of the Union, especially in relation to photographers.

COPYRIGHT LAW OF FOREIGN COUNTRIES.

The following is a condensed account of the regulations as to photographic copyright in the foreign countries of the Copyright Union, i.e., Belgium, Denmark, France, Germany, Hayti, Italy,

Japan, Liberia, Luxembourg, Moravia, Norway, Spain, Sweden, Switzerland, and Tunis.

COUNTRY.	DURATION OF COPYRIGHT.	CONDITIONS.	FORMALITIES TO BE OBSERVED.	NOTES.
Belgium ..	Fifty years after the death of the author	None	None ... ..	... ..
Denmark ...	Five years after the death of the author	All copies must bear the author's name and the words "Exclusive property"	Declaration must be made at the Department of the Interior and one copy deposited. The declaration must state the full name of the photographer, a description of the photograph, and, if the photograph is reproduced from a work of art, the name of the artist	Actions for infringements can only be brought by an injured party and within a year and a day. Persons infringing or selling or importing pirated copies are liable to fine and to indemnify the injured person.

COUNTRY.	DURATION OF COPYRIGHT.	CONDITIONS.	FORMALITIES TO BE OBSERVED.	NOTES.
France*	...	...	...	...
German Empire	For five years from the end of the year in which the first copies appeared, or from the making of the negative	Every photographic or photo mechanical copy must bear, either on the picture or the mounting, the name or firm of the photographer or publisher, his address, and the year in which the reproductions first appeared	None	Photographs are granted protection in Germany only when made by Germans. (This applies to photographers resident in Germany, so that an Englishman can obtain protection by registering in England which would not be granted to him were he resident in Germany.)
Italy	For life of the author and life of his widow. If he leaves no widow, the copyright passes to his children for twenty years, or to other heirs for ten years	...	Five copies to be deposited at the Department of the Interior	...
Italy	In artistic works, first for the life of the author or forty years, whichever is the longer, then for another forty years, during which time reproduction can be made on payment to the author of 5 per cent. of the published price of each copy	...	Three copies must be deposited, with description of same stating year of publication and desire to reserve rights as author or publisher. The declaration must be made within three months of first publication, but it can be made at any later time within ten years, unless the work is reproduced in the meantime or copies imported from a foreign country	...
Japan	For ten years from publication: or taking of negative, if not published	...	Registration is made in the Department of the Interior. In default of registration a civil action for infringement cannot be brought, nor can the copyright be mortgaged or transferred	Lawful reproductions of a work of art enjoy copyright as long as the copyright lasts in the original. The right to reproduce photographic portraits belongs to the person who has ordered them.
Luxembourg	Fifty years after the death of the author	...	...	...
Monaco	For the life of the author	...	...	...
Norway	For five years from the expiration of the year in which the first copy was made, but terminating in any case at the death of the photographer	The word "Einbertigt" (protected) must appear on each copy, also the date of production, the name of the photographer, and the name of the artist if the photograph is a copy of a work of art	Norwegian authorities have notified the Berne International Bureau that no formalities need be observed for the creation or maintenance of copyright or as a preliminary to taking action for infringement, but a law of 1882 demanding registration appears to be still in existence	...
Spain	For the life of the author and eighty years after his death	...	No registration or deposit is necessary in general for works of art	...
Sweden	For five years after publication	Each copy must bear the name and address of the photographer and the year of first publication	...	...
Switzerland	Five years after registration	...	Registration must be made at the Federal Department within three months	...
Tunis	For the life of the author and fifty years after his death	...	...	...

* According to Coppinger ("The Law of Copyright," 1904 edition, page 554), copyright in photographs in France has been greatly a matter of controversy, photographs not being expressly dealt with under any legislation. It has been held (1) that all photographs are protected under the law of July 19, 1793, by which the copyright in works of art endures for fifty years after the death of the artist; (2) that no photographs are protected; (3) that only photographs of artistic merit are entitled to protection. The general decisions of the courts seem based on the third alternative. The judges decide whether a photograph is a work of art or not, and their decision can be taken to the highest court of appeal. The French law of 1902 grants copyright to designs of buildings, and an architect can prevent a photograph of a private building being taken for purposes of profit.

MODERN CHEMISTRY FOR PHOTOGRAPHIC WORKERS.

IV.—EQUILIBRIUM, AND THE FINAL RESULTS OF REACTIONS.

In the earlier papers of this series we have discussed the behaviour of solutions, the splitting up of compounds into ions, and the functions of those ions in determining the nature of reactions. It will next be desirable for us to investigate the progress of these reactions both as regards the end to be attained by any given reaction, which we may call the statics of reaction, and as regards the rate of reaction itself, which we may call the dynamics of reaction.

Reversible Reactions.

In the second paper of this series* we saw that while ammonium chloride will on heating split into ammonia and hydrochloric acid, so also on cooling will ammonia and hydrochloric acid form ammonium chloride. If we place either ammonium chloride, or an equivalent quantity of ammonia and hydrochloric acid in a bulb, we shall find that under fixed conditions of temperature and pressure we have always the same final products in the bulb—that is to say, we shall have ammonium chloride, ammonia, and hydrochloric acid in some proportions.

If we start with ammonium chloride, some of this will dissociate into ammonia and hydrochloric acid; if we start with ammonia and hydrochloric acid, some will combine to form ammonium chloride.

So that we have here a reversible reaction which we can write



The Law of Mass.

If we look at this a little more closely, we shall be able to understand the mechanism of the reaction. If we start with a definite amount of ammonium chloride, then a certain number of molecules every second will split up into ammonia and hydrochloric acid; if we start with ammonia and hydrochloric acid, a certain probably different number of molecules will unite to form ammonium chloride. To get the matter quite clear, let us look at an analogy. Suppose the Bath express leaves London at the same time as the London express leaves Bath, which is 106 miles from London, and suppose the Bath express travels at fifty miles an hour, while the London express travels at forty miles an hour, where will they meet?

The answer can easily be worked out. In the same way the ammonium chloride is turning into ammonia and hydrochloric acid with a certain velocity K , and the ammonia and hydrochloric acid are turning back into ammonium chloride with a certain velocity K^1 , so that presently we get to a point, for any temperature and pressure, where the number of molecules of ammonium chloride dissociating is equal to the number re-combining, and we have reached an equilibrium. This equilibrium is fixed by the mass law, which states that *The velocity of any reaction depends on the concentration of the substances taking part in that reaction.*

This is so obvious as to be almost axiomatic, and yet it remained almost unused until quite recent times.

Suppose, for instance, 2 grams per second of ammonium chloride are formed from 10 grams of ammonia and hydrochloric acid, the mass law states that 4 grams will be formed from 20 grams, and so on.

From this it will follow that all reactions are reversible provided that the products of reaction are not removed.

For instance, the splitting up of potassium chloride into ions will be reversible, but the action of sulphuric acid on zinc

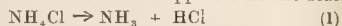
will not, because the hydrogen which is formed is removed as gas.

Similarly, if we add silver nitrate to potassium bromide solution a reaction occurs which we can represent by the ionic equation

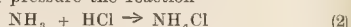


but this reaction is not reversible, because the AgBr is removed from solution by being precipitated.

To return to ammonium chloride. Suppose that the reaction



goes with a velocity K , and that under the same conditions of temperature and pressure the reaction



goes with a velocity K^1 . Then the number of molecules converted per second in equation (1) will depend on K , and on the concentration of the NH_4Cl , or

$$\text{Number converted per sec.} = K C_{\text{NH}_4\text{Cl}}$$

where $C_{\text{NH}_4\text{Cl}}$ = Concentration of ammonium chloride in gram-molecules per litre.

In the same way, the number of molecules converted per second in equation (2) will depend on K^1 , and on the concentration of the ammonia and the hydrochloric acid, or

$$\text{Number converted per sec.} = K^1 C_{\text{NH}_3} C_{\text{HCl}},$$

where C_{NH_3} and C_{HCl} = concentrations of these substances in gram-molecules per litre.

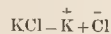
(A gram-molecule per litre is the molecular weight in grammes dissolved in a litre of solution, and is the unit of concentration. It is usually called a mol in physico-chemical text-books.)

At the equilibrium point these two numbers converted per second must be equal, so that

$$K C_{\text{NH}_4\text{Cl}} = K^1 C_{\text{NH}_3} C_{\text{HCl}}.$$

which is the equilibrium equation.

If we consider this equilibrium equation, it is clear that if we add excess, say, of ammonia to the bulb, and so increase C_{NH_3} , we must correspondingly increase $C_{\text{NH}_4\text{Cl}}$, that is to say, less ammonium chloride will be split up. In other words, adding the product of a reaction decreases the amount of the reactive substance decomposed. Of course, the equilibrium equation applies to all possible reactions; it applies, for instance, to ionic dissociation. We saw that on solution potassium chloride dissociated into ions according to the equation



but this is reversible, and we can write for the equilibrium

$$K C_{\text{KCl}} = K^+ C_{\text{K}^+} C_{\text{Cl}^-}$$

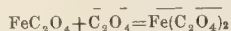
and we see from this that the addition of other potassium ions—potassium nitrate, for instance—will lessen the dissociation of potassium chloride by increasing the value of C_{K^+} .

It has already been stated that development proceeds between developing ions and dissolved and ionised silver bromide. Silver bromide in the very dilute state in which it could occur in a plate is very highly dissociated, but if potassium bromide be added to the developer the concentration of the bromions is greatly increased, and consequently the dissociation of the silver bromide is diminished and there are many less silver ions present for reaction.

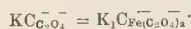
A most important example of equilibrium occurs in the case of complex ions. It frequently occurs that some body not itself soluble combines with some other substance to form

* THE BRITISH JOURNAL OF PHOTOGRAPHY, May 12, 1905.

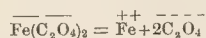
soluble ions. For instance, ferrous oxalate, which is an insoluble yellow powder, combines with the oxalic ion to form complex ferro-oxalic ions, which are soluble in water, thus:—



The equilibrium equation for this reaction will be



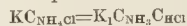
the value of $\frac{\text{K}}{\text{K}_1}$ has been found to be .8 by actual measurement. Another dissociation might take place in this case, namely, the ferro-oxalic ion might re-dissociate into ferrous and oxalic ions:—



but at moderate dilutions this only occurs to a very small extent.

Another interesting example of a complex ion is to be found in the case of silver thiosulphate, which appears to form with sodium thiosulphate a soluble complex ion. Probably also the metallic ferrocyanides form complex ions with citrates, since they are soluble in them, but all these cases need investigation. In the case of all equilibria, it has been pointed out that the equilibrium only persists at one definite pressure and temperature; that is to say, alteration of these conditions will disturb the equilibrium.

If, for instance, ammonium chloride has reached the equilibrium indicated by the equation



and we heat the bulb, we very greatly increase the velocity of

dissociation of the ammonium chloride, or K_1 and consequently get CNH_4Cl diminished, and CNH_4CHCl increased; that is to say, very much more ammonium chloride dissociates.

Hence we see that any alteration in conditions which will affect the velocity of a reaction without also affecting the velocity of the reverse reaction, will affect the equilibrium. Certain reactions appear to be greatly accelerated by small quantities of substances, and these bodies are termed catalysers. In some cases we understand the action of the catalyser; in many others we do not.

For instance, ethyl acetate in the presence of water very slowly dissociates into alcohol and acetic acid, according to the equation



This reaction proceeds at a very much greater rate in the presence of hydrogen ions—that is, upon the addition of an acid. In fact, the alteration of velocity of this reaction is the usual way of measuring the number of hydrogen ions in an acid solution.

This reaction, however, is catalysed to an equal extent in both directions, and so are all other catalytic reactions; that is to say, catalysers do not affect the final equilibrium. Both the velocity and the equilibrium of reactions may be very greatly affected, however, by alterations of temperature, concentration, etc.

To sum up, reactions are shown to proceed to an extent both forwards and in the reverse direction, which is determined by the velocities of the two opposing reactions and by the concentration of the reacting bodies. In the next, and concluding, paper we shall enter upon the dynamical aspect of reaction, that is, the rate of progress of a single reaction before the equilibrium position is reached.

C. E. KENNETH MEES, B.Sc., F.C.S.

THE WEEK IN HISTORY.

Poitevin's Gelatine Dry Plates, 1850.

MAY 27, 1850—fifty-five years ago to-morrow—is the day on which Poitevin communicated to the French Academy of Sciences a description of a gelatine dry plate. Not an emulsion, of course, but none the less a silver iodide gelatine plate prepared somewhat after the Daguerreotype by exposure of a gelatine film containing silver acetate to the vapour of iodine. Poitevin coated glass plates with gelatine and soaked them in solution of silver acetate. Saturation of the gelatine film with silver in this way was done the evening before the plates were to be used. The next morning they were exposed to the iodine vapour, as were the silvered plates of the Daguerreotypist, and placed forthwith in the camera. Yet Poitevin mentions the increase in sensitiveness which is obtained if the plates were left for some time between iodising and exposure. Some idea may be gained of the feeble sensitiveness of these plates by the exposures of two minutes necessary when working with portrait lenses, and of eighty to one hundred seconds for landscapes in a good light. The developer was a one-tenth per cent. solution of gallic acid, which was employed for an hour or an hour and a half. After fixing in one per cent. hypo, the plate was washed and transferred to a solution of potassium bromide, again washed, and dried. The object of the bromide bath is not clear, and in a subsequent paper on the process Poitevin omits it.

Moist Collodion Plates.

The search for a dry-plate process is an overpowering element in the records of the experimental work of about fifty years ago. I have referred before to the labours of Gaudin, most of whose papers appeared in "La Lumière." In 1854—on May 27—Gaudin continues to discourse on his efforts to work the collodion as a dry, not a wet, process. A film with silver nitrate in it,

he reasons, cannot be kept, for the silver iodide is dissolved from it as the silver solution becomes stronger by evaporation. Form your silver iodide, he concludes, and remove the excess of silver before exposure, afterwards replacing it before development; or adopt the method of Crookes and Spiller of keeping the film moist with a deliquescent salt ("The Week in History," April 28). He finally recommends, as a process suitable for occasions when the plate has not to be kept for a very long time, the use of a 5 per cent. sensitising bath containing nitrate of zinc and white sugar, the plate before development being given an immersion in a full-strength silver bath.

R. F. Barnes worked a *dry*-plate process, and published a pamphlet upon it in the middle fifties. I recollect his working it in 1856, and he published 12 by 10 views of London about that time.

Fox Talbot's Plates.

The calotype process, as I have already mentioned, was patented by Talbot in February, 1841 ("The Week in History," February 3). It is not to be supposed that Talbot rested satisfied with it in its original shape, although he spent four years in bringing it to its state of perfection at that time. Two years later, on June 1, 1843, he took out a patent which claimed protection for a number of little odds and ends, such as would occur, one might expect, to any one working the process. For he patented:—

A hot solution of hypo to improve the whites of the picture and give permanence;

Increasing the rapidity of the paper by placing a warm iron plate behind it during exposure;

"Io-gallic paper"—i.e., iodised paper treated with gallic acid and requiring only silver nitrate to render it sensitive;

Waxing paper prints to render them transparent, and

backing with white or coloured papers to obtain "various beautiful tones of colour";

Making enlarged paper negatives and printing therefrom on calotype paper;

And, the publication of photographic prints.

The last item is probably the most extraordinary of Talbot's

patent claims, for he does not put forward as novel any process or apparatus, but claims as new the system or combination of these several processes into one, whereby a new and useful result is produced, viz., "The multiplication of very permanent and perfect photographic copies of the positive kind."

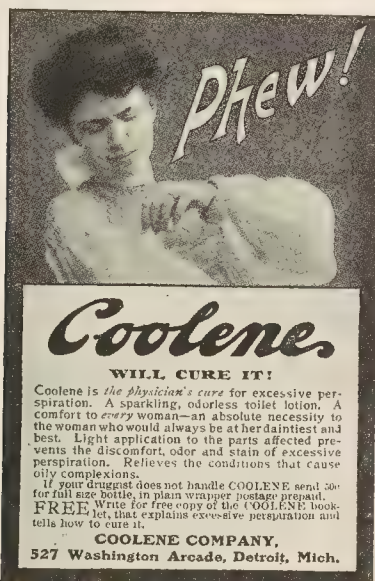
HISTORICAL.

THE ILLUSTRATED ADVERTISEMENT.

EVERY advertiser is ready to admit the advantages of illustrated advertisements, but few go beyond seeing that their advertisements are illustrated. It is one thing to illustrate an advertisement, quite another to illustrate it effectively. Some advertisers seem to run away with the idea that they must be eccentric in their illustrating to be convincing. Nothing could be further from the truth. If an advertisement is illustrated, the illustration should bear a distinct relation to the subject-matter of the advertisement, and should form

good photograph; and it is this fact, as much as anything else, that has led to the rapid advance of photography in advertising.

Already in America and here, photographers are devoting themselves solely to picture-making for advertising, and with far better financial results than they could hope to obtain from the regular



Example No. 1. A Repulsive Advertisement.

an integral part of it. It is all very well hitting on a catchphrase and illustrating it *à la* Catesby or the Lamson Paragon Co., but there is always the danger of the illustration and the catch-line being all of the advertisement that is noticed. When he "cuts the cackle and comes to the horses" the reader jibs.

To our mind, the illustration to an advertisement should, if possible, show the article advertised in use in some way or another. For instance, a maker of braces might show a man, *minus* coat and vest, on a ladder painting a wall, and leaning over to reach an out-of-the-way corner. The absence of strain from the braces he is wearing would be apparent to the most casual observer. Again, a gun-maker could arrange a picture of a sportsman drawing a bead on a bird, the surroundings, of course, being in harmony.

The Photograph.

For illustrations such as these, the average artist is entirely out of court. His sketches lack the vivacity and go that are afforded by a



Example No. 2. By Geo. Crook, M.P.S., Southport.

portrait gallery. Once the picture is secured, the artist, of course, is called in to work it up and to provide it with an appropriate dress in the way of border, lettering, etc., and the combined production gives far more satisfaction to the advertiser, and produces far better results than the mere line illustration to which we have so long been accustomed.

In this branch of publicity, as in all others for that matter, the utmost care has to be exercised to prevent a good conception being spoiled in the execution. We have, for the sake of example, selected three advertisements which owe their origin to photography, and which we can best classify as bad, good, and excellent.

The Repulsive Advertisement.

For the first we take the advertisement of an American house for a preparation of theirs for the relief of excessive perspiration. Could anything possibly be in worse taste? We have seen some bad specimens of advertising, but, for downright repulsiveness, we think this effort would be hard to beat. From a technical point of view, the photograph is, of course, good, and the meaning clearly conveyed, but we trust such realistic advertising will remain in the land of its birth. It has nothing to commend it, and its business-producing capacity is open to very serious doubt. It is degrading to photography to make use of it in such a way.

Pitfalls in Advertisement Photography.

For the second class, we have taken a card that is being sent out by Mr. Geo. Crook, chemist, of Southport, to push a new brand of soap he is handling. Here, to our mind, the idea is very good, and the result is a decided improvement on the average effort in this direction. The boy is the right age to use as an illustration for the article, and his holding out the cake of soap draws attention to that straight away. With much that is so good, it is a great pity some little defects were allowed to creep in to mar the whole. In the first place, an acolyte is scarcely likely to be wearing a monk's cowl, and, if he were, it is perfectly certain he would not have the neck thrown open sufficiently to show that he is wearing a fashionable collar and tie. In the second place, the fact of the boy being seated on a rather unlikely chair, before an unlikely table, detracts from the advertisement point of view. We would suggest that Mr. Crook would find it made a much more realistic illustration, and a better advertisement, if the chair and table were done away with, the box of soap stood on the floor, and the boy—wearing a chorister's surplice—held out the cake of soap a little less shyly.

Force in the Photographic Design.

The third illustration we consider distinctly good; it clearly conveys the advertiser's meaning and carries conviction. The clenched fist, the wrinkled forehead, all tell their tale of something forgotten, and one instinctively turns to the text to find out what it is. Here the introduction of the article advertised would, of course, have been ridiculous, but with such an effective illustration one could safely rely on the subject-matter being read.

In conclusion, we would suggest to advertisers that when deciding

to use illustrated advertisements, photography should have first claim on their consideration. The result is bound to be more satisfactory than the crude drawings which in many instances have passed good for illustrations. For the embellishment of booklets, catalogues, etc., photography stands pre-eminent, the introduction of a few pic-



Example No. 3. A Strong Photographic "Ad."

tures of the advertiser's business premises and stock-in-trade carrying far more weight than yards of written explanation.

[For permission to use the above article we are indebted to the "British Advertiser," in which it first appeared, and to the photographers who illustrate it. A note of certain offers which the "British Advertiser" is making to photographers appears elsewhere in this issue.—Eds., B.J.P.]

PHOTOGRAPHING LEAPING FISHES.*

A NUMBER of years ago I began to experiment with the camera to obtain photographs of leaping fishes, but always with indifferent success. The most difficult game appeared to be the large California flying fish, *Exocoetus californiensis*, which from the middle of May is a feature of the Santa Catalina channel, appearing in large schools and remaining all summer to deposit spawn in the bays of the islands. I made my first attempt from the bow of a steamer. I secured a position at the porthole in the bow, and while it was impossible to aim the Kodak with any certainty I snapped it at a number of fishes, hoping accidentally to take them; but the plates invariably developed blank; the flying fish had passed out of the field before I pressed the button.

Flying Fish.

Later I made the attempt from a small launch, with more or less amusing results. I sat on an elevated deck, so that I could command the field, and held a large Kodak ready for the fray. The first flying fish came directly towards the boat, passing within a short distance of me—in fact, so near that I moved to avoid it. Another fier struck

the boat; and on another occasion a fish almost unbalanced me, striking my neck; but this was at dusk. In none of these attempts was I successful, for it requires some skill to face a heavy flying fish, coming like a shot, with a camera and to dodge it at the right time. I had equally unsatisfactory results in attempting to photograph the tuna.

A Gun Camera.

In my attempts to photograph the tarpon I was also unsuccessful. I forced the fish to leap so close to the boat that they appeared to be coming aboard; but the sight was always so wonderful, that though I held the Kodak between my knees and had formulated an elaborate plan to pass my rod to the boatman on the jump and use the Kodak, it was always a failure. When the splendid fish rose into the air, I forgot the camera until too late. These more or less humorous adventures have probably befallen others who, not being expert photographers, will welcome a device which experiment has demonstrated, renders it an easy matter to photograph fishes of all kinds or indeed any animal in the air. It is literally a gun camera, devised by an ardent tarpon angler, Dr. W. H. Howe, of the city of Mexico.

* An article in the "Scientific American."

Dr. Howe spends a part of each winter at Tampico, where the tarpon appears to winter, and as the fishes are high jumpers and were in smooth water near shore he began to experiment along various lines, resulting in a gun camera which solved the question. The splendid tarpon, the "silver king," was caught in the very act and shown in various positions in the air, making a valuable addition to the angler's store and explaining many hitherto little understood features of tarpon leaping. The appliance of Dr. Howe is made up of a gun stock and a 4 x 5 Kodak, the latter being fitted into the stock so that the shutter and opening will be on a line with the sight. The shutter is connected with the trigger by a line, or wire, and to all intents and purposes the affair is a gun and used as such from the shoulder. The pictures were taken in the angler's boat, or from a second boat, the fisherman shouting a warning at the strike, whereupon the man with the gun camera rose, held it in the position of ready, and as the tarpon cleared the water in its initial leap raised it to the shoulder, aimed, and pulled the trigger or shutter. Dr. Howe's films show how excellent are the results, the tarpon being seen in every phase of leaping. With this appliance the flying fishes and tuna could be taken with comparative ease, while for birds on the wing the appliance would appear to have many advantages.

Combination Printing.

The attempts to secure animals in action, especially the difficult feat of taking fishes, have resulted in a variety of pictures not inappropriately called "false photography"; in that no deception is intended, an explanation is given. The picture is as perfect as though

the fish had been caught in the beautiful leap which has made the tuna famous; but the picture is merely the clever manipulation of the photographer, and when explained and understood by the reader becomes a rational and legitimate method of illustrating. In this instance the photographer took a large plate view of a section near Avalon Bay, noted as a scene of the tuna's leaps. Then a fish was posed and photographed, this being cut out of the photograph and pasted upon the proper background by an expert who had observed hundreds of leaping tunas; then the result was photo-engraved, giving a picture of a leaping fish which would be considered from nature by two-thirds of those who saw it. The picture, so far as position, height, etc., is concerned, may be said to be as natural as life, and indeed, was not modelled from memory, but from a real photograph of a tuna taken a long distance away, yet showing the exact position.

The gun camera will provide a valuable field for sportsmen and naturalists. The leap of the salmon, that of the mullet, the stupendous jumps of the whip ray, which I have observed clear remarkable distances in the Aransas region of Texas, the erratic jumping of the ten-pounder, will afford interesting subjects. The camera has entered many fields, but there are scores of forms which have yet to be taken in action. The many soaring animals, as the so-called flying lizard or draco, could be easily caught with this gun, as well as the flying squirrel in its downward rush. The bat has never been shown upon the wing, and at twilight could possibly be caught; indeed, this interesting plaything opens a new field.

CHARLES F. HOLDER.

PRACTICAL HINTS ON RETOUCHING.

[A Paper read before the Photographic Society of New South Wales.*]

Outfit.

FIRSTLY as to outfit. It is not elaborate nor expensive:—A desk such as may be obtained at any photographic warehouse; a couple of pencils, Koh-i-nor H.B. and H., or a box of Hardtmuth No. 3 refills and holder; a spotting brush, No. 1 Winsor and Newton sable (get a good one, they spring to a point better than camel hair); some colour for spotting (crimson lake, half-cake); a small piece of opal plate for a palette; fine sand-paper for sharpening pencils; a couple of knives for scraping the films, one small and fine for removing dark spots, stray hairs, spotty, patchy bits of light, the other larger for broader surfaces (the larger one may be got at the dealer's, but the smaller one is best made out of a large-size tailor's needle; break the point off about a quarter of an inch, then grind down on two sides and the point to an angle of, say, 45 degrees, put into a wooden handle, leaving about three-quarters of an inch of metal showing), and an oil-stone for sharpening the knives. A good finishing strop is made by cutting a piece of leather, say, 6 in. by 2 in., and gluing it on to a strip of wood. Rub some oil into it, then sprinkle it all over evenly with emery powder; rub it well into the leather with the handle of an old table-knife; use the strop frequently to keep a fine, keen edge. It is no use trying to cut on a negative with a dull knife.

The Medium.

As to medium. The beginner, if he wishes, may make his own, getting powdered resin and turpentine, about equal quantities, mixing and warming gently till the resin is dissolved, and thinning down with more turps as desired. If it works too hard, add a drop or two of castor oil, or oil of lavender.

Lastly, a bottle of turps and some old linen rag, free from lint or cotton wool, are required.

Sharpening the Pencils.

Cut the wood away about two inches; take care not to cut the lead. Get a bit of sand-paper about three inches square; fold it in two, rough surface inwards, hold it between the finger and thumb of the left hand; place the lead point in the sand-paper, and, gently squeezing with the finger and thumb, draw rapidly backward and forward, giving a turn to right and left at the same time. You ought to have a point as fine and round as a needle.

Commencing Work—the Knife.

When ready to start, place the negative on the desk and examine carefully for such marks as may have to be taken away with the knife if it is in a "view." There may be too many spotty high-lights in the foreground; take these down with a gradual scraping over the part, somewhat in the manner of taking out an ink-blot with a knife on paper, remembering always that it is well to hasten slowly when cutting, because getting it off roughly, or with jagged edges, only means more work to correct with the lead and brush later on.

Applying Medium.

When all the "dense" marks are removed, place a small drop of medium on the film, then, taking a piece of rag, place it over the end of the finger, moisten it slightly with turpentine, and rub the whole surface of the negative. There should be no trace of medium showing, but, for most of the softer and finer works, it gives enough "grip" to enable you to take them out with the softer pencil. Should there be parts requiring more work, e.g., where much scraping has been done, apply a drop of medium, and rub it over the part with a piece of rag or cotton wool (the wool made into a hard pad about the size of a hazel nut), so as to just cover those parts to be worked on. If, after working with the pencil, you find it will not "take" sufficiently, finish with the spotting brush, and colour, stippling evenly. Should some of the working show too strongly, reduce by stippling with the

* We are indebted to our contemporary the "Australian Photographic Journal" for the report of this lecture.—Eds., B.J.P.

point of the smaller knife, and so keep on using knife and brush correcting each other until it is done so that it will not show in the printing. A little practice will enable you to fill gaps and holes in negatives quite easily.

Portrait Negatives.

For a portrait, unless the background is much marked or spotted, you need only apply the medium so that it covers the head and about half an inch or so wider, for it frequently happens that a picture may be much improved by taking out stray bits of hair, either with the knife or pencil. Also medium the hands, if showing.

In retouching portraits it is not how much you may do to a negative, but how little; not crowding the lead on, but placing it just where the least work will give the most effect.

Acquiring a Touch.

There is no particular kind of stroke to learn that will enable you to become a retoucher, but just where there is a line-freckle or mark, or whatever the defect may be, carefully fill that part so that it comes even with the surrounding part, and, that kept up gradually, you will find that you are getting a nice "grain" in retouching "talk," or stipple, as others call it. During the progress of your work occasionally look at your negative reversed; sitting well back, take a general survey of it, and, where the work looks patchy, blend them into each other. Let all the cutting be done to the negatives before the medium is applied.

Should the work not be satisfactory, it can easily be taken off by rubbing over with the rag and a little turpentine and fresh medium applied, and in case a negative requires a great deal of work, say, a big head (freckled), when you cannot get any more on the film, varnish the negative, and, when quite cold, apply the medium as before and continue the work.

Remedying Negatives.

It sometimes happens that a negative has thin shadows—though full of detail and hard lights, the shadows being too black by the time the lights are printed up. Rub some crimson lake on the palette, getting it pretty thick. Put the negative on the desk, glass side towards you. Moisten the tip of the finger with the lips and rub on to the colour, and dab on to the shadows to be held back; repeat until the whole is evenly coloured. Small spaces to be coloured, such as hands in shadow, shadows under brows, etc., treat in the same way. Do not mind going over them wide. You can correct the outline afterwards with the knife.

It might be mentioned that in addition to the articles required for retouching the beginner lay in a good stock of "patience." That and practice rubbed well in will soon show good results. Do not be disheartened if the first attempts look scratchy; rub them off and try again.

JAMES H. GAMBLE.

THE OPTICAL CONVENTION.

On Tuesday next, May 30th, the Optical Convention opens its session at the Northampton Institute. Its chief activities have already been noted in these columns, but we can now outline the leading features of the exhibition held in connection with the Convention. The catalogue of the latter will be a particularly valuable work of reference.

The instruments are arranged in classes; each class is preceded by a short introduction, giving a general description of the instruments included in the class. Special attention has been paid to convenience of reference. In addition to the more strictly optical instruments, many other types of scientific instruments are included. Thus, one class is devoted to meteorological instruments and thermometers, another to laboratory instruments; mathematical and drawing instruments, and calculating appliances are also shown. Under Class 1, "Tools and Materials," is to be found a selection of optical glass, by the great glass-making and lighthouse firm—Messrs. Chance Bros., of Birmingham. Messrs. Powell and Sons, of the Whitefriars Glass

Works, have an interesting exhibit of thermometer glass. Messrs. Geo. Culver, and other firms, show tools and processes of manufacture. Class 2, "Simple Optical Elements," includes an exhibit of accurate work in prisms and plates, by Messrs. Hilger, and diffraction gratings, by Lord Blythswood. The two most important classes in which the excellence of the English work is most apparent are, perhaps, those of surveying instruments and microscopes; these are both well represented, and the exhibits will be found of special interest.

"Projection Apparatus" includes an exhibit, in action, of a complete lighthouse apparatus of the fourth order, by Messrs. Chance Bros. The exhibits of optical lanterns, cinematograph apparatus, etc., are very complete.

Other classes which may be mentioned are "Telescopes and Binoculars," "Photographic Apparatus," and "Photometric Apparatus." In the class devoted to optical measuring instruments some admirable work is exhibited by the Cambridge Scientific Instrument Co., and by Messrs. Hilger.

Photo-Mechanical Notes.

Colouring Photographs for the Three-colour Process.

It frequently happens that in colouring bromides and silver prints the artist has great difficulty in getting the water colour to take to the paper. "Camera Craft," in its issue of May, page 307, recommends the following methods:—For bromide paper prepare the following solution:—

Purified oxgall	...	...	...	30 grs.	30 grs.
Glacial acetic acid	...	...	...	30 minims	30 c. c.
Distilled water	...	...	...	3½ oz.	350 c. c.
Methylated spirit	...	...	...	1½ oz.	150 c. c.

Shake till dissolved, filter, paint over the print, and allow surface to get dry, and mix the paints with a drop or two of this solution also.

When it is desired to tint or touch up a glossy silver print with water-colours, the resistance offered by the shiny surface can be overcome by treating it with the following solution:—

Albumen	...	...	...	...	6 drachms
Glycerine	...	...	...	...	1½ drachms
Ammonium carbonate	...	...	...	...	15 grains
Ammonia, .880	...	...	...	...	1 drop
Water	...	...	...	...	1½ drachms

First thoroughly incorporate the albumen with the water, and then add the other ingredients. If oil-colours are to be used, the print should be coated with a mixture of gelatine and gum arabic.

A Loan Process Exhibition at Manchester.

It is understood that the Board of Education is to co-operate with the Manchester Education Committee in securing for exhibition in Manchester the loan exhibit of process engravings now on view at South Kensington. The exhibition, as we have already intimated, comprises an historic series of examples of process engraving, including photogravure, photo-lithography, and kindred processes of reproduction by means of photography, including half-tone colour printing. All the most expert operators in the chief countries of Europe, and also the United States of America and Japan, have contributed.

The Newspaper Half-Tone.

The wickedness of the half-tone portrait as it is frequently printed in the daily Press is brought before us by a cutting from the Belfast "Evening Telegraph," in which we find a "portrait" of Mr. H. C. Shelley, who is at present in Belfast lecturing at the Kodak exhibition. Mr. Shelley has our sincere sympathies. In extenuation of the half-tone reproduction, some blame may perhaps be attached to the original photograph, but we cannot imagine that Mr. Shelley would pass to the engraver a proof showing him as the dark-visaged being that the printed newspaper has given us.

Exhibitions.

MARINE PHOTOGRAPHY AND WAVE STUDIES AT THE R.P.S.

If it cannot be fully claimed that Mr. Mortimer has discovered an absolutely new outlet for æsthetic photography, he has certainly hit upon a form of pictorial work which affords a most fascinating amount and variety of dangerous adventure and of physical endurance as should commend the practice to every muscular "plain-air-ist," who would rather that his pictorialisms were derived from struggles with nature than from the realisation of tonal abstracts. It is evidently because the photographer has lived by these gale-lashed shores, watching, waiting, wrestling, and, above all, observing and memorising how the frenzied breakers and the raging surf impress the sight and affect the recollection, that the collection of Mr. F. J. Mortimer's "Marine Photography and Wave Studies," at the Royal Photographic Society, combine, with the technical and artistic merits, an unusually large proportion of tonal veracity.

Looking at the collection as a whole, the chief impression is that the photographer has been fortunate in the colour of most of the prints, the tones being of a cool brown, in some instances verging upon olive, and in some prints passing into shadows of a full brown-black. They are all enlargements from $\frac{1}{4}$ or $\frac{1}{2}$ -plate, up to about 30 by 20 and larger, upon paper mostly with a rough drawing paper grain. As regards the delicacy of half-tone present, this must be ascribed to a skilful correlation of exposure and development, both of negative and of positive. Take, for instance, No. 33 ("In the Height of the Storm"), a picture of seething surf and spume. It has hardly an absolutely white spot in it, and yet, although everywhere full of modulation, the foam of the breakers and the froth of the under-tow, stand out in well defined masses of light. The usual trouble with longshore marines—a horizon line which cuts the picture in two—has in most cases been avoided by taking a low point of view, so that wave crests, clouds of spray, and detached groups of rock, hide or break up the junction of sea and sky. That the delicate tracery of wind-blown spray and mountains of water bursting into myriads of diamonds should be adequately delineated, the employment of a low tone sky was necessary. In most instances this has been realised with considerable judgment and skill. If occasionally, as in No. 24 ("A Study in Black and White"), the sky has been over-corrected, or by some other means rendered darker than one would wish, it must be set to the exhibitor's credit that in the majority of instances the luminosity of cloudland has been well preserved or adequately suggested, and has been just sufficiently subordinated as to act as a foil for the white fringed waters and clouds of spray. In criticising such skies it should be well remembered that their main function is to play the part of a background, wherefore it should, as a rule, suffice that the beholder is not unaware that the dark and lowering heavens are torn into ragged shreds by the rough onslaughts of a winter gale; he should not—and does not—need to be curious as to their precise conformation or relative tonality, for his mind should be preoccupied, and his eyes fixed upon, the howling wastes of mighty waters, the white-capped vanguards of Neptune, the sea horses which imagination pictures as drawing his car, and other protean splendours of the sea, "in fine frenzy rolling" on to the shore and thundering against the granite fastnesses of the far western Scillies.

Some of the photographs depict a comparative placidity of water and brightness of sky, as in No. 49, where the sun seems to throw golden tracery upon the "Majestic Main." In this, although there is some disconnection of interest between the upper and lower portions of the print, the general breadth of rendering, added to the effective juxtaposition of strong light in the water, with the deep shadows of

a picturesque billow, which forms the chief object, brings the eye to rest at the centre of interest.

It may be well to point out that most of the prints are composed upon what is termed the diagonal plan. That is to say, the general lines of the waves run into the picture, so that if prolonged they would meet at a point towards the left or right. This disposition generally involves the provision of some strong object, especially where the prevailing lines are inclined to lead the eye to look outside the boundaries of the print. Cliffs, rocks, or breaking waters will, in most instances, be found supplying the needful support to the composition. Occasionally concentration of interest and balance of line have been attained by means of a strongly accentuated scheme of cloud lighting, as in No. 25 ("Great Ocean!"), in which the line of the wave crests running diagonally across the picture has been balanced by the line of light in the clouds, thus effectually preventing the interest from running out of the picture.

Amateurs—and also those professionals whose scope of action is not bounded by the studio—should certainly see the collection, for, in the first place, they will acquire a mental standard of excellence to work up to, and also they will realise that fortuitous photography has seen its best days. For, in Mr. Mortimer's case, one cannot but recognise that he has, in the first place, known what he wanted to accomplish; and that in the second he has spared neither time, trouble, nor æsthetic striving in realising his aims, which I assume to be the depiction of his subjects, under rare and imposing circumstances, with a nicely balanced proportion of truth to nature, and of refinement of composition. Although the threescore prints have been made as an exposition of the artistic possibilities of the camera, and are therefore in no wise to be regarded in the same category as what are known as artist's studies, painters whose subjects are akin to those of Mr. Mortimer's would be well advised to pay a visit to the collection; indeed, every lover of the sea coast will find a fund of pleasure in the impressive moments which have been captured with so much skill and rendered with not less taste. The exhibition remains open—at the rooms of the Royal Photographic Society, 66, Russell Square—until June 17; admission, between 10 and 6, being free to all comers on production of visiting card or by introduction by a member.

HECTOR MACLEAN, F.R.P.S.

ALPINE PHOTOGRAPHY AT THE ALPINE CLUB.

An exhibition of photographs taken by members of the Alpine Club is being held at the Club Rooms, 23, Savile Row, W. Apart from the undoubted interest these representations of vast expanses of snow-clad mountain scenery must have to mountaineers, the pictorial qualities which are strongly in evidence in many of the exhibits will appeal to every visitor who is not a climber. Even regarded as merely photographs of snow and ice, the photographer will find much to interest and instruct him, although, owing doubtless to the extraordinary atmospheric conditions that prevail at the high altitude where most of the photographs were obtained, there is in most instances a lack of what the pictorial worker would describe as atmospheric diffusion and recession of planes.

It must not be supposed, however, that the pictures do not rise beyond the topographical stage. From the point of view of the members of the club this would probably be of as much importance as a pictorial rendering, and it is therefore all the more worthy of note that the pictorial view has not been sacrificed to the mere record of fact. The unavoidable lack of scale is, nevertheless, likely to be a deterrent to the full enjoyment of a contemplation of the photographs of these instances of nature's grandeur and immensity, and it will probably need a mountaineer to fully realize the extent of the locality depicted. The pictures are, in many instances, helped pictorially by the wonderful cloud forms portrayed. The contributions by H. Priestman (57 and 63), Charles Lord ("Daybreak

from the Riffelberg"), Miss E. Venables ("Sunset over the Brévent" and "Evening Clouds over the Arolla Valley"), and others, are particularly notable in this respect; in fact, the two pictures by Miss Venables approach the impressionistic in their weirdness.

From the pictorial standpoint, also, the works of Professor J. Norman Collie are noteworthy. The prints are of beautiful quality, and in addition to being fine Alpine photographs, are pictures that would compare favourably with the productions of any other avowed pictorial user of the camera. A very fine contribution, both pictorially and technically, is No. 107 ("The Matterhorn from Breuil"), by C. Thurston Holland. This is a carbon print of important size and of superlative quality. The curious lack of atmosphere observable in most Alpine photographs, whereby the extreme distant mountain peaks are rendered as clean cut and clear as the immediate foreground, is very noticeable in this picture, but serves to render it all the more impressive.

Two delightful little studies of the Upper Grindelwald Glacier, in green carbon, by Miss C. Ellis, are excellent specimens of good, clean, technical work, and it is noteworthy that many of the good things on the walls are contributed by ladies. Several series of small photographs framed in groups are on view, and they are also of high merit, and show that when dealing with such a subject, wherein it is impossible to even approximate the size of the original, the smaller photographs, if treated sympathetically, score almost as much as the larger specimens.

Strange to say, telephotography does not find extensive employment by the Alpine photographer, if the present show can be taken as a criterion. There are certainly one or two examples on view, but of no great importance, and it can only be assumed that the hardy member of the Alpine Club prefers to tackle his game at close quarters, and as "the climb's the thing," the tele-attachment and its attendant troubles are left at home. In fact, it is to be assumed that in most instances the photographs obtained are to be regarded merely as incidents to a climb, and not its primary cause; but they should not, on that account, lose any of their value as instructive factors for other photographers. No opportunity of visiting the exhibition, which closes on May 31, should therefore be lost.

THE LEEK PHOTOGRAPHIC SOCIETY is holding an exhibition in the North Cabinet Gallery of the Nicholson Institute, Leek. Invitations in the shape of dainty little bromide prints were issued for a private view on Thursday; and the exhibition will be open daily until next Thursday. As the price of admission is the popular one of nothing, with a catalogue at the same figure, it is to be hoped the townspeople will appreciate the efforts of the society.

FORTHCOMING EXHIBITIONS.

May 10 to June 19.—Salon of the Photo Club de Paris. Secretary, Paul Bourgeois, 44, Rue des Mathurins, Paris.

May 30-June 1.—Students' Art Club, St. Leonards-on-Sea Photographic Section. Hon. Secretary, Miss Watson, "Deverell Hurst," De Cham Avenue, St. Leonards-on-Sea.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge de Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Saint-Esprit, Liège.

September.—Royal Photographic Society, New Gallery, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

FORTHCOMING COMPETITION.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between May 8 and 13:—

DARK-ROOM LAMPS.—No. 9,661. Improvements in photographic dark-room lamps. Frederick Thomas Parsons, 27, Southdean Gardens, Wimbledon Park Road, London.

PAPER.—No. 9,667. Improvement in the manufacture of photographic paper. Edouard Mallet, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

STAMP PHOTOGRAPHS.—No. 9,729. Improved repeating back for taking midget and stamp photographs. George Thomas Bayley, 3, Union Street, East Stonehouse, Devon.

WASHING PAPERS.—No. 9,749. Apparatus for the washing of photographic papers. James Hazell and Albert James Chapman, 107, Mansfield Street, Kingsland Road, London.

DEVELOPING, ETC.—No. 9,806. Improved apparatus for developing and fixing photographic plates. Edward Rosell Petrie, Fife House, Kingston-on-Thames.

CHEMICALS.—No. 9,870. Improvements in treating soluble chemicals for photographic and other use. William Fraser Claughton Kelly, and John Arthur Bentham, 7, Southampton Buildings, Chancery Lane, London.

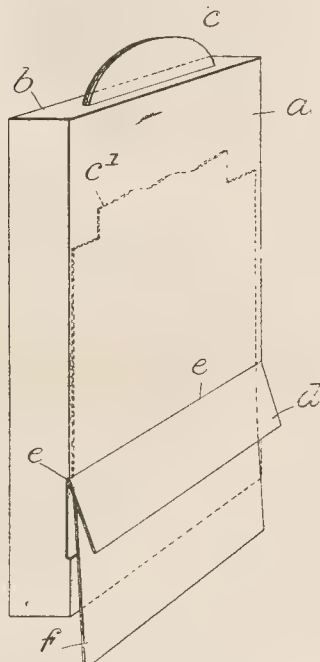
COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PIGMENT PAPER.—No. 23,766, 1904. In place of the fairly thick layer of pigmented gelatine, with its alleged defects of slow drying and difficult stripping, the original paper or sheet of celluloid or tissue base is provided, before the addition of the pigmented gelatine, with a layer of gum arabic or similar substance soluble in cold or warm water, this layer serving as an insulating medium. These substances, moreover, have in combination with bichromate salts a considerably smaller sensibility to light than the pigmented gelatine layer proper, producing the pictures. In the case of pigment paper or tissue thus prepared, the original paper base, after the copy has been transferred in a well-known manner in cold water on to the developing paper, can be easily removed in the air, that is, when taken out of the water, without or with the help of warm water. As a further advantage of this pigment paper, it may be mentioned

that it can be manufactured without the safety edge on the negative which has hitherto been necessary. Albert Hochheimer, Feldkirchen, Munich, Germany.

FILM CHANGERS.—No. 14,329, 1904. A device for a packet in which a number of films can be brought up for exposure and then removed. In the figure, *a* is the back of the packet and *b* that end of the same through a slit in which the ends *c* of the bands or tabs are presented for enabling the sensitive films or plates to be transferred in succession from exposure position at front of the packet to storage position at rear thereof, the transfer being effected by pulling on the respective tabs or bands, which are connected to the respective films or plates and pass around a guide or roller situated usually at the end of the packet opposite



to the end *b*. After the transfer of a film or plate has been effected, the projecting portion of the band or tab may be torn off. In order to enable the films or plates which have been thus transferred to the rear of the packet to be withdrawn for development or otherwise without disturbing the remainder of the contents of the packet, a door *d* is provided, extending across the back *a* of the packet towards the end thereof opposite to the end *b*, this door being hinged to the back as at *e*, and spring-pressed and padded or otherwise adapted to normally maintain a light-tight closure. In the drawing, *f* represents a film or plate which, having been transferred from the front to the rear of the packet by means of the band or tab *c* (shown as having been subsequently torn off), is in process of being withdrawn through the open door *d*. Newton Livingstone Scott, 18, Ironmonger Lane, London, E.C.

AUSTIN-EDWARDS Monthly Film Negative Competition.—The prize camera for current month has been awarded to Miss Gill, Compton, near Guildford, Surrey, for her negative "Doorway of a Memorial Chapel."

New Books.

"The Year Book of Photography and Amateurs' Guide." 1905.

Edited by P. R. Salmon, F.R.P.S. London: "The Photographic News" Office. 1s.

Quite a series of monographs on practical subjects appears in the text pages of the issue of the "Year Book" just published. The editorial is on "Platinotype Printing." E. J. Wall follows with an historical review of platinotype printing and a treatise on the preparation of the paper, the first of which is valuable for its copious references to the scattered literature of the subject; whilst the notes on manufacture appeal, we suppose, to the curious class of amateur who does not know a good thing when it is on the market. "Iron Printing Processes" other than platinotype, and "Press Photography," excellently illustrated, are two further articles with their direct appeal to the amateur. And lastly comes Mr. H. W. Bennett, overflowing with arguments, contentions, objections, and advice anent pictorial composition, all emphasised and explained by the aid of some thirty sketches. Altogether, quite a budget of good reading for our amateur friends, even supposing there were no sections on tables and formulæ, novelties in apparatus, etc., to which, as a matter of fact, some 250 of the total 600 odd pages are devoted.

The Photographic "Red Book." Published by The Affiliation of Photographic Societies, 66, Russell Square, London, W.C. Price 1d.

The Affiliation of Photographic Societies' Annual for 1905, familiarly known as the "Red Book," has reached us, and the first thing we note is its increased bulk. An inspection reveals the cause of this to be the inclusion of eight half-price tickets for the annual exhibition at the New Gallery, and we can congratulate the executive on having hit on this excellent method of doing away with the everlasting bother that accompanied the previous plan adopted. Sending batches of half-price tickets to secretaries of societies, on sale or return, seemed simple enough in theory, but when the day of reckoning arrived we more than suspect that the collection of the unsold tickets, and the sixpences derived from the sale of others, involved more trouble and expense than appeared on the surface. It remains to be seen how the new system will work. Briefly it is this: The "Red Book" can only be obtained from the secretaries of the various affiliated societies, who, of course, will supply only to members. The reduced-price tickets are bound up in the book, and are perforated for easy removal. The presentation of one of these tickets and sixpence at the New Gallery during the exhibition will admit bearer. The tickets that are not used can be thrown away afterwards. They are no further use after the end of October. The number of tickets handed in at the door will show the extent to which they are used, and no further trouble devolves on the Secretary to collect those not used, or their value from the local secretaries. The only possible exception that can be taken to the new plan is that when giving a ticket to a friend it has to be explained that sixpence is necessary as well as the pass before admittance is granted, whereas in the old system the ticket gave admission without any additional money payment at the doors, and the local secretary, when settling up, paid the difference.

The general plan of the "Red Book" is similar to that of the previous editions. The advantages and privileges of the affiliation are fully set out. Rules for judging, interchange of lectures, and a catalogue of the loan collection are included.

The list of places in England to photograph appears to have been extended and amplified, and should form in the future, as it has in the past, a most useful feature. The places of interest in London and district at which the presentation of the "Red Book" gives

admission is also very complete, and indicates very markedly one of the chief points of utility of the affiliation. A full list of the affiliated societies, which have increased in numbers considerably during the past year or two, forms the bulk of the book, and the information as to their officers, headquarters, dark rooms and accommodation, etc., will be appreciated by the photographer on tour who is either a member of the R.P.S. or of another affiliated society. One penny per copy, which is the small charge made this year, will not be begrudged by the members of the affiliation.

"The Photographer's Peerless Note Book." London: Houghtons, Limited, and Charles Letts and Co. 1s.

The 1905 edition of this very compact exposure record has been improved by an exposure calculator which gives, without any arithmetical operation, exposures of any subject, with any stop on any plate. The "Note Book" contains also a number of hints on exposure and development, and a list of dark rooms in the United Kingdom.

"The Book of Photography." Edited by Paul N. Hasluck. London: Cassell and Co. 10s. 6d.

An English book treating of photography from first to last is certainly a volume for which there is an empty place at the present time. Our photographic literature in this country, like Mr. Gilbert's gay young sorter, is "chopped particularly small." A few volumes, such as Sir William Abney's "Instruction in Photography" or Mr. Brothers' "Photography," aim at comprehensiveness, but the information consulted by the majority is disseminated through a hundred or so small books. Messrs. Cassell occupy the breach with a handsome production, externally well fitted for presentation to any one interested in photography. Naturally its contents are our chief interest. And we find that the editor has judiciously steered along a middle course between the Scylla of academism and the Charydis of beginners' piffle and "shoppy" talk. He supplies information, on pretty nearly every photographic subject, which any one already slightly acquainted with photography would be likely to want. He is not encyclopædic, and he does not attempt historical treatment of special subjects. In short, the volume is for the photographer of a few years' standing, who will find its pages a constant help. The student who has to verify even a minor reference will still need his Eder's "Handbuch" or Fabre's "Traité," but Messrs. Cassell's volume should satisfy the immensely larger class of readers who are less exacting in their demands, and require a volume more as a help in their practical work than for literary purposes. The "Book of Photography" is profusely illustrated and supplied with supplemental plates, and a very full index is not the least of its good features.

"A Souvenir of Weston-super-Mare" is published by the District Council of that holiday resort, and will be sent free on application. The souvenir is practically an illustrated guide to the vicinity.

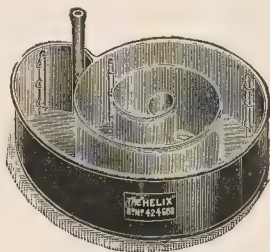
"Lynton, Lynmouth, and the 'Lorna Doone' Country" is the subject of a new "Homeland" guide. (The Homeland Association, Ltd., 22, Bride Lane, Fleet Street, London, E.C., 6d.) The text of the book interweaves the stories of the Doones with a concise description of the country. There is an Ordnance map, and the volume is illustrated with a number of new photographs by Mr. J. A. C. Branfil.

A SECOND edition of that very useful shilling handbook, "Photographic Failures: Prevention and Cure," has just appeared from the press of Messrs. Dawbarn and Ward, Limited, 6, Farringdon Avenue, London, E.C. It preserves its character of a small encyclopædia of "petites misères," easy of consultation, and helped by the transparent negative charts, by which a very fair idea is gained of errors in exposure and development.

New Materials.

The "Helix" Film Washer. Sold by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

A very convenient washer, this, for users of roll-film. Its circular partitions provide for the insertion of a 12-exposure roll in two sections, and the inlet and outlet of the water are so arranged as to afford a free passage over the whole surface of the film. If



the film is cut up for development each negative is suspended in the water by a clip, and washing takes place in the same manner. The washer is made in about half a dozen sizes, and at prices from 5s. 6d.

Antique Mounts. Sold by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

A hand-made paper, of rough surface and in a choice of quiet colours, imparts a genuine refinement to these new mounts of Kodak, Ltd. They are supplied with a deckle edge in brown, grey, or green, each with a plate-marked space, circular or oblong, for the print. They are obtainable in 1s. packets in five sizes, from No. 1 F.P.K. to half-plate. Quite as tasteful and saleable a style of mount as we have seen for a long time.

RECEIVED. The "Three-Colour" plate for three negatives at a single exposure in an ordinary camera. (Dr. J. H. Smith and Co., Zürich; British agents, Penrose and Co., 109, Farringdon Road, London, E.C.).

THE Eastman Plate, rapid and extra rapid. The above plates, now placed upon the market by Kodak, Limited, will be noticed in due course.

CATALOGUES AND TRADE NOTICES.

"GLAZEIT."—A preparation sold under this name has been put on the market by Messrs. Wilkins and Co., of 14, Cape Hill, Birmingham. It is akin to formaline, and its function is to harden the surface of gelatin P.O.P. previous to squeegeeing on ferrotype, glass, or celluloid. The directions for use are, briefly, to place the prints to be treated in the "Glazeit" for fifteen minutes after fixing and washing. Then squeegee on to the plate or glass. When dry, they will fall off with a highly-glazed surface. The "Glazeit" may be used over and over again, and is not expensive. Messrs. W. Butcher and Sons, Camera House, Farringdon Street, E.C., are the wholesale agents.

UNDER the title of "Guide to the French Photographic Trade," a catalogue has been issued by the "Chambre Syndicale des Fabricants et Négociants de la Photographie," a body which is composed of the chief makers of and dealers in photographic material in France, and has M. L. Gaumont as its president. The list is arranged in alphabetical order of the members of the "Chambre," and is no doubt obtainable from the offices of the latter, 54, Rue Etienne-Marcel, Paris.

THE ELGE MONTHLY LIST.—We have received a small booklet from Messrs. L. Gaumont and Co., dealing with the Elge cinematograph films. It should prove useful to all interested in animated photography. A copy will be sent free on application to 22, 23, 25, and 27, Cecil Court, Charing Cross Road, London, W.C.

A COPY of Messrs. Erdmann and Schanz's new abridged catalogue of stereoscopic slides has been sent us. Under the name of "Binocular Realisticgraphs," an almost endless variety of subjects is presented, and in view of the high class of work usually produced by this firm, every possessor of a stereoscope should obtain a copy of the list. A postcard to 116, Bedford Hill, Balham, S.W., will secure one.

BRITISH FERROTYPED PLATES.—The following is the full list of sizes and prices in which these plates are supplied, and it will be seen that the quarter plate is put up in dozen packets at 2s. 6d., not 3s., as stated in our last issue:—14 in. by 10 in. (half dozen), 11s. 6d. per packet; 14 in. by 10 in. (one dozen), 20s.; 10 in. by 7 in. (half dozen), 6s. 6d.; 10 in. by 7 in. (one dozen), 10s. 6d.; half plates (half dozen), 2s. 6d.; half plates (one dozen), 4s. 6d.; 5 in. by 4 in. (half dozen), 2s.; 5 in. by 4 in. (one dozen), 3s. 6d.; quarter plates (half dozen), 1s. 6d.; quarter plates (one dozen), 2s. 6d.; $3\frac{1}{4}$ in. by $2\frac{3}{4}$ in. (half dozen), 1s.; $3\frac{1}{4}$ in. by $2\frac{3}{4}$ in. (one dozen), 1s. 6d.; $2\frac{1}{2}$ in. by 2 in. (one dozen), 1s. 2d.; $2\frac{1}{2}$ in. by 2 in. (three dozen), 3s.; Victoria size (100), 4s. 6d.

A NEW catalogue of apparatus specially adapted for taking and printing miniature photographs, and also for photographic buttons and stamps, has been sent us by the Executors of J. Billcliffe, camera manufacturers. The list is very complete, and a feature is made of fitting repeating backs for midget photographs to customers' own cameras. A variety of nearly thirty repeating backs for this purpose is given, and also the same number of frames for printing these small photographs, in addition to other apparatus. A copy of the list will be sent on application to Richmond Street, Boundary Lane, Manchester, S.W.

"VELOX" pictorial postcards, issued as an advertisement by Messrs. John J. Griffin and Sons, Limited, of 20-26, Sardinia Street, Lincoln's Inn Fields, are attractive in design, and should serve the purpose of still further impressing upon photographers the advantages of the popular gaslight paper. Samples of these cards will be sent post-free on application.

"THE Imperial Handbook," 1905, just issued for gratuitous distribution by the Imperial Dry Plate Company, Limited, Crickiewood, London, N.W., is this year given the form of an album of portraits of the world's rulers by leading photographers, who in almost every instance have made their negatives on "Imperial" plates.

A LIST of brass work and camera parts of all descriptions reaches us in a new issue from Messrs. George Mason and Son, Armley Grove Works, Leeds. The business is a special one with Messrs. Mason, and the list is pre-eminently useful whenever apparatus is to be put together or adapted. There are articles on the home-making of cameras, etc., but the firm also supplies the finished article.

BARGAINS in cameras and accessory apparatus are listed to the length of thirty pages in the latest monthly catalogue of the Tella Camera Company, 110, Shaftesbury Avenue, London, W., a firm which makes a specialty of weekly or monthly payments for new or second-hand apparatus. Customers' cameras are also taken in exchange, and the present occasion seems a favourable one for a rearrangement of one's outfit.

THE Busch anastigmat will be sold in future as the "Omnia," and a new series, $f/4.5$, has just been added.

A STRONG and neat case for unmounted prints is a new introduction of Kodak, Ltd. It accommodates a dozen prints, which are temporarily held by the turned-over edges of the leaves. Bound in green art vellum, with a metal clasp, this "pocket print case" costs 1s. or 1s. 3d., according to size.

A SAMPLE of "Rajar" P.O.P., as now issued in a mauve colour, reaches us from Rajar, Ltd., 119, High Holborn, London, W.C., and confirms us in the good opinion of this printing-out paper which we expressed on its first introduction.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
27	Bowes Park Photo. Soc.	Excursion, Burnham Beeches.
29	Wallasey Amat. Photo. Soc.	"Bromide Toning," Mr. W. Hayes.
29	Southampton Camera Club	"With the Camera Club through Southampton." Professor F. J. C. Hearnshaw.
30	Birmingham Photo. Society.	Exhibition of Novelties in Apparatus.
30	Manchester Amat. Photo. Soc.	"Carbon Printing," Rev. H. W. Dick.
31	Everton Camera Club	Evening Outing, <i>re</i> Class 1 Competition.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

MR. H. STUART lectured on the 17th inst. on "Carbon Printing." He recommended as a sensitising bath the formula worked out by Mr. H. W. Bennett:

Potassium bichromate	...	...	...	...	4 drms.
Citric acid	...	...	...	...	1 drms.
Water	...	...	...	...	25 oz.
Ammonia .880	...	...	...	...	about 3 drms.

in which the tissue can be left from one and a half to three minutes. It is then lightly squeezed into contact with glass or a ferrotype plate and the back wiped dry with a cloth. Tissue thus prepared is best used within three days, and in the meantime is kept under pressure. Printing is gauged by an actinometer, and the printed tissue is soaked in water until it becomes almost flat after having curled inwards. It is then lifted from the bath together with a piece of support (single transfer paper) which has been properly soaked in advance. These two pieces with the tissue uppermost are pressed into close contact, excess of moisture removed by wiping with a cloth, and the two placed between blotting boards or strawboards under a weight for from ten to twenty minutes. Mr. Stuart recommended that at the expiration of this time the sandwiched print be put into cold water and allowed to soak. This, he thought, assisted the stripping, and prevented possible insolubilisation. Water of a temperature of about 95 deg. will dissolve the gelatine, and after stripping, the temperature can be raised if it is found that the tissue has been fully or over-printed. A slight rinse in cold water, immersion in an alum bath, and again washing, completes the process.

Mr. Stuart gave a practical demonstration, which in his hands showed the advantage of a process whose permanence appealed to all his hearers. This lecture was an excellent sample of the instruction lectures delivered regularly before the North Middlesex. Any person desiring information as to forthcoming fixtures should apply to Mr. S. C. Puddy, 87, Crouch Hill, N.

CROYDON CAMERA CLUB.

ON Wednesday, the 17th inst., a series of criticisms by the well-known artist, Mr. F. M. Bennett, dealing with the collection of members' work which has occupied the walls of this Club for some little time, was read by the Hon. Sec. Mr. Bennett certainly did not err on the side of over-appreciation of the "art" of the camera, but his criticisms lost nothing in value on that account, and were extremely helpful to all concerned.

A discussion on "Orthochromatism," which had taken place a fortnight before, was resumed, and the President, Mr. W. H. Smith, showed a series of prints from a large coloured poster, the negatives being taken on ordinary plates, and colour-sensitive Wratten plates, with and without filters. The light employed was magnesium burnt in oxygen, generally supposed to be deficient in the yellow rays. The "ortho" plate and filter, however, gave a satisfactory rendering, including the yellows.

Mr. E. A. Salt showed a set of prints from negatives taken by daylight of a built-up model of coloured objects and foliage. With

reference to a statement made on a previous occasion, that a good many floral photographers invariably used ordinary plates, he had considerably overexposed a slow ordinary plate for the blues, to, so to speak, give the yellows a chance to come up, which they had signally failed to do. He therefore concluded that floral photography on ordinary plates was only possible so long as no sharp contrasts of colour existed. A "chromatic" plate without a filter showed distinct signs of improvement, and with a so-called ten-times screen a very good result was obtained, but the filter not being adjusted to the plate, over-correction of the yellows and yellow-green was observable. A "spectrum" plate with an "absolutus" filter gave a most satisfactory translation in monochrome. Mr. S. H. Wratten passed round a photograph of the spectrum, showing a wonderful range of sensitiveness. The negative was on a "Speed" plate, sensitised with Homocol by the bath method.

Mr. F. W. Hicks, whilst recognising the advantages of orthochromatic plates and filters for copying pictures, flowers, and the like, doubted whether much benefit was to be derived from their use in every-day landscape work. He had not found it so, and this view was largely shared by others present.

WEST HARTLEPOOL PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held on Wednesday of last week. The report submitted by the hon. secretary showed that the year has been a successful one. It was decided that the present committee and officials remain in office for the present, with the addition of Mr. F. Morley as joint treasurer.

Commercial & Legal Intelligence

RUDDOCK, LTD. (Photographers, Newcastle-on-Tyne).—£1,000 debentures, created April 26 and dated April 27, 1905, charged on the company's undertaking and property, present and future, including uncalled capital, have been registered.

ALLEGED PHOTOGRAPHIC FRAUDS.—On Saturday last, at West Bromwich, Albert Evans, alias J. R. Wilson, of no fixed abode, was charged with obtaining various sums of money by means of fraud in September last. It was alleged that prisoner called upon a number of poor people and represented that he was in the employ of the Midland Art Photographic Company, High Street, West Bromwich. He solicited orders and obtained deposits, but when inquiries were made at the Art Company his statements were found to be false. When arrested at Bilston he refused to give an account of himself. Prisoner was remanded in custody.

RE WALTER ELLIOTT LANDER, residing at 86, Belgrave Road, and carrying on business at 104, John Bright Street, Birmingham, photographic artist.—The first meeting of the creditors interested under this failure was held at the offices of the Official Receiver for the Birmingham district last week. The summary of accounts showed liabilities amounting to £165, and assets estimated to produce £27. Debtor alleged as the causes of his failure bad trade and want of capital. The unsecured liabilities include £153 2s. 10d. ordinary trade debts, and £12 12s. 6d. money borrowed. The case is a summary one, with the Official Receiver as trustee.

THE Official Receiver for the Windsor district has now issued particulars under the failure re Kathleen Ada Macdonald, photographer, of 57, High Street, Eton, from which it appears that the debtor has filed a statement of affairs showing gross liabilities amounting to £135, and a deficiency of £103. The report and observations of the Official Receiver upon the case are as follows:—The debtor, who has been adjudged bankrupt, states that her husband died on Sep-

tember 25, 1903, since which date she has carried on the business of a photographer at 57, High Street, Eton, formerly carried on by him. The unsecured liabilities have been incurred in respect of goods obtained and necessities supplied to the debtor and her family. As it is impossible to obtain a purchaser for the business as a going concern, agents have been instructed to dispose of the stock and furniture, either by private treaty or auction. The debtor states she became aware of her insolvency shortly after her husband's death.

News and Notes.

RECKLESS inaccuracy, we are sorry to find, characterises a paper on "The Chemistry of Photography" which the "Pharmaceutical Journal" prints in its issue of last week. The author, Mr. F. J. Young, should lay to heart Lord Salisbury's dictum: "Verify your references," before he again puts pen to paper. There is no excuse for a writer who so grossly misrepresents the early history of photography as to credit Talbot with the discovery of hypo as a fixing agent, and Scott Archer with the introduction of glass as a support for the sensitive film, and who derives the collotype process from Niépce's experiments with bitumen. It is a matter of regret to us that our contemporary should have set its seal upon a contribution abounding in misstatements.

ARTISTS have called Cropthorne, on the Worcestershire Avon, the prettiest village in England, and only a few years ago we would not have disputed its title to the distinction. Modern buildings have defaced somewhat its picturesque street, but, as readers of this month's "Studio" can see, there is at least one resident who is at pains to preserve the spirit of its mediæval beauty when elaborating his own home. A number of photographs show the delightful scheme upon which Mr. H. H. Avery has extended his house on the steep bank of the river, and has laid out an old-fashioned garden which would be the joy of photographers like Mr. Keighley. We are interested in the account because we have often made Cropthorne the scene of a holiday, and also because that for a large part of the restoration of the timbering the responsible person was Mr. Drinkwater Butt, F.R.P.S.

"ART IN PHOTOGRAPHY" is the title of a special summer number of "The Studio," which will be published about the end of June. The work of the leading photographers of the principal countries of Europe and America are to be represented, and in the selection of photographs which will appear, particular attention will be given to those which, in the opinion of the editor, possess special merits from the artistic point of view, and no particular school or style will receive more consideration than another. Essays on the British, French, Belgian, American, German, Austro-Hungarian, and Italian sections are being written by capable authorities, and the number should prove a noteworthy one for every photographer interested in the art side of photography.

PHOTOGRAPHIC GRANGERISING.—A writer in the "Bury Free Press," referring to the collecting of photographs recommended by Sir Martin Conway, and dealt with in a recent issue of the B.J., says: Perhaps the most perfect form of photographic collecting is that known as grangerising or extra illustrating, and this class of work can be made not only interesting to the collector, but even valuable to his district. The best thing to do is to decide upon some definite subject for illustration. If you are a competent botanist, geologist, or specialist in any other line, you may take a standard work on your own subject, but if you are merely an ordinary amateur, interested in the general life of the times, the best thing

you can do is to take the best popular history of your own town or village, or of your own county. Eventually the book will have to be taken to pieces and rebound (perhaps into several volumes), enriched with the photographic collections you have made to illustrate it. Meanwhile, it is simply used as a book of reference from which to make lists of desirable illustrations. You will naturally photograph all the places of importance mentioned in the book, which still preserve anything of their antique character. You will also copy old paintings, maps, plans, etc., illustrating the scenes or persons who made the history of the place, and will copy illustrations from other books which incidentally touch the subject. If you wish to continue the history up to date you may also take newspaper cuttings from modern magazines, etc., but this is going a little outside our special photographic interest. Strange as it may seem, there is a little text book entirely devoted to grangerising, and one which gives considerable attention to the photographic side of the work. It is written by a well-known photographic writer, H. Snowden Ward, and is published at the very modest price of 6d.

FASHIONABLE Photography in America.—Fashionable photography (says a writer in the New York "Tribune") has its fluctuations, its fads, its follies, and its fancies, little suspected by those who do not follow the subject closely enough to acquaint themselves with the varying phases that are constantly developed in this art. Some persons have an idea that simplicity in photography has come to stay; others that the most extreme elaboration in pose, colouring, and detail is the order of the day. The most artistic photographers are not bound by cut-and-dried rules, but strive continually to express a certain individuality in their pictures, a result which is accomplished in devious ways. The photograph which looks simplest when finished is often one that has cost hours of effort and consideration. The effect is everything. Now, how many persons are "effective"? A small proportion. It is the photographer's business, therefore, to make them so, and thereon hang all the secret ruses of his art. The photographer studies his subjects from every point of view, accentuates their good points by many interesting devices, eliminates their less favourable aspects by others equally so. Ladies often pose as long as two hours, during which time they have frequently been photographed in as many as twenty-five different attitudes. The sittings in fashionable studios have to be managed with no small amount of tact. Many persons consider the act of sitting for a photograph as private as what occurs in a doctor's consultation room. Many ladies suffer so greatly from nervousness that they refuse to have their husbands or other members of their families about while they are posing. But professional people, even those most famous, never care how large an audience they have in a photographic studio. They know they must be good-natured, or the tell-tale camera will reveal all. So the excessive temperamental phases that are experienced often with prima donnas are eliminated when a photograph is in question. The latest fad in posing is with tiny, thoroughbred dogs. Full-length pictures are more popular than ever, because they are better calculated to show off the creation of the modiste.

A **FIRM** in the Bristol district which is supplying a beautiful enlargement for nothing and then asking £6 6s. for the handsome frame (a very old version of the trick) was recently much annoyed because one of its customers who had supplied a print for a free enlargement met the partners of the firm when they came to deliver the goods, and on their stating that they required £6 6s., calmly produced a penknife, and, before they could effectively interfere, had cut through the backboard of the enlargement in such a way as to completely disfigure it. Of course, observes a writer in the "Bury Free Press," this action was quite illegal, but no doubt the grieved gentleman felt that he would rather like his free portrait acquaintances to bring legal action.

Correspondence.

- * * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*
- * * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

PLATINUM PRINTERS' CATARRH.

To the Editors.

Gentlemen,—May I trespass on your valuable space in the hope of getting a little advice or information? I have been a printer for some twenty-two years, for twenty of which at least I have worked platinotype, as well as carbon, silver, etc. But for the last two years I have been troubled with a most distressing form of catarrh, with violent sneezing, running from the nose, etc. For a long time I treated this as for an ordinary cold in the head but without the slightest effect. Sometimes I am free for a week, but rarely longer, except when away from business. I have only lately been informed by a fellow-assistant that it is caused by the smell of the platinotype paper itself. My informant (a lady) assured me that she knew of a case of a lady printer who had to give up platinum work entirely owing to this troublesome complaint.

I had myself noticed that the most violent fits of sneezing, etc., came on when handling platinum paper, but I never dreamed of that being the cause in any way. That it is so I feel now quite convinced. I might say that the room in which I have to cut up and fill in is small and ill-ventilated.

Can you, gentlemen, or any of your readers, refer to a similar case, or suggest a remedy or relief? If so I should be extremely grateful, as it must be obvious to all how dangerous to good work such an unpleasant affliction is.—I remain, Gentlemen, yours faithfully,

OLD PRINTER.

[We cannot recall any similar case having been previously recorded. We should doubt the statement as to the trouble being caused by the "smell" of the platinotype paper, and should be inclined to ascribe it rather to mechanical irritation of the mucous membrane of the nose by minute traces of the sensitising salts being inhaled in the form of dust. Ferric oxalate being one of the salts used, we should lay the principal blame on this substance. The oxalates seem to be particularly prone to cause irritation, as the flower pickers of the Scilly Isles have lately been suffering from a peculiar skin irritation of the hands and forearms; and the Board of Agriculture, when appealed to on the subject, ascribed the effects to the raphides of calcium oxalate in the stems of the flowers. Assuming our surmise to be correct, the obvious remedy would be local application of emollients, such as hazeline lanoline, and the wearing of a chemical respirator covering the nose and mouth, which can be obtained from all chemical apparatus dealers. This can be filled with cotton wool, which could be soaked in weak glycerine and carbonate of soda—the air would thus be filtered before reaching the nose or throat. But probably ordinary care as to dust would obviate such drastic measures. We shall be glad to hear from any of our readers who may have met with a similar trouble.—Eds., B.J.P.]

AN EDITORIAL MILLENNIUM.

To the Editors.

Gentlemen,—The suggestion of Mr. John Tennant quoted in last week's "Ex Cathedra," under the title of "An Editorial Millennium," is a good one, and should afford your readers an opportunity and excuse for sending you numerous suggestions and small practical hints on photographic processes they can recommend as having

stood the test of practical work, and which they otherwise would not care to make the subject of a special communication.

The B.J. so admirably fills its appointed place in the photographic world, and caters so well for practically every class of serious photographer, that I cannot suggest any change, except that it might be published twice a week, and the price reduced to 1d.

A small practical tip occurs to me as I write, which may prove useful to other of your readers, as I do not recollect having seen it published anywhere. It is briefly as follows, and any one having a lot of enlarging to do with incandescent gaslight will appreciate it: Never use the whole of the ordinary mantle if it is desired to make the most of the light. It is well known that the smaller the source of light, provided it is sufficiently intense, when using a condenser, the better or more even the illumination of the negative will be.

When the usual mantle is made incandescent quite a large area of light is presented to the condenser, and I have found that the illumination is not so brilliant as could be obtained if the same amount of light was concentrated in a smaller area. It will also be seen that a considerable portion of the surface of the mantle does not get incandescent, and the pressure or quantity of gas used does not seem to alter it; in fact, the best light is usually obtained when the gas is not turned full on. The plan I have adopted is to cut off nearly one-half of the bottom portion of the mantle before lighting it for the first time, and reducing the height of the crutch in proportion. By this means the whole of what remains is rendered intensely incandescent with the same pressure and amount of gas, and, I find, gives a more even illumination, as the same amount of light appears to be concentrated into a smaller area.

I do not know if this method is new, but I have employed it for enlarging for some time, and also in an optical lantern with every success, and can therefore recommend it to others.—Yours faithfully,
SYDNEY ELLINGTON.

Fairbrother Road, Northsea, May 22.

THE "Bromide Monthly" for May includes among its notable articles a continuation of a cash offer of 10s. 6d. per negative for subjects of certain classes suitable for postcards. The Rotary Photographic Company, Ltd., will send a specimen copy of our mail but always interesting contemporary for 2d.

In a series of competitions arranged by the "British Advertiser," half a guinea is awarded for the best photograph of a smartly dressed shop window. The "British Advertiser," as the article on another page indicates, is undertaking a commendable task in emphasising the importance of photography in modern advertising, and possibly many of our readers will be glad to see a copy of our contemporary, to which end they need only apply to Baldwin Street, Bristol.

THE R.P.S. Exhibition.—The date of the next exhibition of the Royal Photographic Society, at the New Gallery, 121, Regent Street, will be from September 21 to October 28. It has been resolved that no changes for wall space be made to the exhibitors in the Pictorial and the Technical Sections.

In the eighteenth annual report of the Battersea Public Libraries it appears that considerable additions have been made to the local collection in the reference library, including books, engravings, maps, and pictorial postcards with views of Battersea and the neighbourhood. The Library Committee will be glad to receive accessions to this collection, and they invite further donations, especially from amateur photographers and those who possess original drawings of buildings or views in the borough.

A MAMMOTH Photograph.—A photographer of Chicago (U.S.A.) claims to have taken the largest photograph in existence. It is a full-length portrait of Dr. Dowie, and measures 8 ft. by 4 ft. This portrait is not an enlargement, but from a direct original negative.

Answers to Correspondents.

^{} All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

^{} Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

^{} Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

^{} For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

W. Scott, Church Bank, Bradford. Photograph of Yorkshire County Cricket Team, Season 1905.

Crampton & Fitch, 15, Quarry Hill Road, Tonbridge, Kent. Photograph of the Australian Cricketers and Friends. Photograph of a Curiosity in Natural History.

G. A. Dean, 14, High Street, Rugby. Photograph of a Curiosity in Natural History. Large Nest with Four Blackbirds' Eggs and Four Thrushes' Eggs; the Birds having been seen sitting on the Nest at the same time.

R. N. Heyworth, 38, Prescott Street, Rochdale. Photograph entitled "The Last Steam Tram to leave Rochdale, May 8, 1905."

T. V. Higgins, 257, Boulevard, Hull. Photograph of John H. Parkyn, A.R.C.O., Principal of New School of Art, Anlaby Road, Hull.

R. C. Garalde, 106, Anlaby Road, Hull. Photograph of a Group of Three Fishermen Presented with the Albert Medals by the King.—Harry Snitrik, Arthur Rea, Wm. Smith.

TELEPHOTO.—Which size of Dallmeyer's system III. moderate power, negative attachment can be adapted to a Busch rapid aplanat C shutter set? ("B.J. Almanac," 1905, p. 439.) 2. Would 5 in. focus negative suit 10 in. and less positive lenses? My combination gives foci of 6, 7, 8, 9, and 10 inches. 3. What would suit single lenses 12, 16, and 20 inches? The expense makes me wish to buy only one negative attachment at present; the most useful.—A. C. M.

1. If you drop a line to Messrs. Dallmeyer they will tell you which of their moderate power, III., attachments (which is the most suitable) can be fitted. But your lenses are not at all suited for telephoto positives, which should be of the fixed R.R. type, and with an aperture of $f/8$ at the least. It would appear from your query that you misunderstand the principles of telephotography. Why not study a simple manual, such as "Telephoto Work," by Deller (London: Dawbarn and Ward, 1s.)? 2. A negative of half the focal length of the positive is a good proportion for moderate-power work. 3. Negative attachments of 6, 8, and 10 inches focus; but these single lenses are not suitable.

CALOTYPE, ETC.—Can you please tell me of any works dealing with the different processes such as Calotype, Ferrotype, and Solar Printing?—P. HOFFMAN.

Heft 6, Band II., of Eder's "Handbuch der Photographie" deals with these processes for both negative and positive work. Price 3 marks, from W. Knapp, Halle a/S, Germany. Any of the old English text-books treat fully of these processes. You may pick up Hunt's "Manual of Photography" for a few pence, or doubtless you could get one by advertising for it.

ANXIOUS.—We have written sharply to the firm on the matter, and have refused to allow our columns to be further used by them until we are satisfied that business is promptly transacted. Your best course is to see if the police in your town can help you, or, failing them, to proceed through a solicitor.

SFERO.—Your query involves some knotty points of law. A five-mile radius in a large town would possibly, in a court of law, be ruled as "an undue restriction of trade"; in a small town it might not. However, you seem to have signed the agreement agreeing to its conditions, which appear somewhat broad. We should recommend you to consult a solicitor on the matter,

at the same time showing him the original document. He will advise you as to its legality, or otherwise, better than we can who have not seen it in its entirety.

COLLOTYPE, ETC.—1. Which is the best method of making colotype negatives? Would it be better to make a transparency from original negative and copy same, or to make a print and copy it? Is there any good book on this subject; if so, where should I get it? 2. Can you also inform me of the best method of enamelling P.O.P. postcards?—**COLLOTYPE.**

1. If you have the original negative, it is usual to use that, if it is of the correct size, simply taking the precaution, if it is not reversed, to reverse it. If it has to be reduced or enlarged, and you have convenience for making transparencies, then it is certainly better to make a transparency from the negative, and make your new negative from that. The best books on colotype are Schnauss', 5s., and Fithian's, 2s. 6d., both published by Liffe and Sons. 2. As usual for P.O.P.: squeegee to polished glass or ferrotype plate and strip off.

RIGHT TO USE PHOTOGRAPH.—I should be grateful if you would advise me on the following subject: I was requested to photograph a group, which was reproduced in the "Daily Mirror." I was in no way consulted about the matter, neither was my name inserted under the reproduction. The reporter, I understand, obtained one of the originals from one of the party of the group. What I would like to ask is: Is it legal for the paper in question to do this without my having any claim on them?—**IN DOUBT.**

If you were paid for taking the photograph you have no copyright in it. If you were not, and took it for your own purposes, the copyright is vested in you. But if you have not registered it you have no claim.

CARBON PICTURES—CONTE CRAYONS.—1. Would you be kind enough to tell me whether the process used for producing mezzotint portraits (as used by —, —, etc.) is a trade secret, and, if so, whether you know a firm that undertakes it? 2. Also, where is Conté crayon, recommended in the JOURNAL of May 5 by Mr. Barrett, to be obtained?—**G. L.**

1. The pictures in question are by the carbon process, made on a special tissue and transfer paper. Such firms as the Autotype Company, Illingworth and Co., etc., will make them for you. 2. The crayons may be had from Messrs. Reeves, Farringdon Avenue, London, E.C., or possibly from your artists' dealer.

CARBON PICTURES ON ALUMINIUM.—Can you inform me of the easiest method of coating aluminium for single carbon transfer? Please accept my thanks for the flashlight formula, it works admirably.—**EN AVANT.**

Carbon prints (single transfer) can be developed direct on the aluminium, but it is a good plan to coat it with a substratum of insoluble gelatine beforehand, as that avoids the risk of the picture peeling off afterwards. A good substratum for the purpose is the following:—Dissolve 1 oz. of Nelson's No. 1 gelatine in a pint of water, then add chrome alum, 20 gr., dissolved in 2 oz. warm water—stirring well the while.

ENLARGING ON CANVAS.—Would you oblige by supplementing the instructions given last week for enlarging on canvas by suggesting a method of using a bromide emulsion for a similar purpose, one that is as simple as possible and contains the smallest possible amount of gelatine? It is a film of any sort that I desire to dispense with as far as possible.—**ENLARGER.**

It is hardly possible to obtain less "film" with any emulsion formula than is given by the process suggested last week; but on page 288 of our issue for April 14 appears a formula under the title of "Home-Made Lantern Plates," which should

be satisfactory, if the additional gelatine which is there directed to be added after digesting the emulsion is omitted. This will give about 5 grains of gelatine to the ounce in the finished emulsion. It might be possible to reduce this still further, even to half the quantity, if some alcohol were used, say one ounce instead of an ounce of water in the bromised gelatine. The danger in reducing the quantity of gelatine too low is that a coarse granular bromide of silver is formed which has a tendency to settle down to the bottom of the vessel, and the emulsion gives then flat and foggy results; if these coarse grains are distributed through the emulsion, they are reduced by the developer in the shape of black spots.

J. W.—1. J. Avery and Co., 81, Great Portland Street, W., will supply you. 2. If the lens is in good condition you should advertise it, but we do not expect you will get very much—about £3 at most—as modern lenses have largely taken the place of this type. 3. Any light colour, preferably of a blue tint. A dado of a darker shade will assist the appearance of the studio, and not cut off any necessary reflected light.

E. D.—You can copyright the photograph used as the background, but you cannot copyright the style of portrait. Anyone has a right to produce similar effects, even from precisely the same view as you selected. The picture is good, but would be better without the vase.

COPYRIGHT.—A local professional photographer has taken the photograph of a group of workmen. He is charging 2s. per copy, whole-plate size. I wish to copy this photograph and put it on picture postcards for sale to the men, who can afford these better than the large photo. Am I infringing any copyright in doing this? Or is "the reasonable expectation of sale to sitters and their friends" by the professional sufficient protection to me? I myself am an amateur.—**F. F.**

Of course you have no right to copy the photograph. The copyright is either the photographer's or the party's by whom he was commissioned. You had better give up ideas of profiting by other people's work.

W. THOMPSON.—The iron bar will not interfere at all, and would certainly strengthen the building. As the studio is so wide, we suggest that, instead of three feet at the ends, you should have about four feet six inches opaque. It is quite unnecessary to continue the glass to within a foot from the floor. Two feet six inches, or three feet, will be quite low enough, and will save materials for curtains or blinds, and have other advantages.

SEPIA SATIN TONES.—Will you assist by giving me a formula with instructions for obtaining sepia tones on platinum papers?—**PLAT.**

Develop with a mixture of equal parts of:—(a) Potass oxalate, 2 oz.; water, 14 oz.; and (b) potass citrate, 150 grains; citric acid, 240 grains; mercuric chloride, 90 grains; water, 14 oz. (used slightly warm). The Platinotype Company make a special sepia paper. Why not employ it?

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

The British Journal of Photography.

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EX CATHEDRA

Ancient Lights. An important explanation was given by Mr. Justice Farwell last week of the present position of this question, which is too often a vexed one. In the well-known case of *Colls v. Home and Colonial Stores*, 1904, the House of Lords laid down the principle that interference with ancient lights in order to be actionable must amount to a nuisance, and there was a general impression that this decision had upset previous rulings, whereas what the *Colls* case had actually done was to readjust the law, and, whilst there was still a question of nuisance or no nuisance, the main point was not how much light had been taken, but how much was left, and whether that was enough for the comfortable use and enjoyment of the premises according to the ordinary requirements. The result is that the owner of property who complains of an obstruction to his ancient lights by the building operations of an adjoining owner should, before embarking in litigation, satisfy himself that he has suffered a substantial privation of light sufficient to render the occupation of the house uncomfortable, and to prevent his carrying on his accustomed business as beneficially as he had formerly done. This is a subject which may be of considerable importance to some of our professional readers.

Sunlight Dangers. In the last issue of the "Pharmaceutical Journal" is a letter calling attention to what is termed the curious origin of a fire that occurred in the writer's premises—a chemist's shop. It appears that one day recently, before the shop was opened, the rays of the morning sun passed through a show carboy of red-coloured water on to some dark slides which were wrapped up in a black focussing cloth. A passer-by, noticing smoke, gave the alarm, and the fire was put out before much damage was done. The writer says it would be interesting to know if anyone has had a similar experience? Accidents of this description, owing to the

sun's rays being focussed on combustibles, used to be by no means uncommon. At the time when graphoscopes were in vogue with their six-inch lenses, more than one case is on record of the woodwork being set alight by the sun's rays coming to the burning focus upon it. We know of a case in which an accident which might have ended in a serious fire was occasioned by a Woodward's solar camera with a twenty-inch condenser. The camera had been in use in the morning, and the mirror, driven by a heliostat, was turned round so that the sun's rays did not reach the condenser. Later in the day the rays were again reflected on the condenser, with the result that the woodwork of the camera was set on fire and a certain amount of damage was done to the room. Opticians, in arranging their windows, as a rule take care that reading-glasses and the like are so placed that this sort of accident does not arise. Curiously enough, the letter in our contemporary calling attention to the matter is headed "Inflammable Dark Slides," which would almost lead one to surmise they were not the ordinary wooden ones. A few at times, it is true, are constructed with celluloid shutters. Had that been the case in this instance there would have probably been more damage done than was the case. They may have been fitted with millboard shutters, but this can by no means be considered as being more inflammable than wood.

Death of Ludwig Schrank.

It is with great regret that we record the death at Vienna, on May 20, of Herr Ludwig Schrank, the editor of our contemporary "Photographische Korrespondenz." Our confrère had been before the continental photographic world for many years, both as editor of the "Korrespondenz" and as secretary of the Vienna Photographic Society, and at the time of his death he had attained the age of 77 years. An astute and strong man, the energies of his life were poured out freely in the interests of his journal, and under his care it has maintained its position at the head of the continental photographic press. Few photographic periodicals commanded the respect which the "Korrespondenz" obtained from us, and we add our regrets to those of photographers in the Austrian capital.

Local Views.

Although the local view as a source of income is nothing like what it was a few years ago, having been killed by the picture postcard, it is still often worth doing as a means of attracting attention to a business establishment. The local photographer has many opportunities denied to the operator of some large firm who goes to a locality for a week or two, and takes his negatives of the place pretty much as he finds it. Just at present, for instance, in many parts of England where the leaves are not more than half opened, views or

glimpses may be got through the trees, and the effect is less bare and wiry than when absolutely unclothed branches and twigs are spread across the sky. The last few weeks have also afforded excellent opportunities of securing views with natural skies on the landscape negative, and far-sighted workers will undoubtedly have accumulated or are still accumulating a number of cloud negatives by the aid of orthochromatic plates and a suitable light filter.

British Optics.

The Optical Convention, the report of which figures largely in our pages this week, is an eminently British institution. It is initiated and organised by Englishmen, and the large exhibition of optical apparatus to be seen this week at the Northampton Institute is the work of British firms. This exhibition is perhaps the most important part of the Convention. It demonstrates the importance of the optical trade, and shows that, though England has culpably divorced science from manufacture in optics, yet there are still qualities which make the English optician proud of his profession, and yet means for grafting the scientific method to the practice of the British optical instrument maker. In applying itself to this task, the Convention has the heartiest support of all who desire to see the British optical trade worthy of its great traditions. The report of the proceedings will be continued next week.

The Dublin Convention.

Elsewhere this week we publish full particulars of the arrangements made for the 20th Annual Convention at Dublin, and also names of the gentlemen composing the various committees. We would particularly draw the attention of our readers to the facilities that have been granted not only by the London and North-Western Railway Company, but also by the local Irish railway companies, for the convenience of conventioners taking part in the excursions. That full advantage will be taken of the cheap tickets, which will be specially issued, we have no doubt, and the opportunity of visiting the sister isle at the best time of the year, and at very little expense, should be made the most of by every photographer who is looking round for a place to visit for his summer holiday. To all such we advise a speedy application to the hon. sec. for terms of membership.

The Northern Photographic Exhibition.

Reports to hand from the secretary of the forthcoming Northern Photographic Exhibition at Leeds indicate that the show will probably be as large as, if not larger than, any previous photographic exhibition ever held in those parts. If careful organisation and enterprise on the part of the executive make for success there ought to be no doubt as to the result, both as regards public appreciation and financial returns of a highly satisfactory nature. As we have previously announced, the exhibition will be open from July 4 to August 12, and all exhibits must be delivered not later than Tuesday, June 20, at the City Art Gallery, Leeds. Entries close on Thursday, June 15, so all intending exhibitors who have not yet obtained entry forms and particulars should get them without delay from the hon. sec., Mr. F. G. Issott, 62, Compton Road, Harehills, Leeds.

The National Photographic Record Association.

The Annual Report of this useful and praiseworthy organisation is extremely satisfactory, not only in view of the work actually accomplished, but also on account of the increasing amount of vitality and interest evidenced. At the annual meeting held on Tuesday afternoon, at the Midland Grand Hotel, St. Pancras, the Hon.

Secretary, Mr. George Scammell stated that 374 prints had been received during the year for the British Museum collection, making a total of 3,504 prints received since the Association was founded. From their indefatigable president, Sir Benjamin Stone, a selection of a series of photographs taken in Scotland had been received. These included some of the National Sports, and ought to prove of great interest in the future. A selection of a series of places of interest on account of their association with the life and work of John Bunyan was also contributed, and a great number of others of varied subjects indicated the great interest Sir Benjamin took in all kinds of photographic record work. A large number of recently contributed photographs were on view at the meeting, and general satisfaction was expressed at the re-election of Sir Benjamin Stone as president for the ensuing year and Mr. Scammell as hon. secretary. It was also announced that three members of the Association have each offered to make fifty prints for the Museum collection from any suitable negatives. This offer should certainly be taken advantage of by every photographer who possesses negatives likely to be of interest, but who has no time to prepare suitable prints for the purpose. The hon. sec. will send full particulars on application to 21, Avenue Road, Highgate, London, N.

Local Record Work.

It is also exceedingly gratifying to learn from the report of the Association that during the year many efforts to extend the movement for photographic record work have been made by quite a number of photographic and scientific societies. Amongst others, the county of Surrey has now a strong society. The collection is permanently housed at the Public Library, Croydon, under the care of the Hon. Curator, Mr. J. S. Jast, and at the last exhibition of record work held in the Town Hall, Croydon, some 700 prints were exhibited. The photographic Survey of Essex are depositing their collection in the Essex Museum of Natural History (the Passmore Edwards' Museum), West Ham. In Kent, a County Photographic Record has also been founded. Their collection is being deposited in the County Museum at Maidstone, under the care of the Hon. Curator, Mr. J. H. Allchin. Since the last meeting, the National Photographic Record Association arranged an exhibition of record work for the Selbourne Society at their annual soirée at Burlington House, and have lent their lantern slides illustrative of record work to several photographic societies interested in the work. They have also been consulted by some of the colonial societies, including the Antiquarian Society of Montreal, who are organising a record society for Canada. In addition to this it will be seen from the account in another column that the Dundee and East of Scotland Photographic Society has practically accomplished a *magnum opus* in the shape of a photographic record of Dundee with suitable literary embellishments. The assistance granted by the town authorities—who eventually become owners of the volume—must, however, have been of immense assistance in this case, as so far we are aware no other town has yet undertaken the responsibility of handing down to posterity a complete and pictorial history of its people and their life in all its phases for the use of future generations.

Prints for the N.P.R.A.

A point in the annual report of the National Photographic Record Association should be borne in mind by everybody desiring to contribute, but who have not done so because it was imagined that only certain kinds of prints were admissible. There seems to be considerable doubt as to the size of print that will be accepted by the Council for the Museum col-

lection. They would like to make clear, therefore, that although whole-plate is considered the standard size, half-plate or even quarter plate prints are also acceptable, as many interesting and desirable records can well be, and often are, made on the smaller sized plates. This is particularly useful to remember in view of the appeal made by Mr. Malby at the annual meeting. He specially wished to draw the attention of all workers for the association to the recording of events of our every day life. Small events of present day industries, customs, manners, and even costume, that are not important enough for the illustrated press, would, if carefully portrayed by the camera, be of immense value to the historian in the future. This is quite in agreement with our suggestion made in last week's "Ex Cathedra," and we are pleased to see from Mr. Scammell's letter on the subject—published in another column, that a certain amount of this type of record work is being accomplished. But, as Mr. Malby pointed out, it should go further than endeavouring to record customs, etc., that are dying out. The golden opportunities to record present every-day customs in full vigour should also be taken advantage of, and in this we fully concur.

* * *

Sir Benjamin Stone and Photography.

The president of the National Photographic Record Association made his views on the practical application of photography very clear at the annual meeting on Tuesday last. He stated that the two points he would like to insist on were, first, that photography should find a prominent place in every school for educational purposes in the shape of lantern slides. The intelligence of every child could be more readily appealed to through the eye than the ear; and, secondly, that every photographer should apply his knowledge to the duplication of all national documents to which they could have access. It was deplorable to think of the priceless documents that had, even in recent years, been destroyed by fire or otherwise, and of which copy remained that could have the authenticity of a photographic replica. In support of this Sir Benjamin produced photographic copies he had made of certain valuable documents in the British Museum, which were usually kept hidden from the public gaze. They included the oldest written document relating to this country—a letter of King Arthur, and copies of Magna Charta, and other historic relics of the same nature were also shown. He contended that such photographic copies had a distinct educational value, as they showed the beginnings of our country's history in a manner nothing else was capable of, and said that in every town and in every city there were valuable documents and charters, etc., that ought to be duplicated by photography, and without delay. That this was not being done was owing to the fact that there was so much photographic waste—owing chiefly to photography having become such an easy process. A higher level of photography was wanted, and then its application to serious record work would be assured.

* * *

Mercury Ointment.

A paper in the "American Journal of Pharmacy" discusses the preparation of the mercuric ointment suggested in our issue of May 19, as affording relief from bichromate disease. The use of metallic mercury in compounding the ointment is considered inadvisable since it gives both mercuric and mercurous nitrates in the final product. As the method of preparing the most effective ointment may be of interest in carbon-printing establishments, we quote the formula and instructions:—

Red mercuric oxide	... ..	2½ oz.
Nitric acid	... ..	6 oz.
Lard oil	... ..	27 oz.

"Heat the lard oil in a clean glass or porcelain vessel to a temperature of 212 deg. Fahr., or the dish may be placed into a bath of hot water until the temperature of the oil has risen to about 212 deg. Fahr. Then withdraw the heat, gradually add 3½ oz. of nitric acid, and when the reaction moderates, re-apply the heat until effervescence ceases. Positively at this point in the process, the liquid should not be disturbed by stirring. Now when all the nitric acid has been decomposed, the temperature can be considerably raised without causing further effervescence, and the liquid simply boils. This elevated temperature may be maintained for ten or fifteen minutes, whereby the volatile fatty products will be more or less completely dissipated. Then allow the mixture to cool to about 104 deg. Fahr. Having dissolved the red mercuric oxide in the remainder of the nitric acid without heat, by adding the former to the latter in small portions, add this solution to the nearly cooled fatty product. Now raise the temperature of this mixture to 130 deg. Fahr., and maintain it at this until no further evolution of gas takes place, and then withdraw heat entirely. When the mass has become entirely cold, mix thoroughly by trituration, preferably by the use of a glass rod."

PHOTOGRAPHIC PRINTING PROCESSES.—IV.

SEMI-PLAIN PAPERS.

The following processes may be considered to stand practically between the plain papers already described and those in which an emulsion in collodion or gelatine is used; the image is entirely on the surface, and they have a semi-matt appearance. The resin and shellac papers are rather prone to yellowing of the whites unless used within a very short time of their preparation, and further they are not so suitable for gold as for platinum toning. The shellac paper is prepared as follows:—

White shellac (powdered)	... ..	96 grains
Distilled water	... ..	2 ounces
Liquid ammonia .880	... ..	50 minims

The shellac should be rubbed up with the water, the ammonia added, and the mixture heated till solution is effected. A little more ammonia is added if necessary, and the solution cooled and filtered. It will keep indefinitely.

The size is prepared by first making an arrowroot solution:—

Arrowroot	... ..	60 grains
Distilled water	... ..	2½ ounces
Ammonium chloride	... ..	54 grains

to which is added, whilst warm

Shellac solution	1 ounce
------------------	--------	---------

and after well stirring, the mixture is spread on the paper in precisely the same way as with the other sizes, allowing half an ounce for smooth papers and three quarters of an ounce for rough-surface drawing papers. The paper must be dried as quickly as possible.

The silver bath must be stronger than for plain paper, and it is advisable to use rather more water so that our formula for 480 square inches becomes

Silver nitrate	... ..	60 grains
Citric acid	... ..	40 grains
Distilled water	... ..	¾ ounce.

The ammonia nitrate must not be used, as this dissolves

out the shellac and gives a lumpy surface; but it is advisable to fume the paper before printing.

After printing the prints should be immersed in salt and water, and toned in the following bath, heated to 80 deg. Fahr.:—

Potassium chloroplatinite	...	...	2 grains
Phosphoric acid (dilute)	...	...	$\frac{1}{4}$ ounce
Water	...	...	2 ounces

The most economical way of using this bath is to place the print, face up, on a sheet of glass, remove the surface moisture and brush the bath over it; in about three minutes it will have acquired the necessary depth of tone.

The resin paper is a little troublesome and rather more care is required in the preparation of the size, as it is easy to obtain a lumpy mixture, which is useless.

Pale yellow resin	...	...	40 grains
Distilled water	...	...	2 ounces
Liquid ammonia .880	...	...	q. s.

The resin should be obtained in clear, clean lumps, not in powder form, as the latter gives a darker film. It is, however, finely powdered before use. Water should be heated to boiling point and some ammonia added, and then the resin added by degrees, with constant stirring and the heating and addition of ammonia continued till a clear solution is obtained. This is not a pleasant operation as the heat, of course, drives off the ammonia, and further, some little resin seems to refuse to dissolve. In any case the solution must be filtered.

The next procedure is to make a solution of gelatine, thus:—

Hard gelatine	...	...	40 grains
Distilled water	...	...	2 ounces

Allow to soak for half an hour and dissolve by the aid of heat, and if necessary filter, and to this, whilst still warm, should be added the resin solution with constant stirring, then should be added very slowly and with constant stirring:—

Ammonium chloride	...	...	96 grains
Distilled water	...	...	2 ounces

If now the solution smells of ammonia, pure hydrochloric acid should be added till it is neutral, and then enough saturated solution of citric acid until the reaction is

distinctly acid. This is not an easy matter, as the incautious addition of the acid instantly throws out the resin in lumps instead of in fine grains. The total bulk of the solution is finally made up to 10 fluid ounces.

The sensitising solution may be of the same strength as that recommended for the shellac paper, but the citric acid should be reduced to half the quantity. The remarks as to the use of ammonia-nitrate for fuming also apply here.

By using a preliminary gold-borax bath, washing, and then employing the above-mentioned platinum bath, warm black tones are readily obtained.

We now come to a process, suggested first by von Hübl, which is by no means difficult, and permits considerable variations in effect by ringing the changes on proportions of the various ingredients, particularly as regards the ratio of albumen to arrowroot. The more of the latter, the less the characteristics of the paper approach those of ordinary albumenised paper.

White of egg	...	...	1 oz.
Arrowroot solution, 2 per cent.	...	...	1 oz.
Salt	...	...	30 grains

This is the size, and it can be brushed over the paper as already described. The albumen must be, of course, whipped to a froth, allowed to stand for a day and the clear portion only used. It is mixed with the arrowroot solution only when the latter has cooled to about 90 deg. Fahr., coagulation being avoided by taking this precaution.

The silver solution for this process may be either neutral or acid, the former being suitable for gold toning, and the latter for platinum. If the acid sensitiser is used the formula should be:—

Silver nitrate	...	...	40 grains
Citric acid	...	...	5 grains
Distilled water	...	...	$\frac{1}{2}$ ounce

which can be applied as described on page 363, in our issue of May 12.

The paper should not be sensitised with ammonia-nitrate, and if for platinum toning, must not be fumed. In these latter formulæ variations in gradation may also be obtained by using phosphate or bichromate as previously described, and the principles set forth in the previous articles are generally applicable to these semi-plain papers.

THE WEEK IN HISTORY.

The First Platinotype Process.

NEXT Monday, June 5, exactly thirty-two years will have elapsed since the first patent for platinum printing was taken out. In 1873, Mr. William Willis, junior, filed with the Patent Office a description of "Improvements in Photo-mechanical Printing," the importance of which, perhaps, even he did not place at a sufficiently high value. Platinotype, as set forth in his specification, is a more complex process than that of to-day. A fixing bath of sodium hyposulphite, or ammonia, figures prominently in the specification, and its use was apparently considered an essential part of certain forms of the process. I believe it was necessary to use it so long as oxalic acid was employed as the final clearing bath, and at this stage of the process no mention is made of hydrochloric acid as the clearing agent or remover of the iron salts.

It is rarely that one sees a printer's error in a patent speci-

cation, but in this one "ferric oxalate" in one place is printed "fabric oxalate."

Commenting on this first platinotype process, THE BRITISH JOURNAL OF PHOTOGRAPHY wrote, "The specimens of this process which we have seen are exceedingly fine and possess the most delicate gradation with much vigour" — words which surely can bear further emphasis in reference to the modern results of platinum printing.

It was some years after its introduction before the platinotype process met with much favour amongst photographers, and it was introduced before its time, like some other processes. At that time glossy albumen paper, with its purple tones, had all the run, and the public then did not appreciate the beauties of matt surface pictures with the rich blacks that platinotype yields. The case is very different now with the more refined portion of the public.

HISTORICS.

THE OPTICAL CONVENTION.

The Optical Convention opened on Tuesday evening last, May 29, under the presidency of Dr. R. T. Glazebrook. The aims of the Convention are to increase the interest taken in optical science in this country, to promote an improvement in technical education in optical matters, and to aid the development of the British optical industry. In selecting the Northampton Institute as the seat of its operations the committee were fortunate in associating their work with that of the optical department of that institution, the director of which, Mr. S. D. Chalmers, M.A., has actively taken up the arrangement of an important programme of papers and discussions. Among others to whom the Convention is indebted for great help is its honorary

secretary, Mr. F. J. Selby, Dr. J. M. Walmsley, the Principal of the Northampton Institute, Mr. W. Rosenhain, and Mr. E. B. Knobel, who has acted as treasurer of the Convention funds. The movement has received the support of such leading scientific men as Lord Kelvin, Lord Rayleigh, the Earl of Rosse, Lord Blythswood, Professor Poynting, Professor Schuster, Professor Silvanus P. Thompson, Sir William Abney, Sir Howard Grubb, etc., etc. The Optical Society, the Spectacle Maker's Company, the British Optical Association, and the various optical associations in the provinces have given active help, and most of the leading makers of optical instruments are taking part in the Convention.

THE PRESIDENTIAL ADDRESS.

Dr. R. T. Glazebrook, in the course of his address on Tuesday last, after explaining the origin of the proposal to hold a Convention, and the steps taken to realise it, gave an outline of the history of optical progress during the past two hundred and fifty years, with a view of illustrating the close union which has existed between theory and practice at times of marked progress, and of showing how each has reacted on the other in assisting this progress.

The growth of the science at the end of the seventeenth century was due to two men, Christian Huyghens and Isaac Newton. Each appears to have been directed to theoretical optics from a desire to improve the telescope for astronomical purposes. Each was in his own way a mechanic: Huyghens built telescopes and clocks; Newton, at the beginning of his optical work, applied himself to the grinding of optical glasses to figures other than spherical. Huyghens and Newton were the authors of the two rival theories of optics which held the field for not more than one hundred years to the days of Young and Fresnel. That period was not very fruitful, either in theory or practice, but Fresnel by his work established Huyghens' theory, and though

he did not directly add much to practical optics, he entirely changed the position from which the theory of optical instruments has to be regarded. Recent progress in the theory of the telescope, the microscope, and the spectroscope is based on his work.

In the address the work of the two Herschels and Airy at the early part of the last century was alluded to, and the important part in the development of English optics taken by Messrs. Chance through their introduction of optical glass was described. It was pointed out, however, that by the middle of the century there was a marked separation between the theoretical and practical workers, so that when photography was invented by Daguerre, Airy's work on the aberrations of a lens and Hamilton's important theorems on rays were unknown to the lens designers. Thus for many years the photographic lens developed empirically.

Some account of the change in the position due to the work of Ernst Abbe, and the development of this work at Jena and elsewhere, brought the address to a close.

THE SPECIFICATION AND MEASUREMENT OF OPTICAL ABERRATIONS.

(A Paper read before The Optical Convention on Wednesday, May 31.)

Among the subjects which it is desirable to have discussed before this Congress with a view to arriving at some consensus of opinion, perhaps none are so important as the defining of the meaning of the various optical aberrations, and the standardising of methods of testing and comparing the performance of different instruments.

The importance of this discussion is threefold. In the first place, it may be of important assistance to the designers and manufacturers of optical instruments, who at present are somewhat at variance on some of the criteria leading to design. In the next place, the possibility of having the various aberrations numerically stated would enable the users of such instruments to select them with reference to their special requirements. It is a well-known fact that in the higher class of optical instruments, extreme perfection of one or more attributes of the instrument is frequently attained by the sacrifice of perfection in others; and in the absence of exact information, an individual frequently obtains an instrument which, though of the greatest excellence in several respects, may be deficient in the most important feature for which he requires it. As instances may be quoted, the employment of microscope objectives of very high N.A. for work where depth of focus is required, and the use of photographic lenses working to apertures of $f/4$ for process work, in which the zonal spherical aberration when used for apertures of $f/22$, as is common in process work, may be larger than with a cheap lens of small aperture. Lastly, and most important, the adoption of some definite tests and the certification of optical instruments would deal the death-blow to the worst feature of the optical industry, namely, the continued misrepresentation, both unintentional and otherwise, as to the quality of the various instruments. It is an open secret that at the present time there are no official tests or certificates which will discriminate between the performance of the better types of instruments; and while this remains the case, it is obviously impossible to expect manufacturers to refrain from claiming the greatest perfection, or that much encouragement will be given to the attainment of it. The adoption of a satisfactory method of defining and measuring the aberrations of optical instruments will be the most important step towards raising the status of the optical industry in the country.

In dealing with the general principles of aberrations in optical instruments, it must not be forgotten at the outset that optical image-forming instruments fall naturally into two distinct classes—objective and subjective. To the former class belong all instruments in which an image is formed upon a screen, such as photographic lenses, projection apparatus, etc., while the latter includes instruments such as the telescope and microscope, in which the image is virtual, and is only visible to a single observer. In the former case the instrument is complete in itself, and its only function is to produce a perfect image upon the screen, but in subjective instru-

ments the final object is to produce a perfect image upon the retina of the observer, and this depends upon the visual apparatus as well as upon the instrument. Instruments for subjective use, therefore, should have their aberrations defined with respect to the normal eye, and the tests made on them should either be visual in character, or preferably objective and corrected for the errors of the normal eye.

Next, aberrations should be specified absolutely and relatively, the former with the object of stating the actual performance of an instrument, the second in order that the comparative merits of various forms can be arrived at. The basis of this comparison needs settling.

Lastly, aberrations may be classified into primary, secondary, tertiary, etc., depending upon the degree of approximation. This distinction is mainly of importance to the designer and manufacturer.

It is evident that a great many complex questions are involved, and it is hoped that discussion following this paper will settle them.

We have therefore made the following classification of aberrations into—

A. Objective or Subjective.

B. Absolute and Relative.

C. Primary, Secondary, or higher.

and it is proposed to very briefly discuss this classification.

Aberrations of Objective Systems.

At the outset it seems necessary to come to some decision as to the definition of an aberration. Aberrations have been specified as the distance between the foci of two sets of rays or longitudinal aberrations. This is notably the case with radial astigmatism, where the distance between the primary and secondary focal lines is usually taken as a measure of the defect. In other cases, the diameter of the circle or patch of least confusion is regarded as the criterion. Neither of these are perhaps the most suitable method of expression. The ultimate object of an optical system is to give an image of as perfect a character as possible on a surface that is usually a plane. What we are therefore concerned with is simply the lateral departure of the edges of a pencil from the point in a plane to which they should be brought in a perfect optical system.

It only remains to select the plane and define the perfect optical system. Now the simple approximate formula of Gauss would, if true for large apertures and angles of view, satisfy the conditions for perfectly sharp images in collinear relationship, and would at the same time specify the image plane. We may therefore define the perfect optical system as one in which all the light emerging from one point of the object plane is focussed to a single point on the corresponding Gauss image plane and in the exact position given by the Gauss formulae. Any departure of the light from this position constitutes what should be termed the lateral aberration or absolute

aberration of the pencil, while this lateral departure divided by the distance of the image plane from the principal plane of emergence may be termed the angular aberration of the pencil. These definitions are consistent with the all-important mathematical theory of Von Seidel, and may be said to be the fundamental assumptions upon which the whole of his work is based.

The primary aberration, or aberrations of the first order are of seven well-known kinds:—

- (a) Chromatic aberration of the image plane.
- (b) Chromatic aberration of the magnification.
- (c) Central spherical aberration.
- (d) Coma.
- (e) Radial astigmatism.
- (f) Curvature of the field.
- (g) Distortion.

Definitions of the Various Aberrations.

If the general definition of an aberration above stated be accepted, little need be said about the separate errors.

Central Chromatic Aberration.

In this case there can be little doubt that, so far as instruments intended for visual observation are concerned, whether objective or subjective, the standard plane should be that for the D line, and the chromatic aberration of the image plane should then be the diameter of the disc formed on the axis at full aperture for either the C or F line, whichever is larger. For photographic instruments the standard plane might still be for the D line, and the size of the disc for the F or G line might then express the chromatic error.

Chromatic Differences of Magnification.

Here the amount of the error would similarly be the distance of the focus of a narrow pencil passing through the centre of the diaphragm for the C, F, or G light respectively from that for the D light on the plane at some specified angle of view. This angle would probably be the extreme nominal covering power of the system when this is known.

Other Aberrations.

Spherical aberration would be on this basis the diameter of the disc produced at full aperture on the axis on a plan focussed for a narrow central pencil using sodium light.

Coma might be defined as the difference between the distances of the top and bottom edges of the patch formed by an oblique pencil at the specified angle, and at full aperture from the position on the plane to which the centre of the incident pencil is refracted.

Radial astigmatism would similarly be expressed by the difference between the diameters of the elliptic patch formed on the standard plane at full aperture and at standard obliquity, or their sum if the primary and secondary foci lie on opposite sides of the standard plane.

Curvature of the field might be measured by the mean diameter of the patch, or the half difference of the diameters when the focal lines fall on opposite sides of the screen at full aperture and standard obliquity.

Distortion on the basis of these considerations would be measured by the displacement of the image for a narrow pencil at the standard obliquity intersecting the axis at the centre of the diaphragm, from the position given by the Gauss relations. If x_2 is the lateral distance of the image from the axis, x_1 that of the object, then $x_2 - mx_1$ will be the distortion, m being the Gauss magnification $\frac{v}{u}$.

Subjective Aberrations.

In dealing with aberrations from the subjective point of view it is necessary to first decide upon an important point. We may either consider the eye as fixed, in which case the function of the instrument is to produce a perfect image over the whole of the retina; or as rotating, which implies that both central and oblique pencils from the optical system should be of the same character, such as to be focussed sharply upon the macula when the optic axis is coincident with the axis of the pencil. Of these two it would appear that the second is the more rational, as when the eye is fixed, all but the one point is seen by indirect vision; in which case small errors of definition are not of consequence, while, if an object is intentionally viewed obliquely, the axis of the eye is rotated into that direction. We may therefore take the view that for an optical instrument to be perfect for subjective use, both oblique and central pencils should be of exactly the same character, and have equal and opposite chromatic and spherical errors to those of the normal eye.

So far as the writer is aware, no determinations of the amounts of the spherical and chromatic defects of the eye have been published, and it seems advisable that investigation should be made on these points as, if definite figures were available, designers could use them in their calculations. No great difficulty should be experienced in determining the amount of chromatic aberration. The writer has found it convenient to employ a pair of small

apertures which can be placed in front of the eye and separated until a distant point of light can only just be seen through both. When this is the case the two apertures are at the extreme edges of the pupil, and the point of light appears coloured. By interposing a prism of suitable angle in the course of the light to one of the apertures the colouration may be compensated. The writer has used the Risley rotating double prisms for this purpose, and from rough measurements on his own eyes is inclined to think the amount of chromatic aberration in the eye between the C and F lines amounts to about .7 dioptré, or approximately the same as for an uncorrected lens of the same focal length as that of the eye, as would be expected.

The determination of the spherical aberration appears to be much more difficult owing to its small amount. Perhaps the most convenient method would be to use a microscope with a small source of monochromatic light and a correction collar objective, or any other instrument into which a variable amount of spherical aberration can be introduced. By adjusting the objective until the spherical aberration was apparently perfectly eliminated according to the eye, and objectively testing the microscope so adjusted, the amount of the error might be found. It appears essential that any tests of the errors should be made on normal living eyes.

Measurement of Objective Aberrations.

There are three principal methods by which the amount of the aberrations of an objective system may be measured. First, we may actually examine the image formed in the Gauss image plane by a microscope or eye-piece in the manner employed by Mr. Conrad Beck in his apparatus for testing photographic lenses, and directly measure the dimensions of the patch of light so formed. In the second place, we may actually find the foci for different colours and for various portions, zones, or meridians of the system, and thereby deduce the amount of the various defects. This method has been followed by most of those who have worked at this subject up to the present, and forms the basis of the tests made at Kew and by Moessard with his tourniquet. Thirdly, we may deduce the amounts of the aberrations from observations taken considerably inside and outside the focus, the beam of light passing through the system being preferably split up into a number of narrow pencils by means of a perforated disc interposed before the system. This is the basis of the Hartmann test.

The writer's experience does not allow him to speak with any degree of certainty as to the relative merits of these various methods of procedure. Were it not for diffraction troubles, the preference should lie with the first method, as a high degree of magnification of the disc could be obtained and the amount of the defects directly determined with the aid of a perforated diaphragm, as in the Hartmann test. The use of such a diaphragm might also do much to eliminate diffraction troubles, as the centre of the diffraction system formed by a narrow partial pencil would indicate the true axis of that pencil. Should this not be practicable, the Hartmann test is to be preferred to the second method, as diffraction troubles are always greatest at the focus. The Hartmann test is practically unaffected by diffraction, and it has the further advantage of requiring fewer observations on the system itself, although the after measurement may be somewhat lengthy. If this method could be used equally well visually instead of photographically, it would be an advantage, and there seems no great difficulty about this.

Before dismissing the subject of the measurement of objective aberrations the writer would like to call attention to the advantage of employing reflection of auto-collimation as an aid to the other tests. If by means of a plane or spherical mirror the light is made to traverse the system twice by approximately the same path, its aberrations may be doubled in magnitude and thereby be more easily estimated. If the optical system is mounted axially, and the mirror is normal to the axis, the central chromatic and spherical aberration will each be doubled. Coma will be eliminated owing to the symmetry of the equivalent optical system about the mirror. By using a microscope or telescope with a plane unsilvered mirror in its interior, both as the luminous origin and the testing arrangement, great convenience and accuracy can be secured.

It will not be necessary to deal with the measurement of the aberrations of subjective instruments separately, as such instruments should be tested in the same way as objective instruments, and the correction for the normal eye applied to the results. The only essential difference in treatment is due to the fact that in subjective instruments the emergent beam is approximately parallel, and cannot therefore be directly focussed on a screen. By the employment of an auxiliary convergent lens of low power, or of which the aberrations are already known, the aberrations of the instrument should be readily terminable.

Relative or Comparative Aberrations.

Coming now to the expression of the results in a comparative form, the mathematical investigation of the aberrations of the first order leads to the following:—

The angular central chromatic aberration (the size of the chromatic disc on the standard plane divided by the second conjugate distance)

proportional to the relative aperture of the system (effective aperture divided by equivalent focal length).

The angular oblique chromatic aberration (distance between the images for lights of standard colours divided by the second conjugate distance) is proportional to the angle of obliquity.

The angular spherical aberration (of the first order) is proportional to the cube of the relative aperture.

The angular coma is proportional to the square of the relative aperture, and to the obliquity.

The angular astigmatism is proportional to the relative aperture to the square of the obliquity.

The angular size of the disc produced by curvature of the field is proportional to the relative aperture and the square of the obliquity.

The angular distortion is proportional to the cube of the obliquity.

As in the mathematical investigations of these aberrations, angles and their tangents are convertible, and the tangent of the angle of obliquity is immediately obtainable by dividing the lateral distance of the image from the axis by the emergent conjugate distance, it would appear most convenient to adopt the following definitions:—

Relative Central Chromatic Aberration.

This would be the angular central chromatic aberration, divided by the relative aperture. Or in symbols, $C_c = \frac{\Delta \omega}{v} \frac{f}{d}$ where $\Delta \omega$ is

the diameter of the chromatic disc, v the emergent conjugate distance, the equivalent focal length, and d the effective aperture of the stop. For microscopic objectives the numerical aperture would be substituted for $\frac{f}{d}$.

Relative Oblique Chromatic Aberration.

Following the above lines, this would be obtained by dividing the angular oblique chromatic aberration by the tangent of the angle of obliquity. This is obviously, however, the same as $\frac{\Delta \omega}{m}$ or $\frac{\Delta x}{w}$ where x is the lateral distance of the point from the axis, and Δx chromatic displacement.

Relative Spherical Aberration.

This will simply be the angular spherical aberration divided by the cube of the relative or numerical aperture, or $\frac{\Delta \sigma}{v} \frac{f^3}{u^3}$.

Relative Coma.

In the same way the relative coma will be expressed by dividing the angular coma by the square of the relative or numerical aperture, and by the tangent of the angle of obliquity or $\frac{\Delta \sigma}{x} \frac{f^2}{u^2}$.

Relative Radial Astigmatism.

This will be the angular astigmatism divided by the relative or numerical aperture and the square of the tangent of the angle of obliquity, or $\frac{v \Delta \sigma}{x^2} \frac{f}{d}$.

Relative Curvature.

From the definitions above given we have relative curvature as the angular curvature divided by the relative or numerical aperture and the square of the tangent of the angle of obliquity as with astigmatism, or $\frac{v \Delta \sigma}{x^2} \frac{f}{d}$. But on working out we find that this

expression becomes $\frac{f}{2r}$ where r is the radius of curvature of the field containing the circles of least confusion. The relative curvature therefore on this basis simply depends upon the ratio of the absolute radius of curvature to the equivalent focal length as would be the natural way of expressing it.

Relative Distortion.

Finally, relative distortion will be expressed by dividing the angular distortion by the cube of the angle of obliquity, or $\frac{\Delta \omega}{v} \frac{v^2}{w^3}$, which

may be written $\frac{\Delta x}{x} \frac{v^2}{u^2}$ or $\frac{\Delta m}{m} \frac{v^2}{x^2}$ or $\frac{\Delta x}{w \tan^2 \theta}$.

In the above we might have taken the angle of obliquity in degrees, but it would obviously have given us extremely small values for the relative errors.

Aberrations of Higher Orders.

It is not proposed to deal here to any extent with the subject of the higher aberrations, as they are so numerous and their relations are so complicated. A few words will, however, be devoted to one or two of them, in so far as they affect any of the conclusions above stated.

Dealing first with chromatic aberration, the definitions above given would not require modification for secondary or tertiary spectra. Chromatic differences of spherical aberration could be dealt with by stating the amounts of spherical aberration for two or more monochromatic lights.

Spherical aberration requires more consideration. The higher orders of this defect, or even the "spherical aberration" of the first order for figured lenses, will not depend on the cube of the relative aperture as above stated. In fact, the spherical aberration may be absolutely corrected for full aperture or any particular zone, and be of fairly considerable amount at lower aperture. Should this be found in testing, the best course would probably be to state the values on precisely the same basis as before for two or more values of the aperture.

The oblique errors of higher orders might perhaps be similarly expressed for one or two different apertures, and for, say, two values of the obliquity, the full covering power and half that angle.

It appears to the writer, however, that such great advantages would accrue from merely settling the tests and expressions for the elementary aberrations, that it would be better for the higher aberrations to be left on one side for the present.

In concluding this purely suggestive paper, the writer would call attention to the proposition made by Mr. Ryland at one of the recent meetings of the Optical Society, that a scale of marks should be adopted for optical instruments similar to that applied to watches at the Kew Observatory. Of course, much will have to be done in the direction of making a satisfactory scheme of tests before this would be possible, but in view of the impetus given to accurate watch-making by the Kew certification, the proposition seems worthy of being kept in sight, and acted on as soon as it may be found practicable. The summary of the properties of the lens might perhaps be on a schedule stating the equivalent focal length of the system, the positions of its principal or nodal points, and its magnification if a subjective instrument. There should also be stated the maximum numerical or relative aperture, the maximum illumination for visual or actinic light, the maximum field of view, and the uniformity of the illumination, with marks for each, while marks should also be given for the perfection of the mounting, freedom from flare-spot, parallelism of axes in binocular instruments, etc. Finally, dealing with the aberrations, a form of the following kind might be adopted:—

NATURE OF DEFECT.	ABERRATION.		MARKS.	
	Absolute. mm.	Relative.	Maximum.	Awarded
Central chromatic aberration at full aperture.....				
Oblique chromatic aberration at specified field.....				
Central spherical aberration at full aperture.....				
Coma, at full aperture and specified field.....				
Radial astigmatism at full aperture and specified field.....				
Curvature of field at full aperture and specified field.....				
Distortion at specified field.....				

The writer regrets that time has not permitted his consulting any authorities on this important subject, and is conscious that many of the suggestions and statements made above are open to criticism. He hopes, however, that they may form the basis of a useful discussion.

C. V. DRYSDALE, D.Sc.

ABERRATIONS.

(A paper read before the Optical Convention on Wednesday, May 31.)

Progress in the design of optical systems is dependent to a very large extent on the exact specification of the aberrations of the system, whether these aberrations be obtained from the theoretical calculation or the actual performance of the system.

It is of the utmost importance that the numerical specifications in these two cases should be directly and strictly comparable, and the methods employed should be of sufficient generality to permit of a

thorough test of the system. In addition it is desirable that these results should be capable of expression in a form which gives a definite numerical value to the definition at any point: the numerical measure of the aberrations should be sufficiently definite and detailed to allow the excellence of definition to be determined from the calculation of the aberrations only.

The only method of calculation universally applicable is the tri-

gonometrical method; this permits the ready calculation of the path of any ray through the system, though the calculation of rays not in one plane involves considerable labour. The results enable us to express the points in which the ray intersects the focal plane and any plane parallel to it. In this way the positions of the intersections of various rays proceeding from the same object point may

It will be noticed that the calculations also give directly the definition at any plane parallel to the focal plane. Various rays have been calculated through the lens $R_1 = +100$, $d_2 = 6$, $R_2 = -100$, $n_2 = 1.5168$, the object being taken on the axis. The rays through three points on the lens are considered, on the axis, at a distance of 10 mm. from the axis, and at a distance of 5 mm.

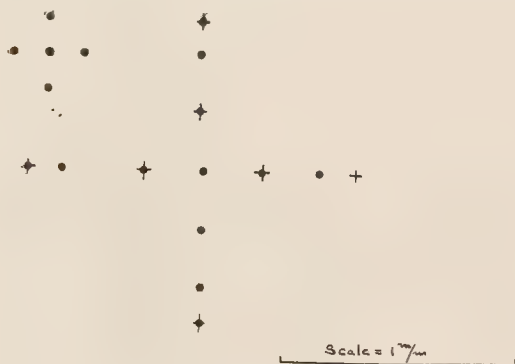


Fig. 1.



Fig. 3.

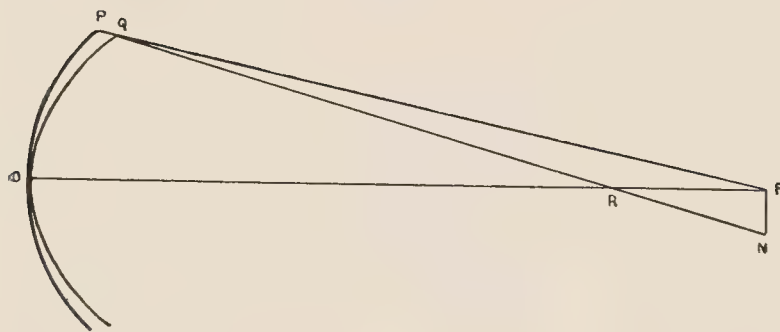


Fig. 5.

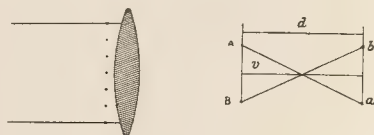


Fig. 2.

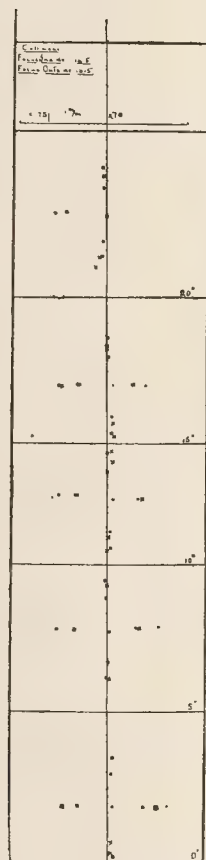


Fig. 4.

be determined, and one of these rays being taken as chief ray, will give the distortion expressed as a lateral aberration; while the definition at this point is indicated by the lateral aberration of the other rays relative to the chief ray.¹

¹ Formulae for this purpose are given, Steinheil u. Voit, *Angewandte Optik*; and Everett, *Proceedings Physical Society*.

The intersections of these rays with the focal plane are drawn out on a scale of 50 : 1. Fig. 1 represents the intersections of a ray with the focal plane. If any other plane be chosen as focus, the intersections can be immediately expressed. It is, however, convenient to indicate in this diagram the aperture to which the intersection corresponds.

The aperture of the lens is drawn out on any convenient scale, and the lateral aberration of each ray relative to the chief ray is measured from the corresponding point on the aperture diagram (Fig. 1). In this figure the aperture diagram is indicated by ●, and the actual rays by +, thus the distance between ● and the + represents the lateral aberrations on the scale shown.

Measurement of Aberrations.

Our standard method of testing the actual system should give the same information as the trigonometrical method of calculation. It should be absolutely universal and exact, and allow a subsequent choice of the best focal plane (which may be other than the theoretical Gauss plane or the plane which gives the best central definition). The method devised by Professor Hartmann² gives this information (although it has not yet been applied to microscopic objectives) for as many rays as may be desired.

Various beams of light, proceeding from a small circular source are isolated by means of a diaphragm with a number of small circular apertures (Fig. 2); these beams converge to form on the focal plane the image of the source of light, but may be intercepted on two planes at equal distances inside and outside the focal plane. If these distances are suitably chosen, the centre of the section of each beam can be determined, and thus the direction and position of the ray from the centre of each aperture is obtained; thus we have the point of intersection on the focal plane and on any parallel plane. The sections of the beam are most frequently obtained by exposing a photographic plate at the desired positions, and the final values of the lateral aberrations are obtained exactly in the same form as by trigonometrical calculation.

The method is susceptible of very great accuracy, and can be used to test how accurately the design has been carried out, the same rays being tested as were originally calculated. In addition, other rays can be tested, thus avoiding much of the labour involved in calculating the oblique rays of a system, especially those not in one plane. It is specially applicable to telescopic and photographic, including spectroscopic, apparatus.

The methods of measurement are, however, in their original form, much too laborious except for large astronomical refractors, and I have in practice found considerable simplification possible when dealing with photographic lenses. To make the results readily expressible in terms of the usual aberration specifications, the diaphragm is placed at the plane of the stop. The principle of obtaining the lens about the back nodal point enables the lens to be tested at various angles, a fixed collimator or distant source of light being used; a series of photographs inside focus can be taken on one plate and a corresponding series on another provided the lens can be set at definite angles. For this purpose the Beck lens-testing bench is used, a special fitting being attached to permit of the plate swinging with the lens holder, thus allowing all exposures being made on plates which are kept parallel to the focal plane. The photographs are examined microscopically, and a camera lucida used to draw a diagram showing the centre of each of the spots; when the first diagram is complete the other photograph is placed in the stage of the microscope, being reversed to bring corresponding spots in corresponding positions and compared with the other.

Where the visual best focus corresponds exactly with the best photographic focus, the two diagrams should be as nearly as possible coincident; but the magnification can be altered (within small limits) till the two central diagrams are as nearly as possible coincident; the whole series of diagrams are then drawn off, care being taken to bring each central spot into exact coincidence with the corresponding spot of the other diagram.

The distance between the two corresponding spots will then represent the lateral aberrations of the ray, on the scale of $m_1 + m_2$; 1 where m_1 and m_2 are the two camera lucida magnifications.

To permit of the focus being modified subsequently, it is desirable to redraw the second diagram with a different magnification m_3 . This corresponds to a change in the position of the focus.

$$= \text{distances between exposures} \times \frac{m_3 - m_2}{m_1 + m_2}$$

In drawing diagram—● indicates inside focus.

In drawing diagram—* indicates outside focus, magnification m_2 .

In drawing diagram—⊙ indicates outside focus, magnification m_3 .

Fig. 3 represents the photographs with the single lens calculated above, the separation between the photographs being 2 cm.

The photographs are taken on the axis and at an angle of 5 deg., and it is especially interesting to compare them with the corresponding diagrams of Fig. 1.

The results would be more nearly in accord if the photographs were taken with the monochromatic light used in the calculations. But the results are sufficient to show the possibility of checking the calculations for the case of one positive lens.

² Zeitschrift für Instrumentenkunde, translated *The Optician*.

In the case of telescope objectives in which the crown is in front, it would be possible to check the calculated rays through the system. This is also possible whenever the lens system remains positive when any number of the back lenses are removed; thus in a double symmetrical like the Unofocal photographic lens, the results at the end of the first lens, the first combination, and the whole system could be obtained to compare with the trigonometrical results.

Fig. 4 shows the results of a test on a modern anastigmat of 150 mm. focal length. It is interesting to note the behaviour of the rays which pass out of the one plane, these corresponding to the apertures on vertical lines.

It is thus possible to obtain the aberrations of a system either by calculation or measurement, and to express them in the same diagrammatic form; but it would be exceedingly desirable to deduce from these aberrations a numerical value which should give the definition; and thus the latter could be absolutely predicted from the value of the aberrations, as calculated or measured.

There are two methods of procedure in attempting to set up such a standard; the one, purely empirical, to determine by a series of observations the aberrations which give good definitions, and the behaviour of each combination of aberrations; the other method is to determine theoretically the effect of aberrations on some important factor which we know influences the definition, such as the distribution of light intensity, and to determine how far results deduced in this way agree with observation and experiment.

An attempt at the solution of this problem has been made by Strehl and others, for the case of central definition for telescope objectives and also for microscope objectives, though in the latter case the impossibility of accurately measuring aberrations has precluded the testing of the results. But the results of the method in the case of telescope objectives have so far confirmed the theory, and it is with the hope that those of you who have the opportunity may make further tests that I give a short description of the method.

In the case of telescope objectives it is easy to determine the brilliance of the central image as compared with its possible value. In Fig. 5, F is the focus of the system, OQ the emergent curved wave, OP the spherical wave of equal curvature at O. The light proceeding from Q to F will traverse a distance QF instead of OF=PF.

And thus there will be a difference of phase at F of $2\pi \frac{PQ}{\lambda}$.

$$\text{The total aberration FN} = \frac{\sin RQF \cdot QF}{\sin QNF}$$

$$\begin{aligned} \text{But } \sin RQF &= \sin(\sigma_1 - \sigma_0), \\ &= \tan \sigma_1 - \tan \sigma_0 \times \cos \sigma_0 \cos \sigma_1. \end{aligned}$$

$$\text{The lateral aberration FN} = \frac{\sin RQF \cdot QF}{\sin QNF}$$

$$\begin{aligned} \text{But } \sin RQF &= \sin(\sigma_1 - \sigma_0), \\ &= \tan \sigma_1 - \tan \sigma_0 \times \cos \sigma_0 \cos \sigma_1. \end{aligned}$$

$$\tan \sigma_1 = \frac{d\beta_1}{dx}, \text{ where } x \text{ is the ordinate of Q, and } \beta_1 \text{ is its abscissa}$$

$$\text{Similarly } \tan \sigma_0 = \frac{d\beta_0}{dx}$$

$$\text{We have FN} = QF \times \frac{d\beta_1 - d\beta_0}{dx} \cos \sigma_1$$

$$\therefore \frac{d\beta_1 - d\beta_0}{dx} = \frac{\text{lateral aberration}}{QF} \frac{1}{\cos \sigma_1}$$

$$\beta_1 - \beta_0 = \int_0^x \frac{\text{lateral aberration}}{f} dx,$$

where f = OF and σ is taken small.

$$\text{Thus the light reaching F from Q has } \int_0^x \frac{\text{lat. aberr.}}{f} dx \text{ difference}$$

$$\text{in path, i.e., } \frac{2\pi(\beta_1 - \beta_0)}{\lambda} \text{ difference of phase.}$$

The intensity at F is proportional to the square root of

$$\left\{ \int_{x=0}^{x=h} \left\{ 2\pi x dx \cdot \cos 2\pi \frac{\beta_1 - \beta_0}{\lambda} \right\}^2 + \int_{x=0}^{x=h} \left\{ 2\pi dx \sin 2\pi \frac{\beta_1 - \beta_0}{\lambda} \right\}^2 \right\}$$

Thus from a knowledge of the lateral aberrations of the objective the brilliance at the centre can be determined as a fraction of the possible brilliance, and this is a number associated with the definition of the objective.

It would be very desirable that this theory should be subjected

to as severe a test as practicable, as the results of such tests might furnish us with a means of expressing the definition of the objective as a definite number.

The papers of Strehl give various modifications of the method, enabling it to be applied to test the best position of the focus, and to allow for this element in the final estimate of the brilliance of the

image; the calculations are much simplified by the adoption of certain graphical methods for which I must refer you to the original papers.

S. D. CHALMERS, M.A.,
Head of Department Technical Optics,
Northampton Institute.

THE EXHIBITION AND ITS CATALOGUE.

Lenses.

The large hall of the Northampton Institute is devoted to a collection of optical and general scientific instruments, arranged in classes and very fully listed and described in a most comprehensive catalogue of 276 pages. Naturally, a large proportion of space is allotted to materials and apparatus not directly photographic. Astronomy, navigation, surveying, meteorology, and microscopy are thus very fully represented. Photography and optical projection do not come in for so large a share of attention, but are, none the less, very prominently in notice. Of the lens makers, Messrs. Aldis & Prothers show the Aldis anastigmat; Messrs. R. and J. Beck the Unofocal Beck-Steinheil orthostigmat, biplanat, and telephoto attachments, with other photographic apparatus. Messrs. J. H. Dallmeyer, Limited, exhibit portrait lenses, series C and B, the Dallmeyer-Berghelm lens, stigmatic lenses, telephoto attachments, the Adon lens, and a whole series of rapid rectilinears and wide angles. J. Fallowfield and J. Lizars show portrait lenses; and Messrs. Ross, Limited, exhibit the cabinet portrait lens, the Ross Homocentric and Ross-Zeiss, and Ross-Goetz anastigmats. The Holostigmat and other lenses of W. Watson and Sons concludes the section. The catalogue will probably interest the optical student even more than the actual exhibits, as almost every lens is the subject of a drawing showing the curvatures, and accompanied in most cases by brief particulars of the glasses employed.

Shutters and Cameras.

Apparatus of this class by leading makers occupies nearly twenty

pages of the catalogue and a goodly space in the exhibition. R. and J. Beck, J. H. Dallmeyer, Limited, J. Fallowfield, Houghtons, Limited, J. Lizars, Newman and Guardia Limited, Ross Limited, and W. Watson and Sons. Most of the instruments, as also those in the "Enlargers" Section, are well known to photographers.

Optical Projection Apparatus.

As interesting a section as any is that which includes artificial lights and optical devices for projection. The Nernst lamp is prominent in the exhibits of Messrs. John J. Griffin and Sons, Limited, and Robert W. Paul; the latter firm showing some extremely compact lanterns specially designed for this form of lamp. Arc lamps, their leading features briefly summarised in the catalogue, are shown by Mr. Paul, by Messrs. Ross, Limited, by Messrs. A. and J. Smith, and John Wrench and Son. Messrs. Newton and Co. have a striking exhibit of projection lanterns, and optical lanterns of various forms are shown by several firms. Cinematographs are represented by the manufactures of only three firms: Mr. Robert W. Paul, the Prestwich Manufacturing Co., and Messrs. J. Wrench and Son.

Optical Measuring Instruments.

We ought not to omit the mention of various scientific instruments for measurements of photographic lenses, or for other measurements applicable to photographic research. The Beck lens-testing bench is exhibited by Messrs. R. and J. Beck; and spectrographs and spectrophotometers by Adam Hilger, Limited.

NOTES ON THE SECTIONS.

One feature of the catalogue which commends it to the student of optics is the introduction to each section, in each case evidently the work of a competent writer. Thus the notes introductory to the photographic section very succinctly sum up a number of points in regard to the choice of lenses, which might well be consulted by photographers as a guide in their choice of an instrument. In other respects also the catalogue is a valuable work of reference, as affording a glance over British optics of the present day. The Convention, as the president states is his preface, has one "frankly practical aim to improve

the position of the optical trade, and to increase the demand for English goods." In that object the catalogue should certainly fulfil the task expected of it. To quote Dr. Glazebrook's preface again: "It contains a classified description, not only of the objects exhibited, but of the other work of many representative firms, arranged in such a way that any one consulting it can easily find by whom the goods he is in search of are made, and where to go to see specimens, or to obtain information. Such a work, if well done, cannot fail to have a real value to the trade, and to increase in a marked degree its prosperity."

THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

TWENTIETH ANNUAL MEETING: DUBLIN, JULY 10 TO 15, 1905.

THE meetings will be held in the Engineering School, Trinity College. The exhibition of apparatus, pictures, etc., in the Leinster Lecture Hall, Molesworth Street.

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Synopsis of Proceedings.

Monday, July 10.—Members of the Local Committee will attend at Trinity College to act as guides, and will arrange for short morning and afternoon excursions to objects of interest in the city (see notice boards). At the Royal Dublin Society's Buildings, Kildare Street: Official reception by the President, 7.30 p.m.; In the New Lecture Theatre: Presidential address, 8.0; followed by a grand conversation in the museum, musical promenade, etc.

Tuesday, July 11.—Excursion to Glendalough: Train leaves Harcourt Street Station for Rathdrum, 9.20 a.m.; cars leave Rathdrum for Glendalough, 11.15; lunch at the Royal Hotel, 1.0; cars leave Glendalough, 5.0; train leaves Rathdrum, 6.8; arrive in Dublin, 7.35. Note.—Should any members desire to visit Kingstown, they should take this opportunity of doing so by leaving Rathdrum by the 6.8, as above, arriving at Kingstown at 7.16; trains between Kingstown and Dublin are very frequent, and the journey only occupies fifteen minutes. There will be no meeting at the Convention Rooms on this evening.

Wednesday, July 12.—At Trinity College: Annual general meeting, election of Council, etc., 10 a.m.; meeting of the new Council, 11. At the Zoological Gardens: Reception and garden party by Sir Howard and Lady Grubb, 3 p.m. At the Gresham Hotel: Annual dinner and smoking concert, 7.

Thursday, July 13.—Excursion to Bray and the Dargle: Train leaves Westland Row Station, 9.45 a.m.; arrive at Bray, 10.20, visit Kilruddery by kind permission of the Earl of Meath; lunch at the International Hotel, 1 p.m.; drive to the Glen of the Dargle, 2; train leaves Bray for Dublin, 5.30; arrive in Dublin, 6.5. At Trinity College, 8.30: An illustrated lecture by Dr. E. McDowel Cosgrave on "Old Dublin."

Friday, July 14.—Excursion to Drogheda, Monasterboice, etc.: Train leaves Amiens Street Station, 9 a.m.; arrive at Drogheda, 9.47, cars to the Obelisk and Monasterboice; dinner (with tea) at Drogheda, 4 p.m.; train leaves Drogheda, 5.25; arrive in Dublin, 6.40. At Trinity College, 8.30: A paper on "The Use of Extremely Rapid Plates," by Mr. T. Thorne Baker (illustrated).

Saturday, July 15.—Morning: Short excursions to places in and around the city will be arranged as may be required (see notice boards). Afternoon Excursion to Howth, etc.: Train leaves Amiens Street Station, 1.52 p.m.; arrive at Howth, 2.18, visit the demesne of the Earl of Howth; electric tram from Howth Station, 3.18; arrive at the summit of the hill, 3.30; tea on the summit, 5.30; electric car leaves summit for Sutton, 6.31; leave Sutton, 7.1; arrive at Amiens Street, 7.25; or arrive at Westland row, 7.40 (for those leaving Dublin by night mail at 8.15).

Cheap Excursions to Ireland.

The London and North-Western Railway Company will run excursions from London, Birmingham, Northampton, Derby, and most of their provincial and country stations, to Dublin, by the short sea route (via Holyhead) on Thursday evening, July 6. Tickets from London (Euston), available for return within sixteen days, 26s. Fares from other stations from 12s. to 26s., according to distance.

Cheap excursions to Dublin will also be run from Liverpool, Manchester, Bradford, Huddersfield, Halifax, Chester, and many other stations in the vicinity of these places, every Thursday (or Friday) and Saturday in July. Return fares, 9s. 6d. to 15s. 6d., according to distance. These tickets will be available for return any day up to the following Monday week.

The Midland Railway Company will have excursions to Dublin from London (St. Pancras) and most provincial stations on their system on Thursday, July 6. Return fare from London (available for sixteen days), 22s. Full particulars, time-bills, tickets, etc., for the Midland Railway excursions may be obtained at any of the offices of Messrs. Thos. Cook and Son.

N.B.—For the advantage of those members who are able to remain after the close of the Convention, the various railway companies in Ireland will, on production of vouchers to be obtained from the Hon. Local Secretary, issue return tickets at single fares to any stations on their lines.

The Honorary Gen. Secretary has arranged with the London and North-Western Railway Company to reserve special accommodation for members of Convention by the excursion leaving London (Euston) on Thursday evening, July 6. Several Conventioners have already signified their intention to travel by this train, and Mr. Bridge will be pleased to welcome any others desirous of joining the party. Applications should be addressed: Mr. F. A. Bridge, East Lodge, Dalston Lane, London, N.E., must be received not later than Saturday, July 1, and must be accompanied by a remittance for the fare (26s.).

Passengers wishing for saloon accommodation on the steamer can obtain saloon tickets at the booking office on the platform at Holyhead—single journey, 8s.; return, 12s.

General Information.

New Members.—Ladies and gentlemen wishing to become members of the Convention should communicate with the Hon. Gen. Secretary and Treasurer, Mr. F. A. Bridge, East Lodge, Dalston Lane, London, N.E.; or the Hon. Local Secretary, Mr. Robert Benson, Claremont, Orwell Park, Rathgar, Dublin. The annual subscription is 5s.

On Monday, July 10, the Hon. Secretaries will attend all day from 10 a.m. at Trinity College. Members are requested to report themselves as early as possible; receive their badges of membership, and secure tickets for the excursions.

Signature Book.—It is desirable that members, immediately on arrival, should enter their names, full addresses, and where staying in Dublin, in the signature book at Trinity College.

Plan of Dublin.—A plan of the central portion of the city will be found at p. 8 in the handbook. Trinity College—the Engineering School of which building has been placed at the disposal of the members of the Convention—is situated on College Green. The Leinster Lecture Hall, where the exhibition of apparatus, pictures, etc., will be held, is in Molesworth Street, only three minutes' walk from the College. The position of both these buildings are distinctly shown on the plan.

Electric Tramways.—Dublin has a very complete system of tramways, and cars for all parts of the city and suburbs run every few minutes. The car routes are shown in red on the plan.

Cabs and Jaunting Cars.—A list of cab fares, etc., will be found on p. 43 of the handbook.

Excursions to Dublin.—For particulars of excursion trains from London and the provinces, see p. 17 of the handbook.

Convention Excursions.—Members should obtain tickets for these as early as possible, in order that adequate provision may be made for their comfort and convenience. With regard to Tuesday's excursion it is absolutely necessary that members wishing to go should write to the Hon. Secretaries, Photographic Convention, Trinity College, Dublin, so that the letter is delivered not later than first post on Monday, July 10.

Permission to Photograph.—Permission to photograph the following places of interest in Dublin has been obtained:—Christ Church and St. Patrick's Cathedral, Trinity College, The Castle and Courtyard, The House of Lords, National Gallery, Science and Art Museum, The Zoological and Botanical Gardens, Prospect and Mount Jerome Cemeteries, St. Audoen's Arch, St. Stephen's Green, The Royal Hospital, Pro-Cathedral, Guinness and Co.'s Brewery, and Phoenix Park.

Dark Rooms.—A list of dark rooms will be found on p. 47 of the handbook.

Notice Boards.—Notice boards will be placed in the meeting room. Members are requested to consult these daily.

Hotels.—A list of hotels, etc., will be found on pp. 44, 45, and 46 of the handbook. A summary of the charges is given, but members are advised, where possible, to obtain a printed tariff on or before arrival; there can then be no misunderstanding as to terms.

Private Apartments.—Members preferring private apartments are requested to communicate with the Local Hon. Secretary, who will forward a list of rooms, with terms, etc.

Annual Dinner and Smoking Concert.—The annual dinner and smoking concert, at which ladies are welcomed, will be held at the Gresham Hotel, Upper Sackville Street. Owing to the inconvenience caused by members not obtaining their dinner tickets until the last moment, it has been decided to close the list at 11 o'clock on Wednesday morning, July 12. Tickets (including attendance, but not wine), 5s. 6d.

Exhibition.—During Convention week an exhibition of apparatus, pictures, etc., will be held in the Leinster Hall, Molesworth Street.

Special Notice.—The times of departure of trains on the excursions during Convention week have been given as correctly as could be ascertained at the time of going to press. It is not expected that there will be any alteration; but in any case, the correct times will be stated on the excursion coupons.

THE PHOTOGRAPHIC SURVEY OF DUNDEE.

An announcement was made in March, 1903, that the project of a photographic survey of Dundee had been taken up by the Dundee and East of Scotland Photographic Society. A Special Committee was then appointed to carry out the arrangements, with Mr. O. B. Hatch as hon. secretary. The city was mapped out on a definite plan, and specific subjects were allotted to members of the society. The purpose was to have for preservation in the Dundee Museum a complete collection of photographs of Dundee at the present day. While antique buildings that still survive would be duly chronicled, modern structures that show the style of the time, churches, public buildings, streets, and all that exhibits the social life of the early twentieth century would be included.

The statement now published by the secretary shows that the total number of prints already made is about 1,000, comprising about 250 from the late Mr. A. C. Lamb's collection, which includes some 80 prints showing the building of the old and new Tay Bridges. The new bridge especially is shown in its various stages of construction, and is minutely described by Mr. Alexander Hutcheson, F.S.A. (Scot.). The most interesting and important series of the Lamb collection is the Howff. Many beautiful examples are shown. This series is specially valuable, as the carvings on the stones are in many cases to-day worn away or destroyed. Mr. A. H. Millar, F.S.A. (Scot.), has undertaken to supply the literary and descriptive matter to this section.

A fine series of whole-plate prints shows the various rooms, laboratories, etc., of the university. The exterior of the university has also been fully shown. The Industrial School, with children at work, drill, and play, has also a set of large prints of excellent quality. The exteriors of many of the Board schools and the Academies and High Schools are also included in this section, as well as a number of prints showing the system of teaching the deaf and dumb. The interiors of the High Schools and system of educating and employing the blind are at present being taken. This section is the educational side of Dundee life, and will be fully described by Professor Steggall.

The religious side of the life of the people is shown by two views of every church in Dundee—one of the exterior and one of the interior. Some thirty churches have already been done, and the remainder are expected to be completed this year.

The trades include some fine views of jute mills and the machinery used in spinning and weaving. The shipbuilding and engineering trades are presently being photographed, as also are Messrs. Keiller's and Messrs. Lindsay and Low's factories. This work would not be complete without these great industries being adequately represented. The municipal works are also being photographed during the next few months, including the Cleansing and Water Departments. The Gas Department and electric lighting system have been done, and a most complete and interesting set of views is the result. Mr. Andrew Yuill will write up the history of the Gas Department.

The streets and buildings include many picturesque and interesting views of closes and wynds with much of antiquarian and historic interest. Messrs. T. S. Robertson, F.S.A., ex-Councillor Elliott, and Alexander Hutcheson, F.S.A., have kindly undertaken to write up and describe this large section. It is satisfactory to note that this series has now almost been completed. The harbour forms another section. Many beautiful prints of large size show the docks full

of sailing craft. The four-masted jute fleet and many changes in the docks, etc., are well illustrated. Mr. Watson, the Harbour Treasurer, has kindly taken the literary and descriptive matter to this section in hand.

It is satisfactory to see such a volume of work completed in the short space of eighteen months, and great credit is due to the Dundee and East of Scotland Photographic Association for the manner in which its workers have given their time and labour to this work. The money which the Town Council has so generously given towards this work is being well spent. Without this aid from the Town Council the whole scheme must have failed.

It should be stated that all the prints are done by the largest and best firms in this class of work, and are in carbon or platinotype. The whole work when complete will be bound in one or more volumes, and presented to the Town Council for preservation and use in the Museum.

AN APPEAL TO CHARITY.

A CASE has recently been brought to our notice which, after investigation, we pass on to our readers in the belief that they will be desirous of contributing to the relief of one who has himself contributed to the progress of dry-plate photography. It is that of Mr. Peter Mawdsley, one of the pioneers in the commercial exploitation of dry plates, and now, at the great age of eighty years, ill and poor in a suburb of Liverpool. Mr. Mawdsley's name is well known to photographers of twenty or thirty years' standing, and the volumes of the "British Journal Almanac" of the seventies and eighties in the last century show him to have frequently contributed articles and notes for the information of the craft. His case was brought to our notice by Sir Henry Trueman Wood and Major-General Waterhouse, and we have ourselves learnt from the Rev. R. F. G. Smithwick, vicar and rural dean of Seaforth, Liverpool, of the necessitous circumstances under which Mr. Mawdsley finds himself at the end of a life which in the ordinary course of nature cannot be much longer protracted. We have therefore thought it our duty to bring his case before our readers: a small donation will go far to ensuring the ordinary comforts of life to one who at the end of his days is not in a position to provide them. Sir H. Trueman Wood contributes a guinea to the fund, and on his recommendation Sir Wm. Abney sends an equal amount. These, with other donations, are duly acknowledged below, and any further sums may be sent to ourselves to be handed to the Rev. Mr. Smithwick, who has interested himself in our friend's unfortunate circumstances. The following list represents the contributions already received:—

	£	s.	d.
THE BRITISH JOURNAL OF PHOTOGRAPHY	3	3	0
Sir H. Trueman Wood	1	1	0
Sir Wm. Abney	1	1	0
John Stuart, Esq.	1	1	0
Ross, Limited	1	1	0
Total	£7	7	0

MESSRS. JAMES A. SINCLAIR AND CO., 54, Haymarket, London, W., write:—"On Wednesday, May 17, a customer of ours left a small crocodile leather bag on a seat in St. Paul's Cathedral, which contained a card case, a note book, and a Zeiss convertible protar lens, No. 3 series VIIa. The numbers of the combinations are 22,014 and 16,145. On returning to the spot where the bag was left it had vanished. If the lady or gentleman now guarding these things wishes to have honesty rewarded, we shall be pleased to pay the sum of £1 for their recovery."

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between May 15 and 20:—

MEASURING PHOTOGRAPHS.—No. 10,339. Apparatus for measuring a photograph or the like both ways simultaneously at any reduction. Ernest Alfred Stidston, 29, Coronation Road, Basingstoke, Hants.

FILMS.—No. 10,372. Improvements in the manufacture of films for photographic and other purposes. John Henry Smith, 65, Chancery Lane, London.

ROLL FILMS.—No. 10,394. Improvements in roll-film photography. William Fraser Claughton, Kelly and John Arthur Bentham, 7, Southampton Buildings, Chancery Lane, London.

WASHERS.—No. 10,485. Improvements in apparatus for washing and drying photographic prints. Charles Francis Pease, 28, New Bridge Street, London.

FOCAL-PLANE SHUTTERS.—No. 10,514. Improvements in focal-plane or other roller-blind shutters. Arthur Lewis Adams, 26, Charing Cross Road, London, W.C.

PANORAMIC CAMERAS.—No. 10,569. Improvements in panoramic or other photographic cameras. John Boulton Brooks, 24, Temple Row, Birmingham.

CAMERAS.—No. 10,600. Improvements in photographic cameras. Arthur Lewis Adams, 26, Charing Cross Road, London.

CINEMATOGRAPHS.—No. 10,602. Improvements in cinematographs. Alfred Wrench, 4, South Street, Finsbury, London.

LIMELIGHT.—No. 10,603. Improvements in limelight apparatus. Alfred Wrench, 4, South Street, Finsbury, London.

COMPLETE SPECIFICATIONS ACCEPTED.

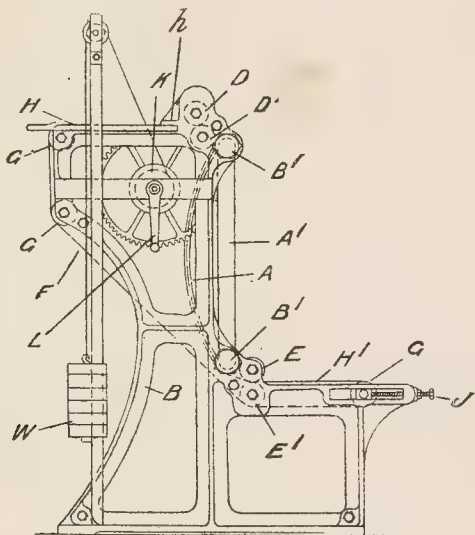
Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

HAND CAMERAS.—No. 14,590, 1904. The claim is for a sliding block, carrying the lens of a hand-camera, which can be wholly or partly removed from the camera, and this permits of the lens being easily obtained for cleaning. The block is provided with light-excluding flanges and plate. Alfred Sidney Spratt, Tudor Works, Tudor Road, Hackney, London.

HAND CAMERAS.—No. 4,106, 1905. The claim applies more particularly to magazine cameras with shutters in which the rate of exposure is controlled by friction brakes and which require periodical adjustment through atmospheric changes or other causes, and also to magazine cameras provided with opening front doors. The improvement consists in an auxiliary opaque lens-cover or shutter, attached to a sliding rod, which projects through, preferably, the top of camera where it is furnished with a knob. The object of the lens-cover or shutter is to cut off all light passing through the lens to the magazine beyond when the exposing shutter or the door at the front of camera is opened during the process of adjustment or preliminary testing, the projecting rod serving as a signal and a safeguard against attempting exposures when the lens is covered, which has hitherto frequently happened, where auxiliary covers have been operated by turning a milled head or cranked arm. Houghtons Limited and Edgar William Houghton, 88-89, High Holborn, London.

COPYING TRACINGS.—No. 21,367, 1904. The claim is for a machine on which to print from long tracings by electric or other light. A glass plate, A, is bent to a suitable curve and mounted be-

tween two standards, B and B'. An endless band, F, of textile fabric passes between feed and discharge rollers, D and D' and E and E', over the convex side of the glass plate, A, the mechanism being driven by a drum, K, which is actuated by heavy



weights attached to the drum by a flexible coil. The escape-ment of the drum is controlled by clockwork, and there is gearing to provide for various speeds of passage of the sensitised paper. The tracing and sensitised paper are placed together beneath a guide, h, at the front of the feed-rollers, D and D', and the train set in motion. The tracing and sensitised paper are thus carried at a regular speed by the band F in close contact with each other and with the glass plate A around the convex surface of the glass to the discharge table H'. B. J. Hall, 39, Victoria Street, Westminster.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—
9.806, 1905. Petrie. Apparatus for developing and fixing photographic plates.

THE many friends of Mrs. Catharine Weed Ward will regret to hear that she is at present suffering from the effects of a carriage accident, incurred whilst travelling in North Devon. Her injuries, we are glad to say, are temporary, but some weeks' rest will be necessary before she is in a condition to be moved from the out-of-the-way village on the edge of Exmoor, which was the scene of the accident.

WE have received the catalogue of the International Photographic Exhibition at Genoa. It is a pretentious book of considerable bulk and undoubted originality in conception. Of a long oblong shape, bound in dark blue with terra cotta coloured leaves, it gives particulars of the 1,015 exhibits which form the exhibition, and is further embellished with reproductions of some of the pictures. The exhibition, which remains open for some time, appears to be a great success, if the number and quality of the exhibits have a bearing on the matter, as most of the best-known English, American, and Continental pictorial workers are represented.

AN exhibition of selected works, submitted in competition for art scholarships and exhibitions in connection with the London County Council (Education Department), was opened at the Medical Examination Hall, Victoria Embankment, W.C., on Friday last, May 26. Some very interesting and excellent work was on view.

New Materials.

"Bertha" Brilliant Spangles. Made by the Vanguard Manufacturing Company, Maidenhead.

In addition to supplying the photographer with a series of useful transparent colours for tinting prints and postcards, the Vanguard Company has now placed on the market a series of "Brilliant Spangles" for "Jewelling" portraits, picture postcards, and Christmas cards, etc. The spangles are composed of finely-ground and extremely brilliant metallic particles of various colours, intended to represent various styles of jewels. The set includes diamond, ruby, emerald, sapphire, and iridescent spangles, and they are applied with the aid of "Bertha" adhesive medium. For applying the spangles in fine lines or points, the "Bertha" Jewelling Tube is supplied. This is a glass tube drawn to a finely-pointed orifice. It is charged with strong gum, or "Bertha" adhesive, and drawn over the parts to be jewelled, leaving a fine line of adhesive. The spangles are then brushed over the surface, and adhere to the sticky lines. The price of the set of seven different coloured spangles in boxes is 1s. 6d., and they are good value for the money.

The "Ensign" Non-curlable Roll Films. Sold by Houghtons, Ltd., 88 and 89, High Holborn, London.

This well-known make of films, manufactured by Austin Edwards, of Warwick, is now placed on the market coated with gelatine on the back. This renders it more easy of manipulation, and is a preventive of curling when in the developer and afterwards when drying. The characteristics of the new film are similar to the older product, and are distinctly favourable to good photography. Latitude in exposure and ease of development are noticeable features, and, in our hands, exposures ranging from a very brief fraction of a second to several seconds have, where the film has been developed in its entirety, given excellent negatives, all of first-rate printing quality. It must be borne in mind by users of "Ensign" films, when drying the new variety, that nothing must come in contact with either side, as the back is as liable to abrasion as the front. Pyro and ammonia is not recommended as a developer for this film, but either pyro-soda—of which a good and reliable formula is given in the instructions that accompany each film—or hydroquinone and metol can be employed to obtain good, clean negatives, but the latter will not permit of quite so much latitude in exposure. To these notes on the behaviour of the film in outdoor work we may add the figures obtained for us by sensitometric tests by Mr. C. E. Kenneth Mees, B.Sc.

Batch No. 5736 (marked F 111 Wynne).

Inertia (i. H and D pyro-soda) .279.

This figure may be converted into the speed numbers of the various

systems by simple calculation. $\frac{34}{8} =$ the H and D number, $\frac{50}{8} =$

Watkins' number, and the square root of this latter, when multiplied by 8, gives the Wynne number. On this basis the "Ensign" film works out at F 109 Wynne, a figure which is very close to that claimed by the makers. $\gamma \infty$ (the greatest possible steepness of gradation) is 1.6. K (velocity constant of development with standard ferrous oxalate) .112, a figure which gives a time of nine minutes for a standard gradation of 1 in the standard developer. O (opacity of plate to blue light, and an index of the latitude of the plate). 10. The chief conclusions from these figures are that the film tends to softness and develops fairly quickly.

NOTICE.—In consequence of the large demands upon our space made by the report of the Optical Convention this week, a number of articles, including the concluding part of the series dealing with "Modern Chemistry," by Mr. Mees, are held over.

News and Notes.

DEATH of Horatio Nelson King.—As we go to press we regret to hear of the death of Horatio Nelson King, which took place on May 25, at the age of 75. Although not the oldest photographer in the world, Mr. King was one of the oldest in the profession, having commenced his practice in the year 1851. His business embraced an immensely wide field of portraiture and landscape, and the palmy days of the stereoscope and the view-publishing trade. He introduced the extensive series of negatives was rarely idle. He introduced photography to the railway companies, and made tours of many



THE LATE HORATIO NELSON KING.

Born, 1830. Died, May 25, 1905.

of the country in the interests of several of the great lines. King may be named as one of the pioneers in photography for the illustrated press, for his connection with it dates back to 1858, when a photograph of his appeared in the "Illustrated London News." He was early in the field when reproduction fees promised to add to the photographer's income. By his death still another link with the past is severed, for few of his compeers remain to mark his demise. He was associated in one way or another with most all the ancient fathers of the craft, and was a supporter, as he himself admitted last year, of THE BRITISH JOURNAL OF PHOTOGRAPHY from its first number.

ROYAL Photographic Society.—On Tuesday next, June 6, Miss A. Acland will deliver a lecture on "A Visit to Gibraltar, demonstrating the use of three-colour photography in giving a more favourable impression of a place than can otherwise be obtained."

AN exhibition in the East-End is projected with the object of demonstrating what can be done towards the conversion of London into a "garden city." It will probably be held at the Whitechapel Gallery during the second week in July. Models and photographs showing how successful floriculture can be applied to brighten the life of cities will be shown.

Commercial & Legal Intelligence

PHOTOGRAPHERS and the Use of Town's Water.—Mr. Mathieson, of Messrs. A. and G. Taylor, photographers, was summoned at Dewsbury on Tuesday last in respect of 10s. in respect of town's water used for trade purposes. The defendant, who said he did not live on the premises, contended that the payment he made for domestic purposes was ample. The Town Clerk, however, pointed out that if defendant used the least drop of water for the purpose of photography he was liable to pay the minimum charge for trade purposes, 10s. An order was made for the payment of the money. Mr. H. Hays, Corporation Street, appeared in answer to a similar summons. He stated, however, that he did not use water for photographic purposes at his studio. The Town Clerk pointed out that the water charges specified that a photographer must take water through a meter at 6d. per thousand gallons, with a minimum charge of 10s. per annum. Otherwise, a person could leave plates in a basin, and allow the water to run to waste. That had been done from Saturday to Monday morning, and meters were fixed to check it. Having been sworn, the defendant again stated that he did not use water for photographic purposes, and the case was dismissed.

PHOTOGRAPHIC FRAUDS.—Three charges of obtaining money by false pretences were preferred at West Bromwich last week against Albert Evans, aged thirty-seven, alias J. R. Wilson, described as a canvasser, of no fixed abode. It was alleged that the prisoner had committed a series of photographic frauds. His plan appears to have been to call at houses and obtain orders for photographs on the representation that he was canvassing for "The Midland Art Photographic Company," of High Street, West Bromwich. In most cases he obtained a deposit of 6d. or 1s., giving a receipt signed J. R. Wilson. Mr. Smith, of the Midland Art Photographic Studio, said he never employed canvassers, and had no knowledge of the prisoner. The latter was arrested at Bilston, and when shown the receipts remarked: "They are all frauds." A singular feature of the case was mentioned by Mr. C. H. Darby, who appeared to prosecute. He informed the Bench that a man named Underwood, who was convicted of a similar class of offence at West Bromwich Quarter Sessions, and was released from prison by order of the Home Secretary, suggested that the prisoner was the man who was his double, and through whom he was wrongfully convicted. The Magistrates' Clerk pointed out that Underwood was convicted for clothing frauds, but Mr. Darby said it was the same class of fraud. The prisoner pleaded "Not guilty," saying that he represented the Midland Counties Photographic Company, but the names of the two companies got mixed up. He was sent to gaol for six weeks with hard labour.

EMPLOYER and Employee.—At Darlington County Court, on Wednesday of last week, John A. Hebden, 45, Pensbury Street, sought to recover from Bertram Claudius Brown, 62, Victoria Embankment, 8s., the balance of a week's wages, and 16s., one week's wages in lieu of notice. It appears that the plaintiff had, in response to an advertisement, met the defendant, and was engaged as photographer's assistant for one fortnight at 16s. a week, and if he did his work satisfactorily he was to receive 21s. a week. He started on Monday, March 30, and worked a fortnight, and no complaint was made until the last Saturday of the fortnight, when, at four o'clock, he received 8s., and was told to call again at six o'clock for the balance. He did so, but the defendant did not appear. He met him later, when defendant said he would not pay him, and that he would have to take him to the County Court first. The defence was that the plaintiff had wasted £3 10s. worth of material. The Judge made an order for payment forthwith.

HEAVY Penalty for a False Description.—At the Clerkenwell Police Court, on May 23, Messrs. Fordham and Co., 9, Lensden Place, Fins-

bury, appeared before Mr. d'Eyncourt in answer to three summonses taken out by the Great Northern Railway Company, charging them, on February 10 and two other dates, with "being the owners of photographic mounts, consigned to firms at Manchester, and having been brought to King's Cross Station for conveyance by the railway, did unlawfully give to the collector of tolls for the company a false account of such goods, by falsely describing the same as cardboard, with the intention of avoiding the payment of the true tolls." The defendants pleaded guilty. Mr. J. P. Grain prosecuted on behalf of the Great Northern Railway Company, and said the defendants forwarded on three occasions packages of photographic mounts under the description of cardboard, which was charged at a much lower rate. Whereas they should have paid 12s. 3d., 7s. 5d., and 7s. 5d., they were only charged, under the false description, 7s., 4s. 4d., and 4s. 4d. As an instance of the wholesale manner in which railway companies were defrauded in this way, counsel mentioned that recently a large number of parcels were examined at various London termini, and 90 per cent. were found to be falsely described. Mr. d'Eyncourt inflicted a penalty of £30 and 25 gs. costs.

EASTMAN KODAK COMPANY of New Jersey.—The annual quarterly dividends of 1½ per cent. (being at the rate of 6 per cent. per annum) upon the outstanding Preferred stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the outstanding Common stock, have been declared by the Eastman Kodak Company of New Jersey, payable on July 1, 1905, to stockholders of record at the close of business on May 31, 1905.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
3.....	Manchester Amat. Photo. Soc.	Chetham College. Mr. J. J. Phelps.
3.....	Watford Camera Club	Berkhamsted Common.
3.....	Hull Photographic Society	Bolton Woods.
3.....	Glasgow Southern Photo. Assn.	Scottish Photographic Federation Excursion to Blairgowrie.
5.....	South London Photo. Society...	Special General Meeting. A Paper by Mr. C. H. Oakden, F.R.P.S.
6.....	Royal Photographic Society ...	"The Negative in Three-Colour Work." Demonstrated. Miss Acland, F.R.P.S.
6.....	Sheffield Photo. Society	"Photographic Chemistry." Mr. J. Gilbert Jackson, M.P.S.
7.....	Cricklewood Photo. Society.....	"Hints on Outdoor Photography." Mr. W. Emery and Members.
7.....	North Middlesex Photo. Soc. ...	Lantern Slide and Print Competitions.
7.....	Edinburgh Photo. Society ...	Forty-fifth Annual Meeting.
8.....	London and Prov. Photo. Assn.	"Gun Printing." Mr. C. H. Hewitt.

CROYDON CAMERA CLUB.—May 24. Mr. C. H. Hewitt gave a most interesting address on portraiture, and although most of his hints and suggestions mainly referred to artificial lighting, still many of them were equally applicable to daylight illumination. The president, Mr. W. H. Smith, placed at the disposal of the lecturer an entirely new model of his oxy-magnesium lamp, possessing a universal movement, and a number of excellent portraits were taken during the evening by its aid. Mr. Hewitt prefaced his discourse by disclaiming any intention of treating the matter from the "art" side, and created some amusement by describing the various stages the raw amateur frequently passed through, in trying to record the features of his, or her, friends and relations. As a start, the unfortunate sitter was more often than not, placed sideways to a window, with the line of sight and direction of light at right angles to each other, the natural consequence being a face black on one side and chalk white on the other. This hybrid presentment was generally attempted to be remedied by the introduction of a reflector, so large as to be almost as powerful as the source of light itself, and produced such glaringly false illumination, that on the third shot the

"patient," as a forlorn hope, was placed directly facing the light with the camera in the window. This resulted in a maximum of flatness. The thinking worker adopted a middle course and placed his sitter at an angle of 45 degrees to the source of light, better modelling or roundness of light and shade, with a sufficient amount of contrast being thereby obtained. The "reflex" spots in the eyes also approximated the same relative position, and this was important. Speaking of "eyes," Mr. Hewitt went on to say, great care should be taken not to let heavy shadows obtrude themselves, and more natural drawing was obtained by allowing the more-distant eye to fall a little lower on the plate. As to the question of contrast, he had found that sitters usually preferred too little contrast than too much. The crudeness of the direct light could be softened in three ways, either by a reflector, or a semi-transparent, or diffusing screen, interposed between the sitter and the light, or a combination of the two. With a reflector, in inexperienced hands, there was the ever-present danger of false illumination. Its best position was generally in advance of the sitter, and inclined at a suitable angle, not directly on one side. A reflector, whilst softening the contrasts, did not diminish the intensity of the high lights. A diffusing screen was, perhaps, to be preferred, if placed close to the sitter and away from the light, the softer the contrasts and vice versa. A diffusing screen, unlike a reflector, in all cases lowered the actual intensity of the high lights. Sometimes an oily skin would produce a high light distinctly out of place; in such a case a little powder might with advantage be brought into requisition. At the conclusion of Mr. Hewitt's exposition, the president passed round a portrait lantern slide made by Mr. Kenneth Mees. The interest which it aroused did not centre exclusively in its pictorial qualities, but rather in the method of production of the original negative, which was on a Wratten speed plate, sensitised with homocol. The exposure was half-a-second at f3.5, the sitter being 3 feet from an ordinary incandescent gas jet. The following facts in reference to a particular plate bathed in homocol are also of interest:—

"Speed" plate	288 Watkins.
"Speed" plate (bathed in homocol).....	448 Watkins.
Sensitiveness of bathed plate to blue	2
Sensitiveness of bathed plate to yellow	1

KETTERING CAMERA CLUB.—The first of a series of photographic excursions arranged by the committee of this club took place on Saturday last, when about twenty members availed themselves of the invitation of Sir Arthur de Capell Brooke, Bart., who is a patron of the club, and visited Great Oakley.

LEEK PHOTOGRAPHIC SOCIETY.—This society, which has been established about two years, opened their first exhibition in the Nicholson Institute on Thursday evening of last week. The exhibition was opened by Mr. A. H. Moore, who expressed the pleasure it gave him to attend and see such admirable pictures round the walls. Mr. Robert Hall had several striking photographs, the most admired being "Twice Once a Home," an old untenanted cottage on the way to Rudyard, and "Nancy Study." In Mr. V. Prince's collection were several local views and pictures of cathedrals, the most noticeable being that of "The Abbey Tower, Tewkesbury," and "Tissington Spires, Dove-dale." Mr. E. Howarth had a fine view of "The Fireplace, Moreton Old Hall," and Mr. W. Hill had a good photograph of Cheddleton, taken in the early morning. Mr. H. A. Blades exhibited good pictures of "The Roar of the Waves," and "The Chancel of St. Luke's, Leek." Mr. C. F. Depree showed an interesting study in "Eyes of the Soul." Mr. Nithsdale had a number of views of the district, and other exhibitors were Messrs. S. T. Johnson, J. C. Miller (of the "Old Church, Rush-on"), W. E. Brindley, J. K. Hyde ("The Interior of St. Mary's, Leek," and the "Old Wooden Horse"), C. Brassington, J. Marsden, T. Wardle, D. Fergyson, and J. W. Sutton.

BARROW NATURALISTS' FIELD CLUB.—The first outing of the newly-formed Thursday photo-section of this club took place on Thursday last week to Cartmel and Holker, when several members took advantage of the opportunity of visiting the Priory for photographic purposes.

THE FEDERATION OF THE PHOTOGRAPHIC SOCIETIES OF NORTHUMBRIA AND DURHAM.—The annual report of the federation shows that the successful year has been passed, and that the total membership is over 800. The questions of holding a field day and also a large photographic exhibition in Newcastle have been abandoned for the present, but it is proposed to hold a dinner and social evening at some suitable centre later in the year. "The Federation Record" has completed its first year of publication, and reflects much credit on its Editor, Mr. R. Borrow, and its business manager Mr. S. Thomson, through whose efforts it has been successful, both from a literary and financial standpoint. The finances of the federation are in a satisfactory condition. The federated societies are as follows:—Bishop Auckland, Haydon, Consett and District, Crook and District, Darlington, Gateshead, Gateshead Teachers N.H. Society, Hartlepool P. and S., Jarrow and District, Newcastle-on-Tyne, and Northern Counties, Seaham and District, South Shields, Sunderland, and Borough of Tynemouth. All communications in connection with the Federation should be addressed to the secretary, Mr. J. B. Scott, 1, Bedford Terrace, Bedford Street, North Shields.

THE Hull Photographic Society's outing last Saturday, to Thornton Abbey, was very successful. Architectural and pastoral studies constituted the bulk of the work done.

ABERDEEN PHOTO ART CLUB.—The Photo Art Club held its quarterly business meeting at 62, Fonthill Road on May 26. It was decided that the club, during the quarter, should visit the following places:—Cove, Waterton Braes (Ellon), Cowie (Stonehaven), Fintray, Nicholls Rocks, Udry Castle, and Crathes Castle. It was agreed that the competitions remain as arranged last quarter—namely, best slides of castles of Aberdeenshire, best print illustrating Tennyson's "Brook," and best slide and print taken from negative of Thursday excursions. There were an unusual number of entries in the monthly competition. Messrs. David and Findlay, the judges, awarded them places as follows:—Prints, Mr. Clerihew, Miss M. R. Smith, Miss Smith, and Mr. Dalgety (equal); slides, Miss Dalgety, Mr. Dalgety, Miss M. R. Smith, and Mr. Bow (equal). Mr. Christian gave a demonstration with acetylene, showing what comparison it bore to the oxy-hydrogen light.

PURCHASERS of "Glazeit," the new preparation for P.O.P., announced elsewhere in our pages, are being asked to accept certain nuances. The first order opened in reply to the advertisement entitles the applicant to one of Butcher and Sons' cameras, and the next entry will receive a box of plates.

DEATHS in a London Studio.—Mr. W. J. Le Couteur, known in connection with the Amateur Photographers' Association, Brook Street, London, W., and his wife were found dead there on Wednesday morning of last week. They did not reside at the premises in Brook Street, but Mr. Le Couteur was seen in the neighbourhood late on Tuesday night. When the studio was opened a smell of gas was noticed, and inside a small room, sitting near a gas stove, were Mr. and Mrs. Le Couteur, dead. Four of the taps of the gas stove were turned on. On the table in the room was a glass containing some chromate of potash solution, but at the inquest the evidence showed that none of this had been drunk. Both Mr. and Mrs. Le Couteur were known to be in financial difficulties, although witnesses stated they had a splendid connection, but appeared to be lacking in business instincts. The jury returned a verdict of "Suicide whilst in a state of unsound mind in each case."

Correspondence.

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * *We do not undertake responsibility for the opinions expressed by our correspondents.*

PANORAMIC CAMERA.

To the Editors.

Gentlemen,—I have seen a camera, which I believe was made in Italy by Luino and Co., that is designed to take a panoramic view of an entire circle, to do which the camera revolves. Can any one give me the address of the makers or of their English agents?

PANORMOS.

PREPAID POSTAGE?

To the Editors.

Gentlemen,—In the *BRITISH JOURNAL OF PHOTOGRAPHY* of May 26 is proclaimed that the poor workman—in or out of employment?—should, or has to pay, "postage both ways" for specimens he may submit in and with an answer to an advertisement in "Situations Vacant."

This is levying a tax on a poor fellow who cannot help himself; this demand is also questionable, and even unjust.

The case is plain:—Two parties enter into communication, and each party is wanting or is offering something in exchange—viz., money for work or work for money. Both parties are logically under the same obligations to each other, and should therefore pay their own share in postage rate. Anything else is simply an imposition of the stronger on the weaker.

Your advice is legitimate if specimen and offer of work are submitted to a party without being first asked to do so.

I should like to see the Masters' Association give their view on this matter.

May 28, 1905.

AUDACIOUS.

THE COBALTAMINE REDUCER.

To the Editors.

Gentlemen,—Regarding your reference last week to my article in the *PHOTOGRAPHIC JOURNAL* on "Cobaltamine Reducers," may I point out that I was particularly careful to compare these with the reducers at present used in general terms only, preferring to leave it to others to decide whether the compounds I have recommended are more selective in their reducing action than any particular one of the reducers known up to now. I certainly mentioned ammonium persulphate in the above article, but only as regards its use with cobaltamine solutions in place of a plain diluted acid alone. It was its use in this respect that I found unsatisfactory. I had no wish to appear to depreciate the value of any reducer at present in use, by comparing it unfavourably with a cobaltamine reducing solution, but at the same time, since your reference may be read in this light, I may perhaps be pardoned for mentioning the fact that my experiments with a Chapman-Jones plate-tester tend to show that ammonium persulphate attacks the lightest deposits to a greater degree than an acidified solution of Erdman's salt, for instance.

With reference to your remark as to the inadvisability of using sulphuric acid of $7\frac{1}{2}$ per cent. strength, may I say that I point out in my article that hydrochloric or nitric acid may be used in place of sulphuric acid. It is agreed, I believe, that this strength of nitric acid has no harmful effect on the gelatine. Apart from this.

however, I have not found in my experiments that sulphuric acid of this strength has a bad effect on the film.

Most of my experiments carried on during the last winter and early spring gave no indication of trouble from frilling. Latterly, however, the temperature of the tap-water being considerably higher, I have experienced a few cases of frilling, but nearly all where the negative was developed, fixed, and washed, and reduced at once with a cobaltamine solution, without being allowed to dry. I do not find any trouble from frilling with negatives that have been allowed to dry before being reduced, and have not had any trouble with films at all.

In any case, during the warmer weather, I find that the ammonia bath may be reduced to 5 per cent. strength, or even less, with advantage, in which case, unless the plate is left in the ammonia bath too long, no trouble from frilling should be experienced.

Negatives may, of course, be treated with formaline or alum to prevent a tendency to frill, and I do not find that negatives so treated take appreciably longer to reduce.

I may say that I have tried many reagents in place of the ammonia, but none of them seem to possess its double advantage of clearing a slight deposit (which I believe to be a silver salt) from the film which may often be noticed, and at the same time neutralising any trace of acid left in the gelatine, forming a soluble salt easily washed out. Perhaps I may mention that this process of reduction forms the subject of a patent application, and suitable cobaltamine salts will probably be put on the market shortly.—I am, gentlemen, yours faithfully,

H. E. SMITH.

May 26, 1905.

PLATINUM PRINTERS' CATARRH.

To the Editors.

Gentlemen,—We have been considerably interested in your letter from an "Old Platinum Printer" in the current number of your journal. One of our own printers, whose attention during the last year has been given to platinotype work almost entirely, has developed all the distressing symptoms mentioned by your correspondent. Medical treatment has apparently been useless—the printer has now had to give up work entirely and go to the country for a prolonged rest in the hope of ultimate recovery.

These cases may be nothing more than coincidences, and we may say that we had no thought of placing the cause of the trouble to platinotype paper till we noticed the curious incidents mentioned by your correspondent.

It would be interesting to know whether any further cases have been observed, and such cases may be, of course, comparatively rare, just in the same way that only certain constitutions are effected by metal poisoning.—Yours faithfully,

JAMES A. SINCLAIR AND CO., LIMITED.

May 26, 1905.

LOCAL CUSTOMS AND PHOTOGRAPHY.

To the Editors.

Gentlemen,—With regard to your remarks in last week's "Ex Cathedra," as to recording some of the old customs, may I say that the National Photographic Record Association have already received many photographs of such subjects, principally taken by the president, Sir J. Benjamin Stone. The ceremonies photographed include "The Distribution of the Maundy Gifts, April 7, 1898"; "Locking the Tower Gates"; "The 'Well Dressing' at Tissington, Derbyshire"; "The 'Mops' Fair' at Stratford-on-Avon and at Bidford"; "Procession, etc., at the Shakespeare Festival at Stratford-on-Avon, 1900"; "Ceremonies in Connection with Tynwald

Day, Isle of Man"; "The 'Furry Dance' on Flora Day, Helston, Cornwall"; "The Pole Fair at Corby, Northampton"; "The Eisteddfod held at Bangor in 1902"; "Clipping the Church, Painswick, Gloucestershire"; "May-Day Customs at Knutsford, Cheshire"; "Hock Tide Proceedings at Hungerford, Berkshire"; "Collecting the 'Wroth Money,' Knightlow Hill"; "The Sports at Inverness, 1903"; and "Of Beating the Bounds." Needless to say, I shall be glad to receive further prints of other local or ancient ceremonies.—Yours truly,

GEORGE SCAMMELL,

Hon. Sec. National Photographic Record Association,
21, Avenue Road, Highgate, May 29.

PHOTOGRAPHIC COPYRIGHT IN FRANCE.

To the Editors.

Gentlemen,—I enclose you a translation of the recent decision of the Tribunal at Paris respecting photographic rights. I have translated it from "Le Journal" of the 25th inst., as I thought you might like to insert it in B.J. I think you will find it rather interesting as showing the French sentiment towards artistic work—that it should be protected, and the photography was capable of artistic work.—Yours truly,

W. R. KENNAN.

Arcachon, May 26, 1905.

The report is as follows:—

"The Seventh Chamber of the Civil Tribunal, presided over by M. Salvador, has just decided an important point relating to copyright in photographs. The question has been raised as to the right of photographs to be regarded as works of art, and to be therefore entitled to protection under the Act of 1873. The ownership of a copyright in a photographic portrait was also discussed.

"The decision of the Tribunal is that the point at issue is not to separate examination of every photograph as to whether it is a work of art or not, but the recognition of photography itself as an art. It is held that the achievements of photographers entitle them to be classed as artists, and that therefore their works should be accorded protection under the law of artistic copyright.

"As to the ownership of the copyright of a portrait, the Tribunal has ruled that, in the absence of special agreements, granting the ownership of the negative to the sitter, the latter should not assign copyright without the consent of the photographer."

[We will refer to this matter further in our next issue.—EDS. B.J.P.]

A GOOD MOUNTANT.

To the Editors.

Gentlemen,—I have frequently seen inquiries in the "Answers to Correspondents" column of the B.J. for a reliable paste for mounting photographs—and, moreover, one that will keep and be always ready for use. Starch paste is, of course, usually first favourite with professionals who have a lot of mounting to do, and who do it regularly; but even then the amount of moisture present in ordinary starch paste always tends to make even the stoutest mounts bend or cockle—especially when the prints are mounted wet.

The dry-mounting process appears to be an ideal method, but the price for a large installation is against its use in many studios. A paste that contains a minimum of moisture and great adhesive qualities, is easily applied and soon dry, and keeps ready for use is, definitely, is, therefore, likely to be of considerable advantage to many photographers. I make such a paste myself—very cheaply—and perusal of Mr. Ellington's letter in last week's B.J. tempts me to send the formula to you in the hope that it may prove of service to some of your readers. I take a pound of the best white dextrine—obtain

sible from any chemist at about 6d.—and mix it with sufficient cold water to make a stiff paste. Do not add the water to the whole of the dextrine, or an unmanageable clot of very lumpy paste will result. Stir a little water in a little of the powder at a time until all is mixed. When the pound of dextrine is a paste, free from lumps, add half a pint of cold water and a few drops of oil of wintergreen or cloves and stir well. Then pour the whole mixture into a clean enamelled saucepan and bring to the boil. When boiling, the solution will be like thin clear gum. It should then be poured into pots, covered up, and put away in a cool place to set. This takes from twelve to twenty-four hours, and the paste is then quite hard and white—like lard in appearance. Its application to the backs of prints is easily accomplished with either a stiff brush or the fingers, and very little is needed, as a small quantity can be spread over quite a large surface like grease. I have found it as sticky as any paste I know, and it is, I think, quite pure, and has no ill effects on the most delicate prints. The only thing to remember when buying the dextrine is to ask for the best white. If an inferior quality, or brown dextrine is used, the paste will not set when cool, but remains in the consistency of treacle.—Yours truly,

DERBYSHIRE.

[We are much obliged to "Derbyshire" for his letter. The method of paste-making he advocates is not new, but we can recommend it as being quite reliable. We are pleased to note that our Editorial in the B.J. for May 19, on an Editorial Millennium, is having some effect, and shall be glad to hear from readers who have hints and methods of their own practice that they can communicate for the benefit of other readers of the B.J.—Eds., B.J.P.]

"TABLET" Pyro-metol Prize Competition.—The large number of entries and the high artistic and technical merit of much of the work submitted in connection with this competition have rendered the task of judging extremely difficult. Messrs. Burroughs, Wellcome, and Co. inform us that they are engaged in making the final selections, and will announce the names of the winners at an early date.

ROYAL Portraits Rejected.—Mr. Henry J. Brooks, the well-known artist, entered an action in the King's Bench last week against the Committee of the United Service Club to recover £700, the alleged agreed price for a pair of full-length portraits of the King and Queen. The defence was that the portraits were painted subject to the approval of the Committee, and that this approval was not obtained. There being no evidence to go to the jury on this point on the plaintiff's behalf, Mr. Justice Wills entered judgment for the defendants, saying that he was sorry Mr. Brooks had entered into a contract containing such a condition.

It often becomes necessary to decide what is 20 ft. or 20 yards or 200 yards distant, and it is a most difficult task for a beginner to undertake observes a writer in the "Oxford Chronicle." One rough way is to pace out the distance in long strides, when the total steps will be (roughly speaking) the number of yards. This, however, is a rough task when 200 yards is the distance. We pity the man who has to pace 400 yards (for he must return to his base) for one calculation. For ladies, too, the yard strike is inconvenient and inelegant, and likely to attract attention and amazement. Besides, one cannot "pace" off of Strassburg Cathedral tower to estimate the distance of the nearest roofs. This difficulty of judging distances has to be faced by the soldier—or at any rate the officer—and "trial and error" can alone secure final efficiency. Take the road you are now in. Find the width of it from your door, from your window, to the opposite pavement, and to the opposite doorway. Measure distances down the road at an angle. By conning all such distances over, before and after correction, and applying the data to other streets and other places you will soon learn to judge all distances.

Answers to Correspondents.

. All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED :—

- J. H. Cartwright, 171, Oxford Lane, Warrington. Photograph of Warrington Football Club.
 W. A. Stott, 2, Hillary Place, Leeds. Photograph of the Band of the 2nd West Yorkshire Royal Engineers Volunteers.
 S. Powell, 128, High Street, Rushden, Northamptonshire. Photograph of Group of Men taken at Rounds, Northamptonshire.
 Isaac Perkoff, 166, Commercial Road, London, E. Three Photographs of Mischa Elman.
 S. A. Copeland, 29, Saltwell Place, Bensham, Gateshead-on-Tyne. Photograph of Cathedral Church of St. Nicholas, Newcastle-on-Tyne. South-East View.
 E. Dudley, Field View, Westham, Sussex. Photograph of Portion of Grounds of Mansion, Comprising View of Terrace Steps; Windows and Trees in Background; Foliage and Path in Foreground.
 E. Kelly, 26, Queen Street, Newton Abbot, South Devon. Three Photographs of Mr. Roger Hannaford, connected with the South Devon Hunt.
 T. O. Mawson, 26, Mundella Terrace, Heaton, Newcastle-on-Tyne. Photograph of the Cliffs from Percy Gardens, Tynemouth.
 H. O. Southgate, 2, Station Road, Maidenhead, Berks. Photograph of Thomas Norris, entitled "The Widower's Mite," taken at Bray Almshouses.
 H. Lowthian, 45, Welhelme Road, W. Grimsby. Photograph of the Grimsby Lifeboat. Photograph of Part of the Channel Fleet in the Humber.
 R. N. Heyworth, 33, Prescott Street, Rochdale. Photograph entitled "The First Electric Car to Run in Littleborough," May 24, 1905.
 W. Knowles, 16, North Street, Kelghley. Photograph of the late Canon E. Watson.
 E. H. Debenham, Radnorshire County Studio, Knighton. Photograph of C. C. Rogers, Esq.
 H. H. Wragg, 50, Railway Road, Leigh, Lancashire. Photograph of Gas Explosion at Leigh.

RETOUCHING.—Enclosed please find printed and toned specimens of my retouching. 1. I am a beginner, and am told that my work is too closely done. 2. My usual time for a head such as enclosed is half-an-hour. 3. I have been practising for about four months, and I am told that I have improved a great deal. 4. Should be pleased if you would publish in your journal any faults you can see; also what salary I could get?—HOPEFUL.

1. Your retouching is too minute and ineffective on the man's face, and not nearly fine enough on the women. 2. Time taken is insufficient for the best finish on such faces as sent. 3. You have not done badly for the short period you have been studying, but you have much to learn yet. 4. Your faults consist in leaving too many edges of light and shade, and general raggedness of texture. You need finishing lessons. You did not forward prints before retouching, so we cannot comment upon the treatment of the likeness—a vital point. Your retouching should command about 25s. per week, when you have improved your solidity of texture as suggested above.

FOREIGN PERIODICALS.—Would you kindly give me, through the medium of your paper, the names and addresses of the Swiss, German, and Austrian photographic journals or publications?—E. GROMANN.

You will find a full list in the "British Journal Photographic Almanac."

INSTRUCTION IN ENLARGING.—I shall be very grateful to you if you will be kind enough to inform me whether there is a private or public institute where I could learn enlarging of photographs in all its branches during the summer months.—A. CEIFER.

The Photographic School, Polytechnic, Regent Street, W.

UNDECIDED.—You do not state the purpose for which you require the camera. If for general all-round photography in addition to hand-camera work, you will probably find No. 3 the best. If bulk and handiness are considerations No. 1 can be recommended. No. 2 is, of course, the same as No. 1, but with more convenience in the shape of extra extension and square reversing back, which would be useful if the camera was used much on a tripod.

COPYRIGHT.—Some twelve months ago you were kind enough to get copyrighted for me a photograph, and I now find that another photographer had made enlargements from it and sold them five or six years ago. I shall be glad of your opinion as to whether I have any legal claim against him for selling the photographs before the negative was registered.—EQUITABLE.

You have no claim whatever for anything done before the copyright was registered. You can now prevent any future copies of the picture being made, either as enlargements or otherwise.

D. BOOTH (Nice).—The views of the Riviera do not interest us, as we are not publishers of photographs. But perhaps one or other of the postcard firms would be glad to take them up.

HAND-CAMERA QUERY.—I am having my quarter-plate stand camera fitted with rapid lens and shutter in order to enable me to take snapshots. Will you please tell me:—1. If the finder, fixed on camera, must be of the same focal length as the lens in order to secure the amount of subject shown on the focussing screen of camera? 2. As I desire to do accurate work, is a focal plane shutter the best to use, and is it, or is it not, liable to render moving objects out of proportion?—**FOCAL PLANE.**

1. The focal length of the finder lens need not be the same as that of the lens of the camera unless it is desired to use a finder giving a view the same size as that which appears on the ground glass of the camera, which would amount to using another full-sized camera. The best form of finder for snapshot work is the direct-vision finder, which is either a plain wire frame—proportionate in size to the plate used—or a rectangular plano-concave lens mounted in a frame and fixed to the top of the camera. The view is seen in miniature when looking through this lens, and aiming is assisted by a sighting pin at the rear. Most photographic dealers sell these direct-vision finders. They are quite cheap and easily fixed. 2. A focal-plane shutter will probably give you all that any other form of shutter is capable of, in addition to which it possesses much higher efficiency. It admits of a quicker exposure or a smaller stop with a given amount of light than any other shutter; and except in very exceptional circumstances, there is no appreciable distortion when using it.

ENAMELLING POSTCARDS.—Can you give me any information how to enamel large quantities of P.O.P. postcards? I have tried squeegeeing them on large sheets of plate glass which have been cleaned with a solution of spermaceti and benzole, and also with French chalk, but I find a difficulty in getting the cards off, although I dry them between washing and enamelling. Ordinary unmounted prints come off the same glass prepared in this way with ease, the postcards and paper being the same

make in both cases. If you could oblige me with a sure and quick method of enamelling same I should feel obliged, as I have to turn out large quantities at a time?—G. B.

There is no quicker method of enamelling the postcards than that which you are employing. If you harden the gelatine surface by treating the postcards to a bath of dilute formaline (10 per cent.) after fixing, and then squeegee them on to the prepared glass, immediately after taking from the final washing water, they ought to drop off as soon as dry.

A. H.—You do not state whether you used the solution after the negatives; if so, it would naturally be weakened. Try a freshly-made solution.

E. A. BARTLETT.—The stains are probably due to your not using enough hypo. There would be no difficulty in intensifying with mercury. You could probably remove the stain with 5 per cent. solution of sulphite. For such subjects you should use a slow film, either process or photo-mechanical, with a well-restrained hydroquinone developer. With regard to the copying of the glass positives, see article in our issue for April 21, p. 303.

ASSISTANT AND OTHERS.—In our next.

COPYRIGHT.—Kindly inform me in your next whether anyone could legally object to the issue of a photograph of a street view simply because their own portrait happened to be in it, being taken instantaneously while they were walking near.—**FOCO.**

They cannot, unless the photograph is libellous.

THE TYRANNY OF THE CAMERA.—In the old days, when special artists used to be sent to make a sketch of the lawn at Ranelagh or Hurlingham, the Enclosure at Ascot, or some special function graced by the presence of Royalty and smart folk, we possibly may have got less accurate pictures, but at least they made people look their best. Now that all such scenes are snap-shotted we get, writes Ambrosia in the "World," the most unbecoming studies of well-known people. We see how badly this one was walking, how shockingly another holds her arms, while the wind catching another's dress at the psychological moment gives her the appearance of being lop-sided. Men generally seem to be walking as if treading the tight rope or under the influence of severe pain. The King is caught sometimes in the act of taking a step forward which gives him the appearance, in an illustration, of playing at hop, skip, and jump.

BON VOYAGE.—Mr. William Gamble, editor of "Process Work" and the "Process Year Book," is at present in America. We are certain he will have a good reception at the hands of our cousins across the pond, and expect him to come back brimful of information as to how process is done in the States.

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EX CATHEDRA.

Danger in the Dark Room.
The note by Mr. J. B. B. Wellington which we print on another page draws attention to a point which is certainly worthy of notice. Advocates of sulphide toning in the warmth of their encomiums of the process have laid too little emphasis on the fact of the escape of sulphide vapours from the final solution. It has been stated that a neutral solution of pure sodium sulphide is perfectly odourless, but we have never met with one which was beyond reproach in this respect. Delicate a test of danger as the organ of smell is, it must be remembered that the action on plates and papers of traces of hydrogen sulphide in the air is cumulative, and infinitesimal discharges of the deleterious compound from the sulphide bath may have their effect on the photographer's stock of sensitive material before very long. We suppose anybody with even an elementary knowledge of chemistry will have had this danger in the back of his mind, but Mr. Wellington's warning, coming as it does from one whose writings have never outrun his experience of the facts, should confirm the practisers of sulphide toning in more carefully guarding plates and papers.

Diffusing Screens.

We referred lately to the danger of getting, with the brighter summer light, contrasts beyond the compass of the plate. The landscape photographer must, of course, expose for the shadows, and develop for the high-lights, and it is almost certain that the brighter portions of his picture will be over-exposed. In portraiture, contrast is almost completely under the photographer's control, and it is one of the aims in lighting so to arrange things that by the time the shadows are exposed the high-lights will not be over-exposed, or at all events, not sufficiently over-exposed as to produce any flattening. We do not think the value of moveable head screens or side screens is sufficiently recognised in this direction. Light-coloured muslin diffusing blinds, close

against the glass roof, may soften the light and consequently the contrast in the subject; but the actual degree of softening in each particular instance is not under control to anything like the same extent, or with the same ease, as when the distance between the diffusing screen and the subject can be varied at will.

A Flashlight Lawsuit.

In the District Court, Sydney, New South Wales, damages of £5 were granted to a photographer who had been supplied with a flash powder in place of pure powder magnesium. On using the mixture in a flash lamp he sustained slight injuries to his face, and the lamp was impaired. His claim for damages was £200, a somewhat large amount considering that his injuries did not prevent him from attending his place of business the following day. In granting £5 damages the court declined to allow the plaintiff his costs, and hence he is probably out of pocket by his action. The case is one which photographic dealers may bear in mind. And, indeed, the incident, like many others in which large damages are claimed, is not without its lesson to photographers in general. In cases of copyright infringement, which frequently come under our notice, the photographic plaintiff will depreciate his own claims by putting fancy figures on the value of photographs which have been reproduced without permission. No sooner does a photographer imagine he has a publisher "on the hip" than he develops a tendency to extravagant demands. Such over-reaching policy frequently fails in its purpose, and our advice that a more reasonable tone should be taken is penned as the result of having had under our notice, only within the last few days, a case in which the photographer would have been several pounds in pocket by so doing.

Photographic Copyright in France.

The recent decision in a civil court as to photographic copyright in France gives some measure of definition to the law as it stands at present in that country. The translation from "Le Journal," which we appended last week to our correspondent's letter, was a fairly free one, and it would appear that the decision of the court is capable of a narrower interpretation than that: Photography is an art; therefore photographs are entitled to share in the protection granted to works of art. The actual French text runs:—"Le tribunal a décidé qu'il n'avait pas en l'espèce à examiner si toute photographie était une œuvre d'art, mais que le photographe devait être considéré en raison de sa notoriété, de ses œuvres et de son passé artistique comme un artiste; que, par conséquent, ses œuvres devaient être protégées par la loi (1793) en question." The passage may be applied thus:—Monsieur X. is known to be an "artistic" photographer; therefore, photographs by him are entitled to protection; which is not very much

better than the present state of things, in which the courts decide the claim of individual photographs to be works of art. If the only effect of the decision is to shift the point at issue in a case from photographs to photographers, there is not, we think, very much to be said for it. The present ruling is inequitably favourable to the established men, and makes it difficult for a young and rising photographer to obtain protection of his works. But apparently the decision is that of a minor court, and may be reversed. The just course, it seems to us, is to admit photographs as "works of art," and to grant to them the protection provided by the Act of 1793. The further ruling of the court, that the copyright of a portrait taken in the ordinary course of business is partly vested in the photographer, strikes an English reader as extraordinary, and it will be interesting to hear of cases in which it is sustained.

POISONS USED IN PHOTOGRAPHY.—II.

IN recurring to the subject of the chemicals used in photography it should be mentioned that, with the exception of a very few, they are all of a more or less poisonous nature when taken internally. Pyrogalllic acid is a poison, though it is not generally looked upon as being one by the majority of those by whom it is employed. Yet we remember, a few years back, the case of a lady's death from drinking a solution of pyro which her husband, an amateur, had mixed for photographic purposes. So far as we are aware pyro *pure et simple* has no ill-effects upon the skin, except the stain it produces. When it is used with caustic alkalies the case may be different, but the effects are not serious.

Nearly all, if not all, the newer developing agents are poisons, some more deadly than others. It is not, however, our intention to deal so fully with the poisons used by the photographer as regards their toxicological properties when taken internally, as with the effect they may have on users by contact with them in the ordinary course of their employment, and that varies greatly with different individuals.

Some persons, for example, may use many of them with impunity, while others can scarcely touch them without experiencing inconvenience. Curiously enough it does not follow that because any particular substance may affect one individual that it will every one. A solution of cyanide of potassium, as employed in fixing wet collodion negatives, is used by very many with impunity, yet the use of metal by some of those in a very short time produces trouble. On the other hand, the cyanide may affect those who are immune to the action of metal. The same may be said with reference to most of the other chemicals of an injurious character—such is the idiosyncrasy of the human system.

The deadly effect of cyanide, when taken internally, is well known, and need not therefore be specially referred to here. With the exception of the case referred to a few weeks back we have never heard of a fatality due to this poison from external contact. In this instance it was through a wound on a finger. In wet-collodion days it was quite the usual thing for the workers, whose fingers had become badly stained by silver bath, to take a lump of cyanide, moisten it with water, and then well rub the stained parts with it—quite regardless of small scratches or abrasions; then following on with pumice stone or sand. This is what might well be looked upon as a dangerous practice, but it was the one generally followed by operators, and by printers, for removing silver stains from the fingers and hands, and singularly enough, we have never heard of any serious injury arising from it. Still it is a procedure that is by no means to be recommended.

The fumes of the cyanide produce considerable inconvenience to some, while others are not in the least affected by them. A photographer we once knew could not use cyanide at all for this reason, and had therefore to fix always with hypo. So marked were the effects upon him that he could not remain for more than a few minutes in a dark room where it was being used without suffering from nausea and headache. In connection with the wet collodion process it may be mentioned that the acid iron developer had an unpleasant effect on the skin of some workers, making it hard and cracky. A photographer once, of our acquaintance, had to relinquish his business entirely on that account. The effect with him was chiefly on the palms of the hands; they were in a continual state of inflammation, and the skin cracked as the hands were used. But cases are rare when the sulphate of iron acts injuriously on anyone.

Again, the fumes of ammonia as they escape in the dark room, where pyro-ammonia is used as the developer, have an unpleasant effect on some, while they are quite inert with others. The usual effect is nasal catarrh. The best preventative is to have the room well ventilated and, as a palliative, plenty of outdoor exercise should be taken after the dark-room work of the day has been completed. While this is being taken, the breathing should be done through the nostrils as much as possible.

Platinum salts are found to affect some who use them continually, either in the platinum process proper or in toning silver prints, although it is quite possible that it is not the platinum salt, which, in every instance, is the cause of trouble. A case recently came under our notice of a platinum printer who was suffering from lung troubles which his medical adviser attributed largely to the fumes of the hydrochloric acid used for fixing the prints. It was alleged that this, if not the primary cause of the trouble, was a contributory one. He has now had to give up working the process. Again in a recent issue of "Wilson's Photographic Magazine," Mr. A. J. Jarman has a long article on "Platinum and Oxalate Poisoning." The early symptoms, as described by him, are a cracking of the skin on the backs of the fingers and slight pain when working with the solutions. Later on sores are formed on the backs of the fingers and pimples come on the wrists. The writer is here referring to the toning of silver prints with the phosphoric acid platinum bath, and he attributes the trouble more to the phosphoric acid than to the platinum salt, and, for this reason, recommends the employment of citric acid as the acid of the platinum toning bath. With regard to the injury arising from working the platinum printing process Mr. Jarman attributes the ill-effects to the corrosive action of the oxalate of potash developer, more especially when it is employed hot. Here, he says, the fingers become attacked at the base of the nails or between the nails and the flesh, often followed by festering. The writer of the article speaks of salivation being produced and the teeth loosened; this he puts down to the presence of mercury. We may here say that up to the present we have not heard of any authentic case in England of salivation arising from the use of sepia platinum paper, though we have of the other troubles described, but these, so far as we are aware, have only been experienced by those who work the platinum processes continuously, and on a commercial scale. In the case of amateurs and those who work platinum on a small scale there need be but little fear of suffering, particularly if the hands be thoroughly washed when the work is finished.

There are several other poisons that have to be referred to, and they will be dealt with later on.

ON THE DETERIORATION OF PLATES, PAPERS, AND FILMS.

A WARNING.

te, thanks to Messrs. C. Winthrop Somerville and R. E. Smith, the toning of bromide prints has become popular, especially with the formulæ worked out by the above-named man, which are exceedingly simple, and give tones of a pleasant and pleasing nature. In fact, there are many good reasons in favour of the sulphide bath. It is as well, however, to give a warning of the danger which lies in the fumes of sulphur which are given off from the sulphide of sodium bath. The evil is manifest when we note how the minute quantities of sulphur contained in one of our November fogs attack our articles in the house, producing a thin tarnish of sulphide of iron. We also know how easily these same articles are attacked when kept in a room where ordinary gas has been used as an illuminant, this being due to a small remnant of sulphur from the manufacture of the gas. How much more deleterious must be the large quantities given off from the sulphurising bath of sodium sulphide on the still more delicate bromide chloride of silver which go to make up the emulsions used on plates, papers, or films. Now, if these latter are kept in the same room where sulphide of sodium is employed, in a

few weeks these plates, papers, or films, as the case may be, will be unusable.

Take the plates first. These will develop with an iridescent stain, with general deterioration and fog.

Bromide and "gaslight" papers will also be affected in practically the same way, producing a dirty, flat, miserable print, so different from the first sheet one has used with so much pleasure before storing same where the sulphide bath has been constantly employed.

With P.O.P. the surface will assume a metallic lustre, and will be difficult to tone.

Naturally, a user of photographic material immediately jumps to the conclusion that the manufacturer is at fault, and that the plates, papers, or films are of poor quality, whereas sulphur is at the bottom of the whole matter, and the cause of the trouble is the sulphur fumes.

My advice to all who indulge in the toning of bromide or "gaslight" papers with the sulphide bath is to see that their papers, plates, and films are stored right away—in fact, in another room altogether—where no sulphur fumes from sulphur salts are liable to affect them. Such fumes act as a slow poison, but deadly in the end.

J. B. B. WELLINGTON.

MODERN CHEMISTRY FOR PHOTOGRAPHIC WORKERS.

V.—THE VELOCITY OF REACTIONS—i.e., CHEMICAL DYNAMICS.

may consider any chemical reaction from two points of view—either from the point of view of the final product reached, or from the point of view of the rate at which the reaction proceeds to form that final product.

In the fourth of these papers* dealt with the final statical result of reactions, and it is now desirable to consider the rate at which that result is attained. A chemical reaction proceeds in somewhat the same way as a ball thrown into the air, if one imagines that the ball, when thrown up, stays up and does not come down again; and one can consider the winding up of the ball either from the point of view of the height to which it attains or of the rate at which it attains that height.

In this paper for the first time we shall find it necessary to adopt mathematical methods, for this reason, that ideas of velocity, and rate of action, are essentially mathematical ideas. Attempting to get an idea of the course of a chemical reaction is met at once by a difficulty. This difficulty is found in the fact that as a general rule we can only form a theory for the progress of an infinitely small portion of a reaction, while we can only measure practically the effect of a very considerable portion. Consequently we have a great gap between our theory and our practical measurement. And this is bridged by casting our views of what happens in the infinitely small portion into the shape of an algebraical formula—which we call a differential equation—and we can then extend this to the whole time by the mathematical process of integration, which

gives us our original theory in a form in which we can verify it experimentally. We do not improve our theory by this process; we only make it possible to test it.

Velocity.

To give an example. Suppose we throw our ball into the air and wish to obtain a theory as to the rate at which it travels. We may suggest that at each second of its journey it travels somewhat slower than it did the last second, until presently it stops. It is difficult for us to measure the rate at which the ball does travel during each second, but if, taking our hypothesis, we add together the amounts by which the ball travels each second until it stops, and find the total, we can easily see whether this accords with the experimental result.

A velocity is defined as the amount of change taking place in unit time. If, for instance, a train travels a hundred miles in two hours, its velocity is fifty miles per hour. But this is the average velocity of the train; it is quite conceivable that the train might travel forty miles in the first hour and sixty in the second, in which case the velocity at any time would not be the average velocity for the whole distance.

Suppose, for instance, we drop a ball forty-eight feet, it will take two seconds to fall this distance, that is to say, it will travel with an average velocity of twenty-four feet per second. But as a matter of fact the velocity is increasing from beginning to end of the fall, starting with a velocity of 0 and ending with a velocity of forty-eight feet per second. So that we see that the instantaneous velocity at any time is quite a different thing from the average velocity. Now, velocity is measured

* "The British Journal of Photography," May 26, 1905.

in units of space divided by units of time, or, to put it algebraically,

$$V = \frac{s}{t},$$

and if we make our units of space very small and our units of time equally small, we shall get an instantaneous velocity. We write these very small units ds and dt , so that for an instantaneous velocity we get:—

$$V = \frac{ds}{dt}.$$

If we look at the subject graphically we may get a clear idea of what happens. On the curve we have traced the falling of a ball.

In the first second the ball falls... 16 ft. = 16 ft. from zero.

In the second second the ball falls 32 ft. = 48 ft. from zero.

In the third second the ball falls... 64 ft. = 112 ft. from zero.

In the fourth second the ball falls 128 ft. = 240 ft. from zero.

The average velocity for the first second is represented by line A; the average velocity for the first two seconds is represented by line B; the average velocity for the first three seconds is represented by line C; and the average velocity for the four seconds is represented by line D. But the instantaneous velocity of the ball at any time is represented by the slope of the curve itself, and this varies from start to finish. It can be found, as at E, by dividing a very small portion of space traversed by the correspondingly small portion of time taken to traverse it.

Velocity Constant.

Now let us turn to a chemical reaction. The simplest case of a chemical reaction is that of a substance in solution which splits directly up into something else. For instance, if we dissolve sugar in water which has been made slightly acid, the sugar will slowly turn into a mixture of glucose and levulose. In our fourth paper we saw that the mass law stated that the amount of reaction which proceeded in a given time was proportional to the mass of the reacting substances. Consequently we can see that the instantaneous velocity of the inversion (as this reaction is termed) of sugar will be proportional to the mass of the sugar which is not yet changed. That is, if m is the mass of the sugar to start with and x is the mass which has been changed, then $m-x$ will be the amount which has not been changed, so that

$$\frac{dx}{dt} = K(m-x),$$

where our $\frac{dx}{dt}$ is the instantaneous velocity.

This K is very important, because it fixes the rate at which the reaction progresses; it is called the velocity constant.

Integration.

In order to work with this equation it is necessary to change from an instantaneous velocity which cannot be measured to the amount of change which has taken place in a fixed time t , which can.

That is to say, it is necessary to add up all the values of $\frac{dx}{dt}$ from the beginning to the end of the reaction.

This is called integration. The mechanism is not simple; it really consists in a series of guesses until one fits, but the results can be given here. They are, for the integration of the equation

$$\frac{dx}{dt} = K(m-x)$$

that

$$K = \frac{1}{t} \log \frac{m}{m-x}.$$

The meaning of this is, that if we measure m , the total mass of substance at the beginning and then measure x at various times, and divide the value of $\log \frac{m}{m-x}$ by the time taken to reach x , we shall always get the same result.

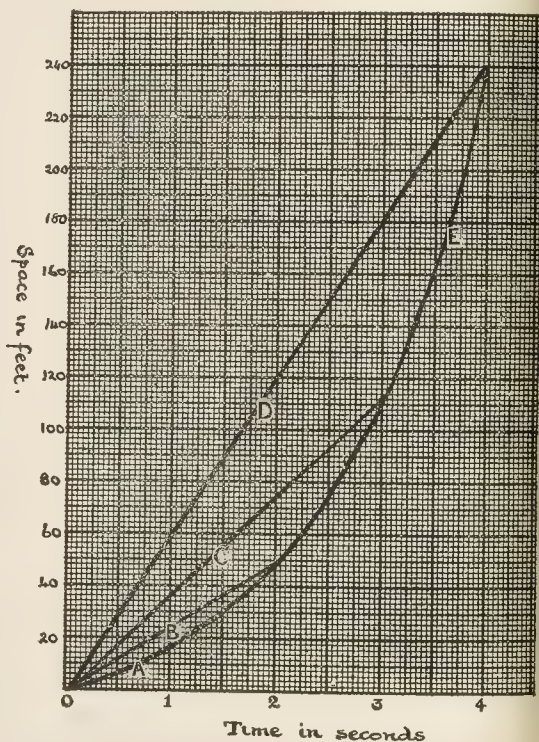
For instance, the inversion of cane sugar was measured by Wilhelmy in 1850, and he gives the following results:—
 $m = 10.023$.

t	x	$K = \frac{1}{t} \log \frac{m}{m-x}$
0	0	—
30	1.001	.00152
60	1.946	.00156
90	2.770	.00156
130	3.726	.00155
180	4.676	.00151

so that we see K really is constant.

Orders of Chemical Reactions.

This is the simplest case of a chemical reaction. Chemical reactions are divided into two kinds—those taking place in systems in which only one kind of matter is present, homogeneous reactions as they are called, for instance, reactions



between gases or between substances in solution; and those taking place in systems where more than one kind of matter is present, for instance reactions between solutions and solids; these are called heterogeneous reactions.

Reactions are further divided into orders according to the number of molecules taking part in them. If only one molecule takes part they are said to be reactions of the first order, and the instantaneous velocity is proportional to the mass of unaltered substance, i.e.,

$$\frac{dx}{dt} = K(m-x)$$

If there are two molecules taking part, they are reactions of the second order, and the mass law shows us that the

ntaneous velocity will be proportional to the product of unaltered masses of both substances, i.e.,

$$\frac{dx}{dt} = K (m - x) (n - x)$$

e m and n are the initial masses of the substances. arly, we can have reactions of the third, fourth, and fifth s.

both the molecules are of the same kind in reactions e second order we get a very important case, which is attained if, in the case of two different molecules reacting, initial concentrations m and n are made equal. Then

$$\frac{dx}{dt} = K (m - x)^2$$

distinction between reactions of different orders is seen clearly in the fact that for a reaction of the first order velocity is simply proportional to the concentration for action of the second order to the square of the concentra- and so on.

Development a Heterogeneous Reaction.

e most important photographic reaction is, of course, rogeneous, that is to say, it is the reaction occurring een solid silver bromide and the developing ion. In this e we have already seen that we may imagine the silver ide to dissolve and dissociate, then reaction to occur een the silver ions and the developing ion. This reaction, g ionic, will, like nearly all ionic reactions, occur ntaneously, and then more silver bromide will dissolve and ociate.

we imagine the developer to be in such enormous excess e concentration does not appreciably change during loment (which is almost always the case in experimental

work), then the reaction which will fix the rate of development will be the solution of the silver bromide. Nernst and Wilder- mann have shown that we may consider that the rate of solution of a solid is proportional to the surface remaining, so that we may put for our instantaneous velocity

$$\frac{dx}{dt} = K (m - x)$$

where m is the original amount of "latent image" and x is the amount of developed silver at any time, t . It has been experimentally shown that the mass of the developed silver in a plate is proportional to the "density" (as defined by Hurter and Driffeld), while if we develop a plate until we can develop it no more we shall have in the density attained a measure of the "latent image" originally present. We may call this D_{∞} , the final density which we can possibly reach. And now our equation for the instantaneous velocity will be

$$\frac{dD}{dt} = K (D_{\infty} - D)$$

which is of the same form as the equation for a reaction of the first order, and on integration gives

$$K = \frac{1}{t} \log \frac{D_{\infty}}{D_{\infty} - D}$$

This has been experimentally verified.

In closing this series, a hope may be expressed that some of those who have followed it will desire to know more of these powerful physico-chemical methods of investigation, and, daring greatly, will recall sufficient of their earlier mathematics to follow some larger text-book on the subject. To such, the very excellent series of text-books of physical chemistry now being issued by Longmans and Co. are commended.

C. E. KENNETH MEES, B.Sc., F.C.S.

THE WEEK IN HISTORY.

The First Publication of the Calotype Process.

E 10, 1841, was the day on which Fox-Talbot described to Royal Society his calotype process, a patent for which he taken out on the previous February 8 ("The Week in ory," February 3). The description of the process and the ctions for working it are practically the same as those in patent specification. The points of novelty in the process chiefly:—The use of gallic acid or tincture of galls in con- ction with silver nitrate for producing paper of greater sen- siveness; the development of a latent image by washing the er with liquids affecting the light-affected parts; and the use otassium bromide as a fixing agent. Talbot also patented the lication of the method to the portraiture of persons. He impressed with the great rapidity of his paper. He says:— "the aperture of the object-lens is 1 in. and the focal length n., the author finds that one minute is amply sufficient in- ner to impress a strong image on the paper of any building n which the sun is shining."

Talbot's Daylight Development.

ox-Talbot's inventive genius led him, towards the close of his tographic work, to the method of developing plates in the era in full daylight. Many forms of apparatus for this pur- e have been invented and patented, and a good many of them e been more practical than the glass-cell which Talbot built e back of his camera. The back wall of the cell was of und glass, and on this Talbot focussed his picture. The plate e first sensitised in the cell with silver nitrate, and then osed, with allowance for the difference in its position and t of the focussing screen. Developer, water, and fixing solu- e were introduced in turn into the glass chamber, each being

drawn off after use by a cock. Talbot patented this and other devices on May 12, 1851.

Daguerre's Bargain with the French Government.

June 14, 1839, was a great day for Daguerre. On that date the French Chamber of Deputies passed the Bill by which life pensions were granted to himself and Isidore Niepce, the son of his deceased partner, in exchange for the publication of the great discovery. The facts which led to that event were, first, Daguerre's attempt in 1837 to float a company to work his process. A subscription-list was opened in that year, but the public did not respond. Then Daguerre sought the aid of Arago, the lead- ing French scientific man of the time, and himself a member of the Chamber. Through Arago the interest of the Minister of the Interior, M. Duchâtel, was gained, and the next phase was an agreement whereby M. Duchâtel was to ask the Chamber for annuities for Daguerre and his partner of 6,000 and 4,000 francs respectively in exchange for the process. The Bill was passed, and its terms make interesting reading. M. Duchâtel, who pre- sented it, dwells feelingly upon the importance of the new art which Daguerre and his colleague had called into existence. "M. Niepce," says the Bill, speaking of the dead Nicéphore, "in- vented a means of producing permanent images, but although he thus solved the difficult problem, his invention was very in- complete. He obtained only the outlines of objects, and re- quired twelve hours at least for the reproduction of the smallest drawing. In his researches M. Daguerre has followed entirely different methods from those adopted by M. Niepce, with what results we see to-day—viz., the extreme rapidity of the process and the reproduction of aerial perspective and the play of lights and shadows. The method is entirely his own, and is distin-

guished from that of his predecessor as much by the process itself as by the results obtained. However, the existence, before the death of Niepce, the father, of an agreement whereby he and Daguerre agreed to share with each other all the advantages accruing from their discoveries (and as this stipulation descends to M. Niepce's son) precludes us from dealing exclusively with M. Daguerre, even in relation to a process which he has not merely perfected, but has invented. . . . Thus it is clear why MM. Daguerre and Isidore Niepce appear to-day in the treaty which is appended to the Bill. The pension will be assigned thus:—

"6,000 francs to M. Daguerre.

"4,000 francs to M. Niepce.

"Apart from what has been said, there is another reason for this unequal division. M. Daguerre has consented to make known the methods by which he produces his diorama, an invention of which he alone knows the secret, and which it would be a misfortune to allow to be lost."

So Daguerre put his photographic discovery and the diorama

into one parcel and sold the lot for an annuity of about £250 per annum. And when, after a few months, he published a text-book on photography, he added a chapter on the methods of his unique invention, the diorama.

The Fixed-Focus Camera in 1850.

In some previous notes I have dated the era of the hand-camera from the model of Mr. Bolas, shown to the Royal Photographic Society twenty years ago. But the principles of the modern hand-camera are a good deal older than that. I can trace the "fixed-focus" method as far back as 1860, at any rate. On June 15 in that year M. Bertsch exhibited before the French Photographic Society a tiny hand-camera taking pictures only 6 by 4 cm., and he showed also enlargements from these small negatives 78 by 52 cm. The camera carried a lens of very small focal length. All the planes of the subject were sharply rendered without focussing, and, as M. Bertsch pointed out, the user needed no previous knowledge of photography.

HISTORICUS.

THE OPTICAL CONVENTION.

We give below three further papers read during the session of the Optical Convention which closed on Saturday last, June 3. That on "Stereoscopic Vision," by Mr. C. W. S. Crawley, is interesting as indicating the scientific applications of the stereoscopic method. Photographic stereoscopy has already been employed to advantage in the same domain, and no doubt much more will be done towards bringing about the much-talked-of "revival of the stereoscope," not, however, with that instrument in the rôle of popular educator and entertainer so much as in that of assistant in scientific measurements. The paper by Mr. W. Rosenhain draws attention to possible

directions of progress in the making of optical glass, and, although purely suggestive, may prove to have a bearing upon the aims of the photographic optician.

A paper by Lord Rayleigh, on the "Polishing of Glass Surfaces," is yet to appear, and we hope to print it in full in our next issue, in which, also, we shall endeavour to present the discussion arising out of the papers on aberrations by Mr. S. D. Chalmers and Dr. C. V. Drysdale, which appeared last week. These papers were largely suggestive and calculated to provoke discussion, and the full text of the views expressed should be a contribution to the subject even more valuable than the papers themselves.

STEREOSCOPIC VISION.

(A paper read before the Optical Convention on June 1, 1905.)

THE human eyes, faulty as they may be in many ways, are in one respect an instrument of extreme precision. As a means of instantly detecting minute differences of angle, they have a delicacy which is but seldom appreciated. Helmholtz has investigated the matter, and in his "Physiological Optics" describes experiments which show that the eyes are capable of detecting a difference between two angles of as little as one minute. This power of discrimination it is that enables us to judge distance by stereoscopic vision, not indeed to judge distance absolutely, but to say which of two objects is the nearer.

To take a concrete example. Let us place two rods or other suitable objects, the one at the distance of 2 metres and the other 2 centimetres further. Let them be nearly in the same line of sight, be perfectly evenly lighted, and have all surroundings cut off, so that there is no means of judging which is the further except the opinion that we form by looking at them. If we do so with one eye only, we could not say which was the nearer, nor could we even if they were much further apart.

With two eyes, however, no one with ordinary vision would have any doubt. One rod "looks" nearer than the other, though why it does we do not and cannot consciously realise.

This power of judging distance is common to all; it has always been advantageous to every member of the human race to judge distance, and to do so continually the whole time that he is awake. Evolution has consequently had its fullest opportunities, and has seized them with marvellous results.

How are we to judge that one of these rods is nearer than the other? Surely by the fact that when we look at it we have to converge our eyes a little more than when we look at the other.

The Delicacy of Human Stereoscopic Vision.

The proximate physical fact that we unconsciously judge by is an appreciation of the comparative muscular efforts to produce the convergence of the eyes on objects at different distances. Taking the eye distance as 65 mm., which is about the normal, the angle eye-rod-eye at 2 m. is roughly 1'57", while at 2 m. 20 cm. it is roughly 1'56". The difference of convergence of the eyes on the two rods is consequently only about 1 minute, and probably 98 per cent. of the population would have no hesitation about which is the nearer, and the remaining 2 per cent. would be found not to have stereoscopic vision at all. But with all reverence for a great name, Helmholtz put the limit far too high. From numerous tests in all sorts of conditions and ages of men and some women, as will be seen in Table I., we find that only in two cases was the angle even half a minute. The general angle appears to be about 10", and

really good men can appreciate with certainty a difference of 2 to 3 seconds.

TABLE I.

Tests at 7 ft. and 23 ft. 6 in. by two observers. Wax matches with red heads level with each other and with the eye. One match can be pulled towards or away on a slide, but nothing but the matches are visible. + means the movable match was set too far and *vice versa* - "0" means less than $\frac{1}{2}$ mm.

Distance 7 ft. 1 mm. = 2.3 sec.	Distance 23 ft. 6 in. 1 mm. = .28"
F. C.	F. C.
-5' -10"	-3'36 +3'36
0 +2'5	-1'20 -'38
-2'5 +2'5	+2'24 +6'72
+2'5 +1'25	+ '84 + '38
-5' +3'75	0 +3'36
+ '5 +10	+ '56 +8'92
+5' 0	-1'20 +16'80
+2'5 0	- '84 +7'84
0' -1'75	+2'80
-5' 0	+3'92
Mean 2'6"	Mean 1'7"
Algeb. Mean -9'	Algeb. Mean -37"

TABLE II.

TEST ON VARIOUS PEOPLE AT 7 FT.

	Age.	Mean.	Max.	
1 D.H.	36	2'3"	3'6"	Engineer. Well-known tennis player.
2 E.C.	80	2'7	5'4	Solicitor. Good billiard player.
3 E.	...	4'5	9	Engineer. Good billiard player.
4 A.T.	46	5'1	9	Skilled observer.
5 T.B.	9	5'2	9	Board-school boy.
6 M.	25	5'8	9	Physical laboratory assistant.
7 M.H.	35	5'8	9	Lady. Very good tennis player.
8 J.R.	47	7'2	14	Physical laboratory assistant.
9 E.	46	9	13	Lady. Good tennis player.
10 C.	45	9'1	14	Skilled observer after good pract. with R.E.
11 S.H.	10	10	21	Board-school boy.
12 R.R.	45	11	36	Engineer.
13 M.	20	11	18	Physical laboratory assistant.
14 H.O.	5	11	45	Board-school boy.
15 E.	9	11'6	27	Board-school girl.
16 O.Ch.	70	15	92	Engineer. Skilled observer.
17 T.R.	6	15'8	31	Board-school boy.
18 Res	50	19	81	Chemist.
19 C.P.	4	22	36	Board-school boy.
20 Hadl.	35	40	68	Engineer.

in repeating the experiments, there are one or two points that are to be attended to in order to ensure that the distance is judged only by stereoscopic faculty.

The lighting must be even and regular, and should be exactly the same as the observer, otherwise shadows may be of great help, and too good results unintentionally obtained.

The background should be fairly uniform, and preferably, at least, far off again as the rods. Ordinary wax matches make excellent backgrounds.

The holders, slides, and all surroundings must be cut off by a screen.

The eyes should be on a level with the tops of the matches. A great deal of most excellent work has been done on stereoscopic vision by Dr. Pulfrich, of Jena, and will be found in his various papers. Among other uses, he has applied it to surveying work, two photographs of the same landscape being taken, at a considerable distance apart, to increase the stereoscopic effect. (The Astronomer-royal at the Cape has also worked on this line.)

The Zeiss stereoscopic range-finder also is principally due to him.

The Stereoscopic Principle in Astronomy.

One of the most beautiful uses made of stereoscopic vision is in astronomical work, and is described in a paper by Dr. Pulfrich, read before the Astronomical Convention at Göttingen in 1902.

Photographs of the same region of the sky are taken at a suitable interval, which may be years apart, and viewed stereoscopically. The stars that have moved during the interval parallel to the line joining the eyes stand out in front of the plane of the others, or retire behind that plane, and are spotted instantly and with certainty. This is the very first stereoscopic effect that we can ever hope to see. If we take two photographs at a year's interval in a direction at right angles to the line of the sun's motion in space, that motion being about 35,000,000 miles per year, when we put the two in a stereoscope we get the effect of a stereoscopic base of about 35,000,000 miles, and as photographs are now taken continually, we will steadily enlarge that base year by year, and century by century.

Stereoscopic Radiography.

Dr. McKenzia Davidson has used stereoscopic vision for X-ray work. An X-ray photograph of a leg, for example, is taken; the tube shifted a few cm. to one side, and another photograph taken. When the two photographs are viewed in a stereoscope, instead of having a flat diagram, all the bones stand out in perspective, and any foreign bodies, such as bullets, needles, etc., can be exactly localised. This has gone further. Two tubes, a little distance apart, are worked alternately. A vibrating shutter in front of the right eye is opened when the left tube is closed, and vice versa. A perfect stereoscopic effect is thus obtained. Incidentally the two photographs need not be equal; one may be so bad as to give an extremely weak picture, and yet the stereoscopic effect will be perfect.

In the same way a man may have one eye very defective indeed, and yet have good stereoscopic vision.

The Range Finder.

It was mentioned above that an exceptionally good man will appreciate as little as 2 to 3 secs. Of course, when working with rods as described there is a feeling that the readings may have been assisted by shadows, or in some way unconsciously "cooked." The figure, however, confirmed by tests with the Forbes' Range-Finder. Now in this case no such chance of error can arise, as there is no question of judging by anything but stereoscopic vision, pure and simple.

The instrument is fairly well known, but a few words of description may be given.

The object is viewed through a prismatic binocular. In the focal plane of the object-glasses of the two sides are two absolutely similar photographs of a balloon on clear glass. The two appear one by stereoscopic vision. If they are both at the centre of the field they appear at the same distance as an object at

practically infinite distance, say, the moon. One of them can be brought towards the other by a micrometer screw, and the eyes must converge a little to still see them as one object. The balloon then appears at the same distance as an object on the landscape, on which the eyes have to converge at the same angle. By moving the screw the balloon can be made to appear to approach or recede till it appears the same distance as any particular object; the range of the latter is then shown on the perfectly divided screw-head. With the ordinary binocular of eight magnifying power, and about 3-in. eye-distance, the range that can be taken to one or two per cent. is limited to about 120 yds., but by adding an arrangement of prisms on a base 6 ft. long, the same effect is produced as if the eyes were 6 ft. apart, and distances twenty-four times greater—say 3,000 yds.—can be taken.

The pointer on the scale can be set autonomously, if one may be allowed the expression, i.e., without reference to any known distance. A reading is taken of any object at suitable but unknown distance, first with the binoculars alone, then with the base added. From these two readings an accurate setting of the pointer can be made.

Very numerous trials have been made with this instrument, both in the Army and Navy and with civilians. The sailor might have been expected to have come out far better than the soldier, owing to his having to exercise his sight more, but there is no noticed difference. The common private in the Army can almost always after half an hour's instruction—often indeed after only five minutes—take a range of about 2,000 yds. accurate to 20 yds. This with a 6 ft. base and eight magnification power is equivalent to 17 ins., and in a very few hours he will be taking 3,000 yds. accurate to about 30 yds.

As might be expected, some men are better than others. One or two skilled Army sergeants give very good results, but this may in some cases be due to other marked causes—general smartness—rather than really better stereoscopic power. But there is one observer we have come across who has distinctly greater stereoscopic power than the average. The first time he saw the instrument was at Bisley. He then looked through it at a target distant some 1,140 yds. and ranged it within 2 yds. first shot. There are two of his readings that may be mentioned. A tower of Holloway College at Egham was just visible among the trees on the sky line. It was a nasty object—that is, its surroundings made the stereoscopic effect difficult to get. Five readings of this were taken, and the middle one of them—which has always been found far more reliable than the mean—gave the distance, 10,740 yds. as measured in the Ordnance Map, correct to 100 yds. in 10,000. This gives 7 ins. on a bad object at very long range indeed. Another case was at Gibraltar—same observer. His readings on the corner of a castle were 2,147, 2,149, 2,149, 2,147, 2,147, 2,145.

Here then we have five successive readings, the maximum difference being 4 yds., which, with eight magnifying power at 2,000 yds., means an angle of 2.8 secs. as maximum error. His note on this says:—"The scale of instrument at this range does not permit of accurate reading to less than 5 yds., but knowing that the greatest possible precision was wanted I estimated the values of very slight differences in a set of almost identical readings. I might have entered them all as identical except the last."

When he had finished he was told by the R. E. Captain before whom he was working that the distance was 2,451 yds. He thereupon checked his Range-finder autonomously, found it perfect, and asked to have the R. E. measurements checked, as they were certainly wrong. They were re-checked, and the actual distance was found to be 2,145.7 yds.

Light, atmosphere, and object were no doubt perfect; but that merely means that there were no opposing elements, not that there was any assistance from any other source. The distance was measured repeatedly and accurately by the stereoscopic power, and that alone; that reduces Helmholtz's 1 minute to about 3 seconds.

C. W. S. CRAWLEY.

THE PRINCIPLES OF TRICHROMATIC PHOTOGRAPHY.

(A paper read before the Optical Convention on June 2.)

The most successful processes, up to the present, of photographically reproducing the colours of objects are those founded primarily upon the fact that all common colours can be imitated by mixtures of the three primary colours, red, green, and blue.

Processes of this class readily fall into two groups—those in which a final picture is produced by the addition of the primary colours in projection, as in Ives' Kromskop (positive synthesis), and those where the primary colours are absorbed by the pigments used for printing, such as Lumière's transparency process and typographic colour-printing (negative synthesis). This latter is the only aspect of the subject which has assumed much commercial importance.

Colour-mixture Curves and the Reproduction of the Spectrum.

The idea of reproducing the spectrum by a photographic process

founded on Maxwell's colour-mixture curves is a simple one. The ordinates of these curves give for every part of the spectrum the proportions of the three primary colours necessary to give the closest match to the hue. If three photographic negatives of a spectrum of white light could be obtained whose opacities correspond exactly to these curves, and if from these, transparencies (positives) were made in which the transparency followed the same curves, and then images of these projected on a screen in their proper positions and illuminated each by its own particular primary light, then Maxwell's operation of matching each part of the spectrum by mixtures of red, green, and blue lights would have been accomplished photographically, and the reproduction would be perfect except for a slight degradation with the sensation of white in the yellow and blue-green regions and the loss of the violet if the pure blue had been taken as one of the primaries.

Theories of Colour Photography.

Before entering into detail regarding conditions imposed by the nature of ordinary colours and the properties of photographic plates, it may be well to review some of the numerous hypotheses that have been advanced upon this subject, of which naturally not more than one can be correct, bearing in mind that the usual problem is not necessarily to reproduce all monochromatic hues, but the colours which are commonly met with in Nature.

The principal hypotheses may be grouped under five headings:—
1. *Colour-Sensation Curves.*—These have been made the foundation of a few hypotheses. According to one authority, the densities of the negatives of a spectrum should follow these curves,¹ or the colours photographed should be those most representative of the primary sensations.² This latter would seem to indicate that they should be somewhat narrow bands.

Dr. Clay, taking Sir William Abney's colour-sensation curves as a basis, has worked out the curves that should be followed by the negative records in reproducing the spectrum in order that the degradation of the colours should be with the sensation of white only. In this connection he points out that inks with abrupt absorptions give rise to purer sensations than those with gradual absorptions.

2. *Colour-Mixture Curves.*—Mr. F. E. Ives, one of the pioneers of three-colour work, is the chief exponent of the idea that the density of the negative records should follow the colour-mixture curves,³ Von Hübl admitting the possibility of the hypothesis being correct. Mr. Ives' specification of the printing colours is that they should be those most anti-chromatic to the colours photographed, and evidently intends that the absorptions should be gradual.

Many writers have unfortunately written upon this subject, and confused the sensation and mixture curves, although the functions represented are totally distinct.

3. *Negative Records Derived from the Ink Absorptions.*—The method of adjusting filters and plates put forward by Von Hübl consists in determining the "middle absorptions" of the printing colours and calculating curves for the negative records, whose maxima are in the same positions as these absorptions, and which terminate at the adjacent "middle absorptions." It is, however, interesting to note that he appears to make but little attempt to carry this idea out in practice, relying rather upon the indications given by a colour chart.

4. *Equal Division of Spectrum.*—Both Dr. Adolf Miethe and Mr. Howard Farmer consider that the filters should divide the spectrum into three parts without any overlapping at about λ 6,000 and λ 5,000, although in one of his papers Dr. Miethe describes a method of introducing an artificial overlap effect by giving short supplemental exposures through the other filters.

5. *Regulated Overlap.*—Two considerations, firstly that photographic action does not follow a straight line law, and secondly, that filter records following extended curves would reproduce certain colours with the addition of actual white or the adjacent spectrum colours, have led the author, in conjunction with Messrs. A. C. Jolley and A. J. Newton, to develop this hypothesis, and to follow it out in practice.

In this method of working, negative records of a normal spectrum are made as even, and to terminate as abruptly, as possible. The region of the spectrum in which the red and green records overlap is reproduced by the printing colour of the blue negative, a yellow. Similarly the part photographed by both the green and blue negatives is rendered by the blue-green pigment used in printing from the red negative.

In any photographic process the ink, etc., is printed from the parts which are transparent in the negative, i.e., where the light has not been recorded, so that in printing in pigments these should absorb all the light photographed by the negative from which they are printed and be transparent to the light not so recorded. This gives the following inter-relation between the negatives and printing colours:—That the sum of the colours of the region of overlap between the red and green negatives should accord as nearly as possible in hue with the sum of the colours not recorded by the blue negative, and also that the colours not recorded by the red negative should match those in the overlapping region of the blue and green negatives. These regions have been selected and matched visually,⁵ but owing to the fact that in each case the colours having the more extended composition stimulate the third sensation more than do the colours of the overlapping regions, and also because these latter regions occur in those parts of the spectrum where the hue changes most rapidly, and is not always seen in exactly the same manner by different eyes, the matches cannot be made with any great degree of accuracy. It is, however, interesting to note that filters and plates

adjusted on these principles have given under comparative test superior results to all other obtainable filters (twelve in number).⁶

So far as work along these lines has gone, it shows that the three negative records should, as far as is possible, extend evenly between λ 7,000 and λ 5,800, λ 6,000 and λ 4,600, and λ 5,000 and λ 4,000, the corresponding printing colours absorbing these regions and transmitting the remainders.

This system of three-colour reproduction tends in practice to render the varying hues of the spectrum by five patches of uniform colour.

Some Consideration of Negative Records Intended to Follow Curves.

The adjustment of a light-absorbing medium to correct the sensitiveness of any photographic plate so that the effect should follow some premeditated curve is a matter of great difficulty—so great that, in spite of several claims that have been put forward, it is a matter of great improbability that anything in this direction has even been accomplished, the few filters of this type which the author has examined not being very successful.

Suppose, for instance, that a record was required with a maximum in the orange at λ 6,100, the curve sloping in some particular manner down to the end of the red on one side and to some point in the green on the other. Now, as far as gelatine plates are concerned, the sensitiveness of even the best panchromatic ones is extremely low to the region λ 7,000 to λ 6,300, in but few of them can the record be pushed beyond λ 6,500, unless they are screened from the action of the shorter wave-lengths and given greatly prolonged exposures; so that it would be practically impossible to effect the adjustment required. Again, the various bands of comparative insensitiveness that occur in the green and blue-green with the best modern sensitizers would greatly increase the difficulty of making adjustments to curves in this region.

But if the adjustments were possible, the curve effect required could only be obtained when exposing to the spectrum at some one critical exposure and developing to a particular development factor, for since photographic action does not follow a straight-line law, any increase or decrease in the exposure will cause an alteration in the shape of the curve, the densities of the various parts not increasing or decreasing in the same ratios. Now an ordinary negative consists of a photographic plate which has received various exposures according to the light and shade of the original; such a filter and plate would therefore be acting in a different manner in different parts of the same negative. Variations of this nature can be followed by giving various exposures to a spectrum, in proportion to the variation of light and shade in any picture. These variations have been found to be considerable in some cases.

It is for this reason that test-charts of light colours, such as those published by Von Hübl and by Eder, are of limited utility, since while they may be well rendered, a picture with greater contrast of light and shade photographed on the same negatives may be so indifferently reproduced as to be almost useless.

Relation of Ordinary Colours and Monochromatic Colours as Regards their Reproduction.

It does not of necessity follow that if a set of filters and plates could be made to reproduce a spectrum of pure colours exactly that it would render ordinary colours well, although this point is often assumed as being self-evident.

To render a spectrum correctly by positive synthesis the negatives must follow the colour-mixture curves. Negative synthesis would require either these same curves or some derived directly from them (probably the former), but the ordinary colours of objects would, because of their complex composition, be rendered too light in many cases. A red colour, for instance, which reflects light of the red end of the spectrum up to perhaps λ 6,000, would be photographically recorded to some extent by the green negative as well as the red, instead of by the red only. So that in the reproduction insufficient crimson would be printed on the yellow, resulting in too orange a hue.

An orange colour reflecting the red, yellow, and part of the green of the spectrum might be well rendered, but a yellow which reflects all the light between λ 7,000 and λ 5,000 would be rendered much lighter because of its being recorded in the blue negative. The case in which this effect would be the most marked would be that of a green colour.

Fundamental Requirements of the Reproduction of Colours.

It is necessary, quite apart from their relations to the negatives, that the colours employed in building up the final pictures shall themselves be capable of reproducing all ordinary colours by suitable mixture or super-position. For positive synthesis they must be the primary colours—red, green, and blue, or blue-violet; but they need not consist of monochromatic lights only. Fairly broad bands of the spectrum may be taken provided that they are not more impure than any colours likely to occur in practice. Negative synthesis requires that the primary colours may be produced by superposing the printing colours in pairs—that is to say, the yellow and crimson should give a red as pure as any that are ordinarily met with, which means

¹ *Instruction in Photography*, by Sir Wm. Abney, 10th ed., pp. 342-350.

² *Sixth Traill Taylor Memorial Lecture*, by Sir Wm. Abney.

³ *Third Traill Taylor Memorial Lecture*, by F. E. Ives.

⁴ *Three Colour Photography*, by A. F. Von Hübl.

⁵ *The Functions of Tri-Colour Filters*, by A. J. Bull and A. C. Jolley (*Brit. Opt. Jour.*) Jan. 1904.

⁶ "The Practical Performance of Tri-colour Filters," by A. J. Newton and A. J. Bull (*Photographic Journal*), October, 1904.

that these two colours between them must absorb the spectrum yellow, green, blue, and violet, leaving the red and orange-red only. Similarly the superposition of the yellow and blue-green must effect the absorption of all parts of the spectrum not sensibly green in hue, i.e., the spectrum red, yellow, blue-green, blue, and violet, and the crimson and blue-green must together absorb the red, yellow, green, and blue-green. This indicates that the crimson to be used should absorb the yellow, green, and blue-green; the yellow should absorb the blue-green, blue, and violet; and the blue-green the red and yellow of the spectrum. This corresponds with the properties of the printing colours as indicated by the method of regulated overlap.

Among the defects that occur in the reproduction colours for negative synthesis the most serious are in the blue-green, where there is generally a want of transparency to the green and an incomplete absorption of the red. These cause a darkening of the greens and a difficulty in obtaining blacks and greys free from a red tint.

The crimson is seldom as transparent to the blue and violet as it is to red, so that when superposed on the blue-green it produces a purple instead of a blue-violet, also as the spectrum yellow is often transmitted, the red given in conjunction with the yellow is too orange in hue. There is no difficulty in obtaining a suitable yellow.

In the staining of gelatine reliefs, fast green B.S., erythrosin, and brilliant yellow are very good dyes to use.

Inks for block-printing are generally much inferior in their properties to the dyes for making transparencies. In many cases the makers put forward inks which not only possess the defects mentioned in a most marked degree, but also the yellow is too pale, reflecting more blue than is necessary, and making the hue obtained by printing the blue ink on it a blue-green instead of green. Under these circumstances greens and yellow-greens are only produced by additional fine etching. Another serious defect with tri-chromatic inks is that they are never sufficiently transparent, so that they have

to be printed in the order of their opacities, which is usually yellow, crimson, blue.

The Mutual Adjustment of Filter Records and Reproduction Colours.

The adjustment of the filters to the inks, or the selection of suitable inks for certain filters, is often considered essential. The adjustment usually consists in making the filters reproduce the inks—that is, each filter and plate must record two of the inks equally while not photographing the third.

With the red negative there is no difficulty in recording the red and yellow inks equally, but in order to make the blue-green ink photograph equally with the yellow, the green record must be extended into the blue considerably, with a consequent loss of green. The effect of this is prejudicial to the reproduction of greens, as the whites are recorded with greater densities in the negative than any bright greens, so that more crimson is printed on the greens than on the whites.

The blue negative, if it records the visible blue and violet only, will photograph the blue ink more than the crimson, because of the deficiency of blue in the latter. But as most of the crimson inks in use reflect more ultra-violet than violet, the records of these two inks may be approximately equalised by recording the violet and ultra-violet rather than visible light only. This adjustment produces its own defects on certain colours. Many reds, browns, and oranges, for example, reflect some ultra-violet, and this being recorded in the blue negative prevents sufficient yellow being used in their reproduction, thereby giving them a violet tint. Blue colours, too, may also be affected. So that, if the filters and plates are adjusted to copy the inks when these are defective, incorrect effects will be introduced in the rendering of colours which differ from them. The better plan is to adjust the filters and plates to approximate as closely as possible to theoretical requirements, and to independently follow the same course with the reproduction colours.

A. J. BULL.

POSSIBLE DIRECTIONS OF PROGRESS IN OPTICAL GLASS.

(A paper read before the Optical Convention on June 3.)

THE epoch-making work of Schott and Abbe, and its developments at the Jena works, have made and are still making their mark in every field of optics; but while fully valuing this work and the results which have flowed from it, the writer is inclined to deplore one consequence to which it seems to have led—namely, a species of contentment with results already achieved, and a concomitant slackening of the demand for further advance. The progress in optical glass during the past twenty-five years has not, in all probability, exhausted the possibilities of homogeneous transparent media which might be made available to the optician. Quite recently we have witnessed the introduction of microscope lenses made of fused silica, and of glasses made particularly transparent to ultra-violet light, while the use of the natural mineral fluorite in certain microscope objectives illustrates the fact that the glass-maker has not as yet met all the desiderata of the optician. The probability is, however, that in this field all the easier tasks have been accomplished, and that thus the fairly obvious commercial possibilities of optical glass have been exploited. If this be so, further progress must depend upon investigations made for scientific purposes and not undertaken commercially. It is, of course, more than likely that commercial success might ultimately reward an investigation of that kind, but the probabilities of such an issue are not sufficiently clear to encourage anyone to embark on such a task on purely business principles. It is interesting to recall the fact that the great development of optical glass, which has originated at Jena, began as a purely scientific research, rendered possible by the timely financial aid of the Prussian Government. It is perhaps permissible to express the hope that if on fuller consideration the investigations outlined in the present paper are found sufficiently promising to be put into practice, this forward step may not be left to be taken by workers in other countries.

Media other than Glass.

Leaving aside for the time all questions of ways and means, the present paper is intended to point out some possible directions in which transparent media, widely different from optical glasses as now available, might be sought. For obvious reasons, the author proposes to deal with the question rather from the physico-chemical standpoint of the modes of production of such media than from the point of view of their most useful application; he is, however, sufficiently acquainted with the requirements of opticians to be aware that a wide extension of the available range of optical materials would be warmly welcomed, and would be likely to lead to great advances in optical systems. It should perhaps be explained that the term "transparent media" has been designedly used in preference to the more familiar word "glass," because the author believes that, at all events in certain cases, the substances in question can only be obtained in the crystalline state, to which the term "glass" cannot be legitimately applied.

Conditions of Glass-making.

On looking at the lists of optical glasses now available, one is struck by the fact that the limits between which the chief optical

constants vary throughout the entire range of glasses are distinctly narrow. The refractive index always lies between 1.46 and 1.90 while the constant generally designated by the symbol ν varies from 67 to 29, and in estimating this range glasses are included which are not well suited to most practical uses. The question naturally arises whether these limits are purely accidental or whether there is some physical fact at their basis. In favour of the latter view considerable evidence is to be found, principally in the nature and behaviour of the glasses which form the extreme members of the existing series, and particularly of those in which the relation of dispersion to refraction is abnormal, i.e., in which a high refractive index is combined with a low dispersion. In order to appreciate this evidence, and also with a view to leading up to ideas required in a later part of the present paper, it will be desirable to briefly consider the physico-chemical conditions governing the production of a glass.

In the fused state a glass may be regarded as a homogeneous solution of a number of chemical compounds; in solidifying when cooling, such a solution may behave, so far as the final result is concerned, in either of two ways: in one case solidification begins sharply at some definite temperature dependent only on the chemical composition of the mass, and the absolute pressure, and the resulting solid mass, when cooling has been carried far enough for complete solidification, forms an aggregate of crystals; in the other case, cooling continues without the occurrence of a definite change at any definite temperature, the liquid gradually becomes more and more viscous, until at a sufficiently low temperature the viscosity is so great that the mass has most of the properties of a solid, and crystallisation is permanently inhibited. It is probably a sound generalisation to say that, under suitable conditions, any fluid could be made to undergo either of these processes, i.e., could be caused to solidify in the vitreous, amorphous state, or in the crystalline state.¹

The conditions which govern the mode of solidification resulting in any particular case vary considerably with the chemical nature of the substances in question; as in our ordinary laboratory and industrial operations the rates of cooling do not vary very widely, it is ordinarily stated that some substances, such as silicates, naturally assume the vitreous state, while metals habitually assume the crystalline state; but—theoretically, at all events—this is merely a question of the rate of cooling and of the absolute pressure. As a matter of fact, in the case of 153 substances chosen at random by Tammann, 59 could be obtained in the vitreous state, while only 22 could not be seriously undercooled; on the other hand, every known vitreous substance, with the exception of boric anhydride, can be caused to crystallise by suitable treatment.

Artificial Conditions of Cooling.

Taking, then, the conclusion that glasses are simply greatly undercooled liquids produced by a rate of cooling sufficiently rapid to

¹ For some of the facts and many of the theoretical deductions contained in this section the author is indebted to Prof. G. Tammann, whose book, "Kristallisieren und Schmelzen" (Barth, Leipzig 1903), is an exhaustive treatise on these questions.

prevent crystallisation from setting in during the passage through the critical range of temperature, the behaviour of extreme glasses in this respect may be considered. It is a statement amply justified by experience, that when the chemical composition of a glass flux is altered with a view to obtaining extreme optical properties, the tendency towards crystallisation increases rapidly. Up to a certain point this can be and is overcome by accelerating the cooling of the glass, but it cannot be carried further without breaking the mass down into useless fragments, and this forms one of the limits to the range of optical glasses in several directions. Possible means of overcoming this difficulty is, indeed, suggested by one of Tammann's conclusions. He has shown that, for certain chemically homogeneous bodies the melting-point is raised by raising the absolute pressure, ultimately reaching a maximum value. It follows that a more rapid passage through the critical range would be possible when the position of that range on the temperature scale was considerably raised. Consequently glasses which show too great a tendency to crystallise under ordinary conditions might be retained in the vitreous state by cooling rapidly under pressure. The pressures required are, however, enormous, and under existing conditions the application of this interesting theoretical conclusion to practice does not seem possible.

Chemical Limits to Variations in Optical Glass.

Returning to the natural limitations in the production of optical glass, it is a further fact of some importance that all extreme glasses are of the nature of very active chemical agents, both in the fused state and in the ordinary solid condition. The latter fact has eliminated from practice a large number of glasses of most desirable optical properties, as they proved entirely unstable in contact with the atmosphere; while the former condition imposes a limit on the production of such glasses on account of the destruction of the vessels in which the glass is melted. It is, however, a curious fact that the tendency of such extreme glasses in the fused state is to take up from surrounding bodies such substances as will tend to change the optical properties of the glass *towards*, and not away from, the "normal" condition.

The conclusion to which the author is thus inclined to come is that the range of optical glasses is limited by physical and chemical conditions which are intimately connected with the optical effects of the glasses, the most serious of these limiting causes being the tendency to crystallisation. On Drude's electro-magnetic theory of refraction and dispersion, the optical constants of a glass depend upon the position of its absorption bands in the ultra-violet or the infra-red region of the spectrum, and it is possible that the constitution of molecules, or groupings of molecules, requisite to effect the absorptions correlated to "abnormal" optical constants, is such as cannot readily exist without the additional support or stability derived from crystalline arrangements.

Crystallisation—the Direction of Experiment.

From the considerations here advanced, the author is inclined to draw the conclusion that any considerable extension of the range of available optical glasses is not likely to be made on lines at all analogous to those pursued in the production of glasses. The most promising direction of progress is to be found, in his opinion, by accepting the limitations discussed above, and in fact taking the line of advance indicated by the most serious of those limitations, viz., the tendency to crystallisation. The object to be aimed at, then, becomes the production of crystals of composition and properties suitable for optical uses. It must, of course, be admitted at the outset that the task is an exceedingly difficult one, but probably not more so than the problem of the production of homogeneous optical glass in large masses must have appeared to the men who attacked that problem a century ago. Before, however, dealing with some of these difficulties in detail, it will be well to consider some of the definitely known factors of the question.

In those cases which have so far been measured, a considerable difference has always been found in the optical behaviour of the same chemical substance in the vitreous and the crystalline condition. This is well known in the case of silica, and in the case of several experimental glasses produced by the author, of chemical composition identical with that of certain minerals, the same fact was met with, but to a still more marked degree. In these latter cases, the optical behaviour of the crystalline mineral was very "abnormal," and here again the change produced by the conversion into the vitreous state was in the direction of more normal optical properties. The author has also studied the crystals formed during the slow cooling of some optical glasses of extreme properties, and so far as microscopic methods would permit of their determination, these crystals also differed widely in optical behaviour from the glass in which they had been formed. These facts are referred to here because the author wishes to emphasise the fact that he is not advocating the attempt to produce novel glasses by the imitation of the composition of minerals of promising optical properties, nor yet the attempt to obtain in optically

useful form the crystallisation resulting from the "devitrification" of extreme optical glasses, as he does not regard either of these processes as particularly promising. The course that is most likely to lead to valuable results is arrived at from considerations of the conditions to be fulfilled by a crystalline material that is to be used for optical purposes.

Practical Requirements for Crystalline Refractive Media.

The first of these conditions is, of course, transparency, and the exclusion of all colouring oxides thus becomes imperative; the great majority of natural minerals are ruled out by this condition. The condition of perfect transparency also demands that individual crystals of sufficient size can alone be used, crystalline aggregates being useless; for anything beyond the smaller microscope lenses, therefore, the production of large and perfect artificial crystals would be essential. Also, where the optical system is intended for the transmission of rays at a considerable angle to the axis, double refraction in crystals would be a fatal objection, and this condition restricts the available materials to those which crystallise in the regular system. Finally, the optical properties of the artificial crystals sought must be of special value to the optician.

Guides to Experiment.

The only possible preliminary guidance in the study of this question is to be derived from a knowledge of the optical properties of natural crystals of the regular system. Unfortunately, the optical properties of most of these have only been studied hitherto with a view to their identification by the mineralogist. A preliminary to the course of investigation here suggested would therefore consist in the detailed investigation of the optical properties of natural minerals, from the optician's point of view, and for a reason to be presently given, the coloured minerals should not be excluded from this study. Even this preliminary investigation is beset with difficulties, owing to the fact that many mineral varieties could only be obtained in very small pieces. Modern optical appliances should, however, overcome this difficulty. As a preliminary indication of the range of optical properties likely to be met with, the following table of refractive indices of minerals crystallising in the regular system is given, being taken from Rosenbusch's "Hilfstabellen zur Mineralbestimmung."

TABLE OF NATURAL MINERALS CRYSTALLISING IN THE REGULAR SYSTEM.

Name of Mineral.	Optical Properties.		Empirical Chemical Formula.
	n_D	v	
Opal	1.45	...	$\text{SiO}_2 + i q$
Spinel—			
Spinel	1.715	...	MgAl_2O_4
Hercynite	1.749	...	FeAl_2O_4
Gahnite	1.765	...	ZnAl_2O_4
Chromite	2.096	...	FeCr_2O_4
Fluorite	1.4388	95.4	CaF_2
Garnets	1.747 to	...	(Ca, Fe, Mn, Mg)
	1.812	...	(Al, Fe, Cr, Si, O) ₁₂
Leucite	1.508	...	(K, Na, Al, Si, O) ₁₂
Sodalite	1.484	...	(Al, Fe, Cr, Si, O) ₁₂ + NaCl
Hauyn	1.496	...	2(Ca, Al, Si, O) ₁₂
Zeolite	1.483	...	Na, Al, Si, O ₁₂ + 2Aq
Perowskite	2.38	...	CaTiO_3

(From H. Rosenbusch, *Hilfstabellen zur Mikroskopischen Mineralbestimmung in Gesteinen*, Stuttgart, E. Koch, 1888.)

It will be seen from this table that a very considerable extension of optical properties would be made available by the artificial production of these minerals in an optically useful form, but it must be remembered that the minerals shown in this list do not represent the available extremes, as a large number of crystalline bodies are known in the laboratory of the inorganic chemist whose properties of hardness and permanence would fully equal those of the natural species, while their artificial production would probably present no greater difficulty. Further, our knowledge of the nature of crystals enables one to foresee that in all probability a very great range of intermediate species, and even of more extreme varieties, might be produced, principally by two well-known methods of changing the properties of crystals—viz., by the substitution of one chemical element for another of the same group, either wholly or in part, and by the production of mixed crystals or solid solutions. In connection with the former mode of procedure, it would be interesting, for example, to obtain a fluorite in which the calcium had been replaced by magnesium, or by strontium or barium, substitutions which would in all probability be readily effected once the method of artificially producing fluorite crystals had been mastered. Colourless analogues of coloured minerals might also be obtained in this way.

Mechanism of Artificial Crystallisation.

With these indications of the possibilities of the field, it remains to consider what is our existing knowledge of the artificial production of mineral crystals, and especially of large crystals. It is, of course, well known that a great number of natural minerals have been produced artificially, but so far as the author is aware, considerable gaps remain to be filled up; that these minerals have as yet been produced in large crystals is also well known elsewhere the world would long have been flooded with artificial precious stones. On the other hand, recent advances in physical chemistry have greatly extended our knowledge of the mode of formation of crystals, and have elucidated some of the conditions which govern their rate of growth and the size attained. In a general way, it has long been known that gradual solidification, either in the molten or dissolved state, is favourable to the formation of large crystals, but the work of Tammann has thrown further light on this subject. He has studied the formation of centres of crystallisation in variously undercooled liquids, by exposing the liquid in question to a certain degree of under-cooling for a fixed time. A certain number of centres of crystallisation are formed under these conditions, but if the under-cooling is sufficient to remain entirely invisible for a very long time, as, owing to the diminution of the rate of crystalline growth with fall of temperature, the rate of crystallisation is too slow; this rate is, however, readily accelerated by raising the liquid to a temperature below its normal freezing point, and the previously invisible centres of crystallisation are then developed into small crystals, which may be counted. This process is interesting in the present connection because it suggests a means, in certain cases, of regulating the number of centres of crystallisation formed in a given mass of liquid by suitably timing its exposure to a low temperature; only a very few such centres be allowed to form, and the liquid reheated to a suitable temperature and maintained there.

comparatively rapid crystallisation might be allowed to take place compatibly with the production of large individuals. It should perhaps be recalled in this connection that the matrices from which crystallisation takes place are frequently solid, and that, no doubt, the above order of ideas is equally applicable to these. Perhaps the most important inference in the present connection from these results of modern physico-chemical research is that extremely slow cooling through very wide ranges of temperature is not, in many cases, essential to the production of large crystals, but that the rate of passing through certain easily ascertained critical temperatures is the governing condition; this renders the whole problem much more hopeful of practical solution, since modern electrical methods render the accurate measurement and control of high temperatures possible. The natural process of mineral formation has no doubt, as a rule, involved extremely slow cooling through the entire range, but it seems that for practical purposes it will only be necessary to imitate a very small part of this process, so that hours instead of centuries may suffice.

Another large class of crystalline bodies is formed without the intervention of fusion, and the mode of production of large crystals from aqueous solutions is already well known where their production depends on deposition from ordinary solution. Further possibilities are presented by the gradual formation of crystalline substances insoluble in the liquid present, by gradual chemical action between dissolved bodies. Crystalline bodies may also be formed by deposition from the gaseous state, and the influence of temperature, pressure, and ionisation on these actions remains to be studied.

The object of the present paper being rather to indicate the possibilities of progress, it would not be profitable to pursue these questions any farther. The author believes, however, that enough has been said to show that in the study of the nature and mode of production of large mineral crystals may well lie the key to further progress in optical materials.

WALTER ROSENHAIN, B.A.

REMINISCENCES OF THE DUBLIN CONVENTION OF 1894.

As often been asked which might be considered the most successful Convention held since the movement or gathering was first inaugurated in 1886? Well, as Dogberry observes, "comparisons are odious," and it might seem invidious to single out one particular meeting. The majority have been good; several have been very enjoyable without leaving any particular mark on the memory; but among those standing out in bold relief must certainly be included the Dublin Convention of 1894.

Those who were present have alluded to it scores of times, and they are undoubtedly looking forward with pleasant anticipation to the meeting which will take place in Ireland from the 10th to the 15th of next month.

"Dear, Dirty Dublin."

Ireland is unlike any other place that I am acquainted with, the people are unlike any other people; and a very beautiful country and a very charming people they are. "Dear, dirty Dublin," has many attractions, and even the three hours' sea passage which divides us from it is a most enjoyable time to many.

Of course, the St. George's Channel is a little breezy at times; but the English Channel; so are several other Channels; but good weather should prevail in July, and the Convention meetings in that month have been very fortunate in this respect.

In recounting a few reminiscences of the 1894 meeting it will perhaps be better to begin at the commencement, and take them in order.

En Route.

Common with many others bound Dublinwards, I started on the evening, and nothing very remarkable occurred until the train arrived at Chester. Here we heard a well-known voice inquiring if the train went to Ireland. We opened the door and let him in. It was accompanied by a stereo camera, and the speaker informed us there were several "more of us" in other compartments—a statement fully borne out on our arrival at Holyhead.

We duly embarked, and then began the transfer of the luggage. Well, I've seen luggage knocked about pretty considerably in my time, but nothing to be compared with this. It was simply disgraceful. One can understand there is not much time to spare, but that is no fault of the passengers. Better start a little earlier, or arrive in Dublin a little later, than get your luggage ill-treated like this.

A Traveller's Story.

I mentioned the matter to a gentleman I met in Dublin, but he did not seem to think much of it. "I've heard that same before, Sorr," he said, "but I don't know it. When I went to London awhile ago with my brother-in-law and his wife, we took a trunk with us that had been in the family for generations. Well, Sorr, when we came back again, after three weeks, that ould thrunk was as good as new!" Notwithstanding this story, I recommend all conventioners not to let their cameras or plate-boxes out of their possession.

The journey over was fairly good; the boats commodious (although infinitely inferior to those running at the present time), and beyond some of us looking a little pale, we were none the worse when, in the early morning, we came in sight of beautiful Dublin Bay; a slow journey up the Liffey, and then we made fast at North Wall. A jaunty car (hold tight, please!), and in a few minutes (and, of course, an argument with the car driver) we were comfortably housed at Hammam's. By-the-bye, attached to Hammam's there are Turkish baths. These were such a fascination to one of our members that he had one every day, sometimes two. By the end of the week his weight had been considerably reduced—he could button his waistcoat the whole way down, and wear his dress suit without discomfort.

Observant Church-goers.

Sunday.—It need scarcely be said that the Executive of the Convention never attempts to exercise any direct influence over the

members with regard to their devotions. Whether they are Protestants, Catholics, nothingites, or belong to the various sects which the Irish sergeant called "fancy religions," they "gang their ain gait," and go anywhere or nowhere, according to their own sweet will. Still, whether it is due to the excellent example set them by members of Council or not, one thing is quite certain, viz., if they arrive on the Saturday or Sunday morning previous to the Convention, their attendance at the more important churches is a very noticeable feature; and in this respect the Dublin meeting was all that could be desired. Some went to Christ Church, some went to the Cathedral, some to both, and seemed all the better for it—at any rate, photographically. The way they went to the best spots the next day and planted their cameras unhesitatingly in the various naves and aisles was little less than inspiration.

There are some excellent pictures to be obtained in both the above-mentioned edifices. Christ Church—restored a few years ago by a Dublin merchant at a cost of something like £25,000—is a very fine building, with a very fine organ. St. Patrick's Cathedral—with its memories of the eccentric Dean Swift—is also very interesting, and an entire day could be well spent in either of these buildings.

Possibly the verger at the Cathedral is not the same now as in 1894. The gentleman who obligingly explained things to us at that time was so mixed in his dates that we had to come to the conclusion that in some instances the windows had been put in before the church was built.

Penalties of Fame.

One incident on this particular Sunday I have never forgotten. I have mentioned before that the Hotel Metropole was regarded as headquarters. Passing there about six o'clock, we were surprised to find quite a number of people looking up at the first-floor balcony. The road was partially blocked by jaunting cars, and everybody seemed on the tip-toe of expectation.

There is a story told by a lady member of the Convention that when she was going away for her honeymoon some years ago, she was much perturbed because every time the train stopped at a station she heard the church bells ringing a merry peal; she naturally connected it with her wedding day, and quite forgot the fact that it was our late Queen's Jubilee. Just in the same way I concluded this excitement must have to do with the Convention, and felt quite flattered at the interest taken in it by the populace. I had during the day heard that the Lord Mayor had invited the members to a garden party at Killiney, and thought possibly he had come to our headquarters to make the personal acquaintance of some of our principal members who were staying there—or, possibly, it was the people's appreciation of our President, Sir Howard Grubb, who had called to see some old friends.

More people, more Jarveys, more shouting. On the balcony stood many prominent conventioners, including (if I remember rightly) Messrs. York, Cembrano, Cox, Lawley, Traill Taylor, Henderson, Kidd, Howson, Cowan, Welford, Stuart, Keene, Fall, Hindley, Sturmev, etc., all looking pleased and interested. After some further delay and manifest impatience on the part of the crowd, the centre door of the balcony opened, and there stepped forward a strapping young fellow of about thirty. His appearance was greeted with deafening shouts, waving of handkerchiefs, and whips. The uproar was terrific. It was a little puzzling—not Sir Howard Grubb, evidently; must be the Lord Mayor. So I remarked to a gentleman standing near. "Rather young for the Mayor of a large city like this, isn't he?" "Mayor!" said he; "don't you know who that is? That's Corbett, the prize-fighter!"

(Curtain.)

F. A. BRIDGE.

[Further reminiscences of the 1894 Convention will appear next week to strengthen the intentions of any who may not yet have finally decided on going to Dublin this year.—E.S., B.J.P.]

AN APPEAL TO CHARITY.

THE MAWDSLEY FUND.

WE are glad to record a liberal response to our appeal of last week for Mr. Peter Mawdsley, who now, at the age of eighty years, finds himself without the means to provide those slight comforts which his present illness renders all the more necessary. It is our pleasant duty to thank those who have lent a helping hand to our old friend in his distress. We have been in communication with the Rev. Canon R. F. G. Smithwick, who has been good enough personally to interest himself in the case, and to whom we are indebted for assistance in the administration of the money. A small sum has been disbursed to relieve immediate necessities, and we will announce in a later issue the manner in which it is proposed most advantageously to apply the total sum which may be subscribed. As announced last week, any small donation may be sent to ourselves or to Canon Smithwick. The following are the further donations received up to going to press (Wednesday morning):—

	£	s.	d.	£
Amount already acknowledged ... ..	...	...	...	7
Fred. Hollyer, Esq. ... ..	...	2	2	0
Col. Jas. D. Lysaght, A.P.D. ... ..	...	2	0	0
"H.A.L." per Rev. Canon R. F. Smithwick ...	...	1	1	0
Arthur Marshall, Esq., A.R.I.B.A. ... ..	...	1	1	0
Alexander Cowan, Esq. ... ..	...	1	1	0
Geo. S. Watson, Esq. ... ..	...	1	1	0
Geo. Mansfield, Esq. ... ..	...	1	1	0
Miss Sarah A. Acland ... ..	...	1	0	0
Carslake Winter-Wood, Esq. ... ..	...	10	6	
J. C. Warburg, Esq. ... ..	...	10	6	
G. W. Green, Esq. ... ..	...	10	0	
Miss M. C. Eames ... ..	...	5	0	
"W.S.A." ... ..	...	5	0	
"A.L." ... ..	...	2	6	
C. R. Pearce, Esq. ... ..	...	2	6	
				12
				£20

FORTHCOMING EXHIBITIONS.

May 10 to June 19.—Salon of the Photo Club de Paris. Secretaries, Paul Bourgeois, 44, Rue des Mathurins, Paris.

July 4 to August 12.—Northern Photographic Exhibition. Secretaries, F. G. Issot, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Sai Esprit, Liège.

September.—Royal Photographic Society, New Gallery, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretaries, S. G. Kimber, Oakdene, Highfield, Southampton.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Squant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretaries, F. J. Lawton, 5, Pembroke Road, Portsmouth.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern Photographic Association. Hon. secretary, William H. Frame, 28, Bank Street, Hillhead, Glasgow.

FORTHCOMING COMPETITIONS.

June 15.—Warwick. Money prizes for members of photographic societies for pictures taken on Warwick Dry Plates. Warwick Dry Plate Company, Warwick.

September.—Kodak. £400 in prizes for results on Kodak products Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

Photo-Mechanical Notes.

Orthotype—Vilim's Asphalt Grain Process.

Under this title, Herr J. Vilim, of the well-known printing establishment, "Unie" of Prague, has patented a process of half-tone on metal or stone, in which the light-sensitiveness of asphalt is applied and an ordinary negative is used. The process is described in the current number of the "Zeitschrift für Reproduktionstechnik" by Herr J. K. Vilim, who points out that several experiments have been previously made in this direction, and notably by Lemerrier, Leresbours, Barreswil, and Davanne, of Paris, in 1853, who worked with a thin asphalt solution on stone; this did not give a varnish, but a grained surface, which was due to the porosity of the stone.

In the same year MacPherson, of Rome, experimented in a similar way; he was the first who broke up the closed tones of photographic negatives by grained surfaces. Other methods were those of Poitevin and Lemerrier in 1856, the details of which were not published, and which led to no practical results, and are therefore only of historical interest.

The principle of orthotype is founded on the fact that a solution of asphalt in chloroform is precipitated by the addition of alcohol and forms a grain.

Asphalt consists of two substances, both of which are soluble in etherial oils, but the one more easily than the other. These can be separated by mixing chloroform with alcohol; the easily soluble constituent dissolves in the alcohol, the insoluble is precipitated, and this is less sensitive to light.

If asphalt is dissolved in chloroform and alcohol added, a certain quantity of the black insoluble asphalt is precipitated, corresponding to the amount of alcohol added.

If the solution is coated on a flat surface and dried, there remains on the support a black and yellow grain. The quantity of the latter depends upon the purity of the asphalt; some is always necessary, otherwise the image would be broken up. The grain consists of fine serpentine lines which cannot be seen by the naked eye.

Although the mixture of chloroform and alcohol was well known as a solvent of asphalt, it has not been practically used. This solution cannot be flowed over smooth surfaces, as the chloroform and alcohol repel one another. In order to obtain a smooth coating some ether should be added. The solution then flows smoothly, but dries in an amorphous condition, and does not withstand an acid etch. The requisite hardness of the film is only obtained by the addition of some benzole.

The formation of the grain is dependent on the action of certain solvents at given temperature and duration of action. For orthotype, Syrian asphalt is the best; hard blue litho stones are preferable to the soft.

The light-sensitive solution is prepared by dissolving, by constant agitation, asphalt in chloroform with the addition of benzole, alcohol, and ether in the proportions of 2:20:2:8:10.

Zinc and copper plates are prepared with this solution in the same way as for the ordinary half-tone process. The plate to be coated is placed by yellow light on a stand, which is either fitted with a semi-spherical head (to facilitate its handling) or else on a stand with arms which will enable it to be moved vertically or horizontally.

The plate must be carefully freed from dust and coated with the asphalt solution, which should have been filtered several times. This operation is done in a similar manner to coating glass plates with negative emulsion, save that the coating must be done quicker in order to obtain a regular grain.

The grain obtained with the above solution is suitable for lithography on account of its fineness; for bookwork a coarser grain is required, which is obtained by the addition of a little alcohol. A very important factor in the manipulation is the temperature which should vary from 60 deg. to 85 deg. Fahr. After coating, the prepared surface must be exposed to the vapour of benzole, which is effected by flooding a glass plate covered with blotting paper, which should be inverted over the prepared surface at a distance of about 1 centimetre. Too strong an action of the benzole has the same disastrous results as an excess of benzole in the asphalt solution. The grain then becomes rounder, and is enlarged till it finally becomes quite flat.

The plate is now ready for printing, which is effected under a reversed negative, of about the same quality as is required for collotype, so that the grain in the dense parts does not run together. This principally applies to monochromatic black reproductions.

Printing with a normal negative in sunlight takes about an hour.

For development, rectified French oil of turpentine is used, or the ordinary if it does not contain resin, petroleum, or benzine, which residues would be thrown down in washing, and would form a precipitate between the grain on the stone or zinc, with disadvantageous consequences. In order to accelerate development, as well as to increase the quality of the image, an addition of benzole to the turpentine may be made, but this should not exceed one-third of the total volume, and the correct temperature should also be maintained.

Development is effected by light treatment of the plate or stone with a soft pad, or, better still, by merely pouring the turpentine and benzole over the surface as in the wet plate process. As soon as the image appears, the plate should be washed under a strong stream of water and dried with damp filter-paper, so as to retain the details.

It is advisable, especially if the printing has been done in a bad light, to expose the plate before development to the vapour of turpentine. The more exposed places absorb less, whilst the less exposed places absorb more of the turpentine vapour, so that the image appears equally lightly put on the surface. In this case the plate is again exposed to the sun for a quarter of an hour before development, by which means the shadows are strengthened and give a greater resistance in development; they then appear more contrasted and more closed up.

Development may be interrupted at any time without harm, and, after rinsing, may be continued in parts or wholly.

Different parts may be protected with gum to which a little honey should be added to prevent the gum drying too quickly and to counteract the splitting of the asphalt film.

If the retouching is repeated, water should not be used, for the intermediate rinsing of the gum would be washed away, and it should be merely dried off with a pad of linen. Thus the plate may be covered five or six times, which is a great advantage for colour printing.

When the plate is developed it should be exposed to the sun, then allowed to cool, and washed.

The further treatment is normal; the stone is etched, washed, dried, and left for five or six hours under the gum; this then washed away with water, the asphalt removed with turpentine, the printing ink rolled on the stone, and this again washed off.

The Process Workers' Trade Union.

We have before us the annual report of the Amalgamated Society of Lithographic Artists, Designers, Engravers, and Process Workers, which shows that in spite of bad trade the society has made progress during the past year, its nineteenth, having admitted 206 new members (or, allowing for deaths, etc., has a net gain of 107), while its funds have been increased by £597, and its total assets now stand at £5,774.

The record of work accomplished is certainly a considerable one, and includes particulars of the superannuation, sick, and unemployed benefits which are available to members' subscription. The society contemplates taking a London office, and meanwhile has appointed an organising secretary for the South, Mr. F. C. Tolhurst, of 102, Clapham Road, London, S.W.

The Union and Technical Education.

The society has always been friendly to technical education, as stated in their rules, and evidenced by the fact that they helped to initiate the L.C.C. School of Photo-engraving in Bolt Court; but they view with some alarm the formation of process classes at many industrial centres without due regard to the condition of the trade at those places, thus tending to add to the number of apprentices, when there may already be too many. Bradford was a case in point, and therefore the society approached the Education Committee, and induced them to frame some regulations concerning such education, which are acceptable both to the society and the employers of that district—an eminently satisfactory result of such common-sense action.

Town versus Country.

Some of the principal firms producing three-colour work are finding it advantageous to be out of the London smoke. Thus the Hentschel Colourtype have separate works at Norwood; the Anglo Engraving Co. do their colour work at Raynes Park, Wimbledon; and Messrs. Dent and Co. have their works at Clapham. In the recent colour postcard case, the Anglo Engraving Co.'s work was evidently looked upon as excellent, since the defendant produced a postcard done from the same subject to show how much better the work could be than that with which he had been supplied!

PHOTO-MECHANICAL PATENTS.

Application for Patent.

10,175. Bogdan Gisevius, 7, Southampton Buildings, Chancery Lane, London. Improvements in and relating to the manufacture of printing plates.

10,803. A. J. Boulton, 111, Hatton Garden, London, for Franz Otto, Munich, Germany. Improvements in or relating to photo-mechanical colour printing.

Printers, and probably some process-men, will be glad to be informed of the appearance in the "Allgemeiner Anzeiger für Druckereien" of a list of German synonyms of technical and shop terms used in the printing trades. Even the general reader may obtain some relaxation in a study of the dictionary. We see it stated that "to rat" (whatever that is) is equivalent in Germany to "unter Tarif arbeiten."

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between May 22 and 27:—

DAYLIGHT DEVELOPMENT.—No. 10,630. Apparatus for developing photographic dry plates in daylight. Albert Hawkins Clark, Ferncliff, Goodwin, Pembrokeshire.

LANTERN CONDENSERS.—No. 10,799. Improvements in the mounts for condensing lenses of optical lanterns. John Frank Brockliss, 115, Cannon Street, London (La Société Romanet et Guilbert, France).

COLOUR PHOTOGRAPHY.—No. 10,900. An invention for producing photographic prints in natural colours from negatives obtained by the ordinary trichromatic process of photography. Edward Ferdinand Grün and George Albert Smith, The Hall, Southwick, Sussex.

PACKING.—No. 10,955. An improved light-tight packet for photographic sensitised surfaces. Oscar Becker, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

MAGAZINE DARK SLIDE.—No. 10,956. An improved magazine dark slide for photographic cameras. Oscar Becker, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

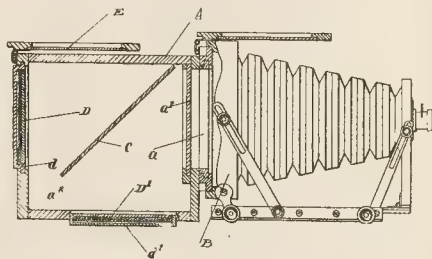
COPYING APPARATUS.—No. 10,974. Improvements in quick copying or printing apparatus for reproducing photographs. Ferdinand Oppenheimer, 322, High Holborn, London.

PRINTING PAPERS.—No. 11,077. Improvements in the preparation of photographic printing papers or surfaces. Karl Pfanz, 111, Hatton Garden, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

COLOUR PHOTOGRAPHY.—No. 15,204, 1904. The claim is for a box-accessory, to be fitted to the back of a camera (or itself used as a camera) and containing a red screen at an angle of 45 deg., which screen, C, transmits light to the red sensitive plate, D, at back, and reflects light to the green and blue sensitive plates at D¹. These two plates are placed film to film, separated prefer-

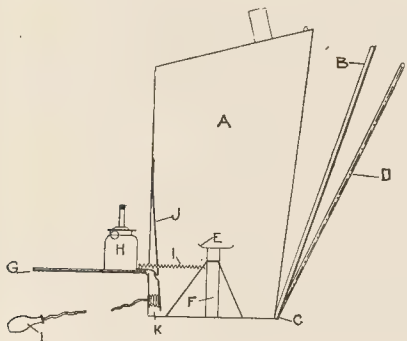


ably by a thin, yellow colour screen, or a yellow screen is placed in the direct path of the rays entering the camera. William Norman, Lascelles Davidson, 20, Middle Street, Brighton.

COPYING DRAWINGS, ETC.—No. 1,753, 1905. The claim is for an apparatus consisting of a rotating transparent cylinder, illuminated from within, round the outside of which the negative and sensitive papers are carried by a number of small bands carried over rollers. Hans Vigo-Stim-Jensen, Blegdams Hospital, 1, Blegdamsvej, Copenhagen, Denmark.

The same patentee claims protection for a very similar apparatus in Patent No. 1,757, 1905.

FLASHLAMP.—No. 4,326, 1905. The construction and mode of action of the lamp are as follows:—The door G is pulled down into its horizontal position against the influence of spring I. A charge of powder is then placed in the tray E, and the wick of the pilot lamp H is lighted, it being understood of course that the glazed front B of the lamp is closed, and the gauze D is either closed up against this front or left hanging down according to the effect desired. When everything is ready for the exposure to take place the pneumatic ball L is squeezed so as to inflate



the bellows K, which thus actuate the catch J, and the spring I then contracting pulls the door G to, and the flame of the pilot lamp H coming into contact with the charge of powder fires it, thus giving the flash. As the door G bangs to also simultaneously with the firing of the powder or probably a little in advance thereof, the door rebounds by virtue of its own elasticity so that at the moment that the explosion is taking place there is a clear way for the expanded gases. It is found in practice that with a lamp about one foot high by eighteen inches across and about eight inches from back to front it is possible to fire about two and a half grammes of explosive without danger and without vitiating the atmosphere surrounding the lamp. Marwood Short, 1, Victoria Colonnade, Ramsgate.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901.

SMITH.—10,372. Manufacture of films for photographic and other purposes.

VISITORS to the Continent who desire to send picture postcards to this country may be glad to learn that the Postmaster-General, in a recent letter, has admitted the legality of sending such cards for one halfpenny, provided "postcard" or its equivalent is struck out, and the words "printed papers" substituted. Many travellers, observes "The Globe," have been for a long while making use of this concession, which, however, is not so widely known as it deserves to be. With the alteration mentioned, a card can be sent to or from the Continent for a halfpenny so long as, in addition to the name and address of the recipient, it bears only the name and address of the sender and the date.

New Apparatus, &c.

The Planastigmat Portrait Lens. Sold by Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C.

To their series of Planastigmat lenses, Messrs. Staley have now added another—the Portrait Planastigmat, made in six sizes from 7 to 15½ in. focus. That submitted to us for examination is the No. 3, of 10½ in. focus, and specially adapted for cabinet portraits in short studios where the use of a lens of longer focus would be inadmissible. Inspection of the instrument shows us that the front combination is a cemented rather deep meniscus. The back component, as in the Petzval lens, has an air space, but the elements are differently arranged—practically reversed.

On testing the lens with its full aperture ($f/3$) we find that it yields remarkably good definition over a wide area in proportion to its focal length, and has a greater equality of illumination over the whole field it is intended to cover than is the case with the general run of portrait lenses of the Petzval type. The field is very flat, and the astigmatism is reduced to a minimum, rendering it an excellent lens for portraiture. With slight stopping down the lens will cover the whole plate well to the edges.

A good word may be said for the mounting, which is of aluminium in the more bulky portions, the tube itself being of brass. The diaphragm is of the iris pattern, and permits of the lens being stopped down to $f/36$.

Our general conclusion is that the Portrait Planastigmat can be recommended to any one wanting a really good and rapid portrait lens at a moderate price. The lens submitted to us is listed at £13 10s

New Materials.

Revoli's Magic Photo-Tints. Sold by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

Put up in convenient little pans, this new series of Photo-Tints is likely to be very popular. The colours include flesh, blue, yellow, brown, purple, magenta, pink, green, black opaque, and white opaque—sufficient for nearly every tint required for colouring photographs or lantern slides. A very useful list of suggestions for mixing the colours to obtain various other tints is given in the introductions. For instance, brick red can be obtained by combining brown and magenta; French red, by mixing magenta and flesh; drab, by adding yellow to purple; and so on; in addition to which, another list is given showing correct colour harmonies and contrasts most useful to photographers whose sense of colour is not all that it might be. The colours are easy to apply, and are very pure and brilliant, so it is necessary to use them very dilute. A little of the solid colour is taken and dissolved in water. The fluid tints should be kept in separate saucers, and not allowed to mix. The photographs should be made surface-damp, and the colour applied in thin washes with a camel's hair brush. Extra moisture should be removed with blotting paper. A point in favour of these colours is that they dry glossy on glossy prints and matt or matt surface papers. The tints should never be used full strength, but repeated washes should be given until the required depth of colour is gained. Collodion papers may be tinted immediately after washing, or by using a weak solution of Revoli's Medium. To obtain different shades of colour, a wash of one colour should be applied over another; the tints should not be mixed and applied, or muddy tones will result. The colours can be also applied with great effect in pyrography or

burnt-wood work." The set of ten colours is supplied in a neat box with full instructions at 1s. 6d. Not at all dear considering its usefulness.

"Eastman" Plates, Rapid and Extra-Rapid. Manufactured by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Outside of Great Britain the "Eastman" plate has been actively marketed for a number of years, and the manufacturers are therefore not embarking on plate-making without the very essential qualification of a lengthy factory experience. As now issued to the British market, the "Eastman" plates have been modified, and, if we may speak from our tests of them, embody the very highest skill in emulsion making, as they evidence minute attention to the mechanical details of dry plate manufacture. Both brands of plate are exceedingly rapid, and, in general behaviour, the two are very similar. We were particularly anxious to put the "Extra-Rapid" to the test, and, to that end, made hand-camera exposures with a focal-plane shutter at its maximum speed, with very satisfactory results, the subject being a street scene. The behaviour of the plate was such as well qualifies it for photographic work of the most rapid kind: the plate is thickly and evenly coated, and works in the cleanest manner. Messrs. Kodak, Ltd., apparently, are bent on making its virtues widely known, for their formulæ for development are given in the languages of the chief civilised countries, and also in Russian; and we have no doubt that the plates deserve the favours of photographers of every class. For the benefit of those who can appreciate sensitometric measurements, we may quote the following from a report of Mr. C. E. Kenneth Mees, B.Sc.:—" γ_{∞} (greatest possible steepness of gradation, and a measure of the density-giving power of the plate) 2.76. K (velocity constant of development with standard ferrous oxalate) .047 = 94 minutes for a standard gradation of 1. Opacity of the plate to blue light (index to latitude) 15. Coating, good. Extremely clean, quite free from fog. Grain, fairly good. A most excellent plate." The figure obtained by Mr. Mees for inertia (H. and D. pryosoda) is .100, which gives, it will be seen, a very high speed reading to the plate. In fact, this number for inertia is appreciably lower than that obtained by the makers, viz., .123, low inertia giving, of course, a higher speed number. The difference is considerable, but may easily be due to several things. Whichever is taken as correct, the figures demonstrate a very high degree of rapidity.

THE WATKINS SPEED CARD.—The Watkins Meter Co., of Hereford, announce that in future they will send, for a subscription of 1s. per year, a series of the latest speed cards to be used in conjunction with the Watkins Meters. These cards, of which eight will be issued during the year, show the latest speed readings of the various makes of plates, and are brought up to date as new batches of plates are put on the market. The cards, we understand, are issued without any guarantee, implied or expressed, as to their correctness. They merely claim to be a bonâ fide record of independent tests by the Watkins Method.

COLLODION Explosion.—On four workmen employed in M. Oudinot's photographic laboratory at Nancy remarking that a carboy of collodion was leaking, they proceeded to pour the contents into another vessel, without noticing that they were close to a lighted stove. An explosion took place, followed by an outbreak of fire, which was, however, speedily extinguished. Three of the workmen were terribly burnt (the fourth threw himself into a neighbouring pond), and one has already died.

ETHER Explosion.—An explosion took place a few days ago in a pharmaceutical-specialty manufactory at Aix-les-Bains, belonging to M. Dussel, who is a member of the French Parliament. It appears to have been due to the ignition of the vapour of ether. Four workmen were seriously burnt.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
10 to 12 ...	Orickwood Photo. Society ...	Hampstead Heath.
10 to 12 ...	South London Photo. Society ...	Woburn, near Southwold.
12 ...	Watford Camera Club ...	Chippertfield Common.
12 ...	Wallasey Amat. Photo. Soc. ...	Members' Evening.
12 ...	North Middlesex Photo. Soc. ...	Amberley.
12 and 14	Everton Camera Club ...	Evening Outing re Class 1 Competition
13 ...	Royal Photographic Society ...	Notes on the Chemical Dynamics of Development. An abstract by C. E. K. Mees, B.Sc., and S. E. Sheppard, B.Sc.
14 ...	North Middlesex Photo. Soc. ...	"Why Does a Single Lens Distort?" Mr. Stuart.
15 ...	London and Prov. Photo. Assn	Open Night.

ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held June 6, Major-General Waterhouse in the chair. Miss Sarah A. Acland read a paper on "A visit to Gibraltar, demonstrating the use of three-colour photography in giving a more favourable impression of a place than can otherwise be obtained." Miss Acland's paper did not belie its title. It was very slightly technical, but described in a pleasant conversational style visits paid to Gibraltar, and excursions made by permission of the lecturer's brother, Admiral Acland. The bulk of the illustrations were three-colour slides by the Sanger Shepherd process, and it is no exaggeration to refer to Miss Acland's work as the finest which has ever been publicly shown. In the subjects which lay close to hand on the rock of Gibraltar the lecturer had full scope for the demonstration of the capacity of the tri-colour process, and in comparison with the monochrome rendering of similar scenes the case for colour required no emphasis. Many foreground studies of the luxurious flora of the rock were magnificently reproduced, as were also a number of portraits and several studies of gipsies, Moors and Moorish boys. We would add a special word of praise for the rendering of some scenes in which the colour of the subject came nearer to neutral tints. Certain slides of the sea in grey weather were in excellent tone, and are a severe if less realistic test of the lecturer's mastery of the process. In so far as Miss Acland strayed into techniques she said that her exposures were made on Cadett "spectrum" plates, the times for the blue, green, and red screens being, on the average, in the ratio of 2:6:30. She found it necessary to verify this ratio with each batch of plates, and she found it to alter with time, on the plates being kept. Her test object when determining the times was a piece of white paper and a small bow of red, white, and blue ribbons. The developer used throughout was metol, controlled by time. The exposure through the blue screen was found to be about ten times that required by the unscreened plate, so that in using plates by actinometer, her usual practice, a H. and D. number one tenth that marked on the box was taken. In developing the transparencies it was found best to let them remain as still as possible in the development water, if there was to be good rendering of fine detail. The difficulty of cementing the celluloid monochromes, complained of by some, was not experienced if a little Canada balsam as possible was employed.

A hearty vote of thanks from a large audience brought the meeting to a close.

SOUTH AUSTRALIAN PHOTOGRAPHIC SOCIETY.—The annual exhibition of photographic work for the present year will be opened on September 11. A bronze medal is offered for competition in each of the nine classes of Section 1, or in lieu thereof the sum of one guinea. A silver medal is offered for competition in each of the

eight classes in Section 2. The society offers a gold medal as a champion prize, in lieu of any other prize for the best picture in Sections 1 and 2, such picture to become the property of the South Australian Photographic Society. All exhibits must be delivered at the South Australian Society of Arts' Rooms, Institute, North Terrace, Adelaide, not later than August 30, 1905.

THE SCOTTISH PHOTOGRAPHIC FEDERATION EXCURSION.—On Saturday, the annual excursion of the Associates of the Scottish Photographic Federation was held to Blairgowrie. The arrangements were left in the hands of a local committee. In the forenoon a drive took the party to Meikleour, with the famous Beech Hedge, Kinclaven Castle, the Market Cross, the Jongs, etc. Clunie Loch, then home via "The Lochs" to Blairgowrie. The civic head of the burgh, Provost Smith, welcomed the visitors. President Macdougald, in reply, referred to the good work the Federation had done, and the work it yet hoped to do. The societies in Scotland, instead of being scattered units, were now parts of an enthusiastic whole, working for the betterment of photography in Scotland.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—Mr. Charles Beadle, the president of the North Middlesex Photographic Society, gave an interesting lecture last week before the members on "The Production of Enlarged Negatives." His method of procedure is as follows:—From the original small negative a positive is made, preferably in carbon; the object being in all cases to get a transparency giving full detail in the shadows without brilliant high lights. If a dry plate is used for the positive, then one with a speed of Watkins 35 to 40 is the best. With a negative of average density placed behind a piece of opal glass the exposure required is about 20 seconds, 12 inches from a kerosene lamp burning half-inch wick. The developer is pyro-soda, without bromide, of a strength of 2 grains pyro to the ounce. For the enlarged negative a plate of the same speed is used as for the transparency, and the same developer is employed. Exposure is regulated in conformity with the density of the positive and the size to which it has to be enlarged.

Commercial & Legal Intelligence

CATALOGUE DISPUTE.—At the City of London Court on Friday last, the Rotary Photographic Company, Limited, New Union Street, Moorfields, sued Mr. O. T. Banks, dealer in electrical fittings, 49, Mortimer Street, for £4 17s. 6d., the balance of £25 17s. 6d. for printing a catalogue. Plaintiffs agreed to print 100 trade catalogues for the defendant for £30. They were well done, but only 92 were printed. Plaintiffs charged for the 92 at the same rate as they would have been paid for the 100. It was well known in the trade, they alleged, that a margin was always allowed both ways. Defendant said he wanted 100 catalogues. He counterclaimed for £5 as damages for not having the full number. The Judge found for the plaintiffs for £10 on the claim, and for the defendant for 1s. on the counterclaim.

At the Leeds Bank Court last week, Cecil Montague Stafford, photographer, 5, Nassau Place, Leopold Street, and carrying on business as Cawkwell and Stafford at 2, Commercial Street, Leeds, appeared for examination. His liabilities were £634 5s. 9d., and assets

Numerous postcards enclosed in transparent covers, with the address written upon the enclosures, have recently been observed in the post. Transparent covers are a source of embarrassment to the Post Office, and the Postmaster-General has decided that correspondence sent in such covers, with the address written upon the enclosures, is to be withheld from delivery, and sent to the Returned Correspondence Office, marked "Contrary to regulations."

News and Notes.

THE Ilford £750 Competition.—The judges made their awards last month, and the prizes were duly forwarded to the successful competitors. Further details will be given in the July number of "Photographic Scraps."

THE Brighton Corporation Exhibition of British Pictorial Photography, closed on June 3. During the six weeks it was open it was visited by upwards of 26,000 persons.

MR. J. F. BENSON, of 7, George Street, Stroud, writes us to the effect that the following goods were stolen from his studio on Sunday, May 14 last, and wishes to caution photographers against having dealings with any person offering these goods for sale, viz:—A perfectly new mahogany folding outdoor view camera (1-1 size, City Sale and Exchange make) in brown canvas case, and brown canvas strap and nickel-plated patent lock, three double dark slides, and other goods to the value of £10.

DEATH of the Liverpool Police Photographer.—Mr. William Malley Gregson, the well-known photographer attached to the Liverpool Police Detective Force, expired somewhat suddenly last week at his residence in Fazakerley. He was about thirty-four years of age, and was well known in connection with criminal photographic work. He had seen about ten years' service, and was looking forward to a career of usefulness and distinction. So late as Monday in last week he was at the office in Dale Street, and appeared then to be in his ordinary health. He was taken rather suddenly ill with colic, and, in spite of every effort and attention, death took place, to the regret of a large number of friends. An operation was performed in the hope of saving the life of the deceased official, but he did not rally from it. Deceased leaves a widow and several children to mourn his loss.

The result of the Warwick competition for May is as follows:—First prize (£10), W. Northwood, Esq., Wordsley, Stourbridge; donation (£5), to the Brierly Hill and District Camera Club; second prize (£5), A. H. Avery, Esq., 319, Queen's Park Road, Brighton; donation (£2 10s.), to the Hove Camera Club.

SOUTH London Photographic Society.—For the benefit of the less advanced members this Society has instituted a series of monthly progressive competitions, to be held during the winter session. In order to give plenty of time to enable members to take advantage of summer holidays, the list of subjects chosen for the session will be announced some months before the first competition is held. Special judges are appointed for each subject, and a progress medal (bronze) will be given to the competitor gaining the highest aggregate by the end of the season.

CONTINENTAL EXCURSIONS for the Whitsun Holidays.—Mr. W. F. Slater has sent us particulars of a photographic excursion to Bruges and Flanders from June 10 to June 17. Announcements of other excursions to the Continent are also included. Full particulars will be sent on application to Mr. Slater, 84, Longhurst Road, Lee, S.E.

THE Great Northern Railway of Ireland send us an excellent illustrated tourist and excursion programme for 1905. It is a book of considerable proportions, is full of information concerning interesting places in Ireland, and is well illustrated. The particulars of excursions should be exceedingly useful to all tourists in Ireland this year.

In the current number of "Arts and Crafts" a writer draws comparisons between the work of artists who make use of photography and of those who do not. While decrying the use of photographs as an aid to drawing and painting, their utility is acknowledged. He says:—An excellent test of his work may be suggested

to the student who can be trusted with a camera. We say advisedly "trusted," for there is nothing more detrimental for the young painter than to copy, with its inevitable exaggerations, a photograph from nature. Let him first make a drawing or colour sketch—preferably the latter—and then take a photograph of the identical subject, making the picture plane within the same limits, as nearly as possible. On comparing the two, there will be many surprises in store for him, agreeable and otherwise; the latter, because he will see how clumsy his drawing of the structural forms is when placed beside the faithful transcript made by the camera; his granite rocks look like dumplings beside these hard, time-polished boulders traced by the sun; while the seams and scars which mark their weather-beaten sides, so full of significance to the geologist, are merely meaningless lines mapped out upon a formless surface in his sketch. Of course, this will be most discouraging, but it will teach him much. In the first place, his compensation will be a certain grace gained by the suggestion in his sketch, where he has chosen the beautiful and ignored the ugly details in what lay before him. The photograph copied all, both good and bad, and the artist who in turn copies the photograph is apt to assimilate as much of one as the other—perhaps more of the latter—and will surely be betrayed by the false aerial perspective and violent foreshortening, which will distinguish the disguised copy from the intelligent work of the freehand draughtsman. Another cause of misrepresentation in the photograph is the confusing distortion of values, consequent upon the tendency of certain light colours to register themselves as dark, and of others of dark complexion to assume under this influence a paler tint, untrue to nature. Lastly, it may cause him to lay aside his camera in despair, and this is something gained at once; for far more artistic is even a faulty sketch from nature, with a grain of truth in it and some beauty, than the most careful representation of the same natural facts when copied from a photograph.

AN Aerograph Exhibition is shortly to be held in London as the sequel to a competition in which 100 guineas is being offered by the Aerograph Company, Limited, for work of various kinds executed with the aerograph. The classes are:—Freehand drawings, photo portrait finishing, finishing for process, aerograph litho work, window tickets or show cards, Christmas cards, decorations on silk or cloth, jewellery and metal ditto, coloured lacquers or enamel, decorations on pottery, mural decorations; and the prizes consist of aerograph outfits and sums of money. They will be awarded by a jury consisting of J. Martin Wood, Esq., of the editorial staff of "The Studio"; William Gamble, Esq., editor of "The Process Year Book," and George E. Brown, Esq., THE BRITISH JOURNAL OF PHOTOGRAPHY. In its preliminary circular the Aerograph Company intimates:—"In a great many classes of work the aerograph is combined with ordinary brush work or other methods; for the most part the awards will be for work displaying the best use of the aerograph, but not necessarily executed entirely with it. Exhibits will be received, unpacked, and packed for return by the company. No liability will be incurred for loss or damage by the company, but the greatest care will be taken of everything entrusted to them. As there may be a limited amount of space for exhibits, early notice from those intending to exhibit is desired. Notice will be given later of the place of holding the exhibition."

ONE HUNDRED Pounds for a Photograph.—Under this alluring title the proprietors of the "Strand Magazine" announce in the current number of that popular publication, particulars of a novel prize competition. Four reproductions of famous portrait paintings are given, and the prizes, which consist of £100, £30, and £20, will be awarded to the photographer who sends the best photograph, taken with the assistance of costume models, and suitable accessories, etc., most closely resembling one of these four originals. The lighting of the picture, the pose of the sitter, the costume, and, as

far as possible, the features and expression, will all be taken into account. The prizes will be divided equally between the sitters and the photographers of the winning prints.

CHANGE of Address.—Mr. Walter D. Welford has removed to Alston Lodge, 61, Mansfield Road, Ilford.

THE engagement is announced of Mr. Alexander Keighley, the well-known amateur photographer, of Keighley, and Miss Lily Hawroyd, of Bradford.

THE Ubiquitous Press Photographer.—While the business of rigging up the boom at Portsmouth harbour was being rehearsed the other day, stringent measures were taken by the police to prevent the work being photographed by unauthorised persons; all amateur photographers who were seen on the spot were ordered by the harbour police to put away their cameras. It is, therefore, somewhat astonishing, remarks "Truth," to find in the London illustrated papers pictures of the whole operation, including the special permanent fittings for securing the shore end of the boom, with a note attached that they are from photographs taken by a local professional photographer. Obviously this photographer could not have done his work in secret; and it is highly characteristic of the muddle-headed way in which our authorities go to work to secure secrecy, when they think it desirable that a professional photographer should be allowed to take large and elaborate views of the whole proceedings for the purpose of publication. An officer from whom this information was obtained states that the photographer in question makes it his business to supply photographs of guns, coaling apparatus, submarines, etc., to foreign papers, as the authorities must be aware, if they take the trouble to acquaint themselves with the contents of foreign military and naval journals. It certainly shows an almost chivalrous generosity on the part of our authorities if under these circumstances they give the photographer special and exclusive privileges for photographing our dockyards and harbour defences.

HUNTINGDON and the Great Ouse, with St. Neots and St. Ives, are the districts dealt with in the latest volume from the Homeland Association, Ltd. The handbook is written by the Rev. H. L. Jackson, M.A., and the Rev. G. R. Holt Shafto, an unusual co-operation of the High Church vicar and the Wesleyan minister. Its object is to draw attention to a little-known and very beautiful stretch of inland river scenery that should appeal to every landscape photographer. The district described will also be interesting owing to its association with both Cowper and Cromwell. The volume is published at 1s., and contains an Ordnance map of the river on the one-inch scale. A full list of the Homeland Handbooks will be sent free on application to Association House, 22, Bride Lane, Fleet Street, London, E.C.

THE Great Eastern Railway Company's new handbook, "Summer Holidays," is an attractive little brochure dealing with the various holiday resorts on the company's system. It is beautifully illustrated, and the numerous full-page illustrations in colours are quite little works of art. They are fac-simile reproductions of water-colour sketches, and give prominence to some of the less known districts in East Anglia. Every prospective holiday-maker should obtain a copy from the publishers, 30, Fleet Street, E.C.

"PRACTICAL Frame Making," by Colonel W. L. Noverre, forms No. 18 of the "Photography" Bookshelf Series issued by Iliffe and Sons, Ltd. The author deals in a practical manner with this important phase of finishing photographs for exhibition purposes, and gives full particulars and working details for the amateur frame maker.

No. 21 of "The Practical Photographer" deals with Orthochromatic Photography (simplified), and the subject is well treated from the practical, pictorial, and theoretical standpoints. A test chart in seven colours is included. The pictorial work of Harold Baker is the subject of the editorial.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

Palmer, 34, Oakland Road, Dovercourt. Two Photographs of His Majesty's King's Visit to Dovercourt.

West, 98, Victoria Road, Aldershot, Hants. Three Photographs of the King's Memorial to Members R.A.M.C.

Wray, 27, Chapel Street, Chorley. Photograph of Lady Balcarres Crowning the May Queen, May 25, 1905.

Mebaw, 41, Victoria Street, West, Grimsby. Two Photographs of Grimsby Rough Police Force.

IF.—1. Will you kindly inform me as to the best means of fixing crayon-worked bromide enlargements? I have tried the "Fixatif," on the market for black-and-white drawings, but find that it rests on the surface of bromide in a greasy stain. What I want is something that will fix without subsequent discoloration. If you can help me in this matter I shall be much obliged. 2. Will you also tell me what to use for P.O.P. prints in order to tint with aniline colours?

1. We cannot understand why the "Fixatif" gives the results you mention, unless the surface of the print is greasy. Is it the right kind, sold for the purpose? A solution of shellac in alcohol makes the best fixatif for the protection of crayon work on bromide prints. The following* is a good formula:—Pale-yellow shellac, 30 grs.; borax, 15 grs.; soda-carbonate, 5 grs.; glycerine, 15 minims; water, $\frac{1}{2}$ oz. Boil, cool, and add alcohol $\frac{1}{2}$ oz. Add pumice powder, to throw down lac wax, shake up, allow to stand two or three days, and filter. It is then ready for use. It should be applied in a fine spray by means of an ordinary scent diffuser, and if only sufficient is applied to lightly cover the surface of the work, no stains should result. The plan usually adopted by many workers is to hold the worked-up prints over the steam from a kettle of boiling water. This tends to slightly soften the gelatine, and the crayon work becomes firmly incorporated in the surface of the print when the film hardens again. A bronchial kettle is the best for the purpose. 2. There are many mediums sold for this purpose. Use purified ox-gall paste, 60 gr.; distilled water, 16 oz.; rectified spirit, 4 oz. Apply with flat camel-hair brush; when dry, prints will take both oil and water colour.

REIS.—1. Probably it would take about half an hour to wash the chloride out, but it should be left in. 2. If you washed the chloride out you would naturally get a brown stain at once. Perhaps you did not use distilled water—at any rate, you are using far too little chloride. You should allow about 15 gr. of chloride to every postcard, use citric (not tartaric) acid, and allow about 5 gr. of silver nitrate to each

card. 3. The temperature should be about 85 deg. F. It is obvious that you do not allow enough size, if you want a glossy card, and using such a strong silver solution, it penetrates through.

COPYRIGHT.—I have had a small print brought to me with a request to enlarge six copies. The photograph was taken by an amateur, who gave a few copies away to friends, etc. The photograph is a snapshot of three gentlemen (local celebrities), and I should feel extremely grateful if you can inform me:—1. Whether I can copy, enlarge, and sell prints. 2. Whether I can copyright same. The order I have in hand was from a gentleman, to whom one of the prints was given. 3. Can I sell copies without anyone's permission, or must I get the permission of the amateur who took the photograph of the three gentlemen?—Bos.

1. Certainly not; the copyright belongs to the person who took the photograph. 2. Surely you must know that you can do nothing of the kind. We should recommend you to study the Copyright Act. 3. You must not make any copies without the permission of the author of the picture. That is the law, and the owners of a copyright have power to enforce it.

COPYRIGHT.—I was out one day with my camera and came across a party of soldiers with a gun. I asked the officer in charge if I could photograph them. He gave me permission. I did so, and sold several copies. Last week I saw this same photograph (of which I hold the negative) reproduced in a London paper, and copyrighted. I regret to say that I had not copyrighted it. I suppose I have no claim against the paper for reproducing it, but have I any against them for copyrighting my work? An answer will greatly oblige. If I cannot claim damages against the above in either case, can I copyright the picture now, and, if reproduced again, can I claim damages?—SANDHURST.

You can register the copyright now and obtain an injunction against the paper, preventing them from issuing further copies containing the reproduction. You can claim damages for infringement before registration, but it is practically impossible for you to prove the damage. We think you cannot take any action for their employment of the word "copyright": see reply to W. H. J. E. on May 19. After registration you can take action for infringement.

W. ROSS.—1. Possibly Bourne and Co., 73, Ludgate Hill, London, E.C., would meet your requirements. 2. The "British Printer" (Raithby Lawrence, Leicester) and the "Caxton Magazine" (119, Finsbury Pavement, London, E.C.).

R.—If you will send your name and address we will reply to your query. We cannot undertake to answer anonymous correspondents.

PICTURE-FRAME MAKING.—I should be extremely obliged if you can tell me of a house that supplies gilders' whitening, as used in the manufacture of the compo picture-frames.—ANXIOUS.

The whitening used is that sold at the oil shops. Here is a recipe for the "compo": Boil 7 lb. of good glue in seven and a half pints of water; melt 3 lb. of pale resin in three pints of raw linseed oil. When the ingredients have well boiled, put into a large vessel and simmer for half an hour or so. When this is done, pour the mixture into a large quantity of sifted whitening, and mix to the consistence of dough. It is then ready for moulding.

COMPENSATION.—A certain newspaper has reproduced part of a copyright photograph of mine (a bust from a three-quarter length) without even acknowledging same. Please say

through your paper what would be reasonable compensation to claim.—J. E. HEYS.

As to the sum to be asked as compensation, that must clearly depend upon the commercial value of the portrait, etc. Of that we have no information whatever.

L. L.—Certainly it will, if made before publication.

BROMIDE and others.—In our next.

APPRENTICESHIP.—I have served four years' apprenticeship with a photographer, my period of apprenticeship expiring in May, 1904. The first year I received 3s. per week wages, second year 5s. 6d., third year 8s., fourth year 10s. At the end of four years I stayed on for five months for 16s. per week. I left in October, 1904, and since then I have not been able to obtain a permanent situation, as I have not been taught the business thoroughly. For three years I did the printing (P.O.P. only). I was never taught retouching or platinum printing. I was never allowed to try operating—in fact, all my knowledge of photography was self-taught. The result is I can only obtain a situation (with difficulty) as printer at about 25s. weekly. My knowledge of the business consists of printing, P.O.P., C.C., platinum, operating (poor), smooth up a negative, but not retouch as it should be done; developing bromide printing, fair. Could I bring an action for breach of contract with any prospect of success? My employer did not return my indentures at the expiration of my apprenticeship. Should he have done so?—ASSISTANT.

Your case is like scores of others where apprentices are taken solely for the purposes of getting work done for a quite nominal sum. A master is bound to teach an apprentice his trade, according to the terms of the indentures. If these were to teach you printing only, you have no real cause of complaint. But if you were to be taught photography generally, the law will give you redress. Much will depend upon the terms of the indentures. These it is usual to hand over to the apprentice at the end of his term. We should recommend you to consult a solicitor on the matter. We believe your late master can be compelled to produce the indentures in a court of law if called upon to do so. If the case be as you represent, you have, certainly, been badly treated, and should be able to obtain redress.

RETOUCHING.—1. Will you please give me your opinion as to the commercial value of work on accompanying specimen of retouching. 2. And in making application for situation I wish to know the remuneration I might reasonably expect for such work. The time taken to retouch the enclosed negative was an hour and a quarter. Thanking you for your favour.—WALTER S. CORDREY.

1. You ask for the commercial, not the artistic, value of your retouching on specimen print, and we presume that you mean as a trade retoucher. About 1s. 6d. for this quality work, but if done with really first-class finish it should command from 2s. 6d. to 3s. 6d., according to the generosity of the firm employing you. 2. Your second query is covered by our first reply from a trade retoucher's point of view, but if you refer to a weekly salary, then from 25s. to 30s. 3. For best finish a head of this size should occupy nearly two hours, but expert retouchers might manage it in one and a half hours or less.

AGENT.—You will see the advertisement of the agency in our outer pages. As to the insurance company, write the secretary, Professional Photographers' Association, 51, Baker Street, London, W.

PHOTOPHIL.—We cannot trace your previous enquiry. The two books on collotype are by Fithian (2s. 6d.) and Schnauss (both published by Iliffe and Sons).

Correspondence.

*** Correspondents should never write on both sides of the paper, notice is taken of communications unless the names and address of the writers are given.*

*** We do not undertake responsibility for the opinions expressed by correspondents.*

PANORAMIC CAMERA.

To the Editors.

Gentlemen,—In reply to your correspondent "Panormos" re camera to take a panoramic view of an entire circle," Messrs Demaria Frères, 2, Rue du Canal, St. Martin, Paris, make a special panoramic camera, and a special revolving stand top, and which, perhaps, is what your correspondent means.

If your correspondent will call on me I shall be pleased to show him illustrations and specifications.—Yours truly, J. MALLIA
285, Oxford Street, London, W., June 2, 1905.

PLATINUM PRINTERS' CATARRH.

To the Editors.

Gentlemen,—Reading the letters in the last two numbers of your journal re "Platinum Printers' Catarrh," I have been in business now five years, and until about two years and a half ago did nothing but albumen and bromide printing; since then I have done chiefly platinotype work. I do the whole of my platinum printing myself, and have been somewhat alarmed at the development of catarrh in my system, but have not attributed it to anything but constitution until reading "Old Platinum Printer's" experience. Yours truly, H. U. KNIGHT

The Studio, Cranleigh, Surrey, June 2, 1905.

SUNLIGHT DANGERS.

To the Editors.

Gentlemen,—Referring to the ignition of "dark slides wrapped in a black focussing cloth," is it not very likely that the focussing cloth was of black cotton velvet, a fabric almost as inflammable as flannelette, and which would readily be ignited by the focussed sun rays?—Yours truly, T. STOKOR

Clare, Suffolk, June 5, 1905.

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EX CATHEDRA.

The Trade the Convention.
The trade exhibition in connection with the Dublin Convention bids fair to include a very fine collection of professional photography. Among the prominent photographers Dublin who will exhibit may be mentioned Messrs. Layette, Alfred Werner, Chancellor and Son, Robinson and Son, Bradshaw, and probably W. Laurence. Messrs. and Walery have also booked space. The Platinotype Company will have a fine selection of work on view, will give demonstrations not only in development, but will take portraits by means of their new lamp. The Photolinel Company will also have a good show.

Monopoly in the Sale of Poisons for Industrial Purposes.
The projected Pharmacy Bill will, if it becomes law, create a greater monopoly in the sale of poisons used for industrial purposes than at present exists, by placing it entirely in the hands of pharmaceutical chemists. Recently the President of the Board of Agriculture and Fisheries received a deputation at the offices of the Board urging the amendment of the present Pharmacy Act, so as to legalise the sale of poisonous compounds, used largely in horticulture, by other than pharmaceutical chemists, who at present have a monopoly the trade. Chemical manufacturers and agricultural societies in England and Scotland were represented on deputation; and they pointed out the hardship to which farmers and others were subjected under the present state of the law, in not being able to obtain what they require at a cheap and ready market. In reply, the President stated that he considered it wrong that articles important to agriculture should be a monopoly, and he was strongly in favour of an amendment of the law in the direction suggested. He promised to take an early opportunity of

seeing what could be done in the matter. At present some of the poisons used in photography can only be obtained from a pharmaceutical chemist, and one has to pay a higher price for them than if they were obtainable from a photographic dealer. If the proposed Pharmacy Act is passed the sale of some other things used by photographers will be restricted to pharmaceutical chemists, who will then have a monopoly in them, and will doubtless charge accordingly.

Good Photography. How far the production of a photograph which is technically good is responsible for the diverting of much photographic business from the hands of the professional has never perhaps been duly considered. In portraiture, how many people care for perfect gradation, delicacy of modelling, pictorial arrangement of lights and darks or of line? The qualities demanded by the great mass of the purchasing public are characteristic and pleasing expression with good likeness, and an approximation to the ideal of masculinity or femininity. We are not decrying the production of a portrait with artistic qualities. They are a most valuable addition; but commercially in most cases only an addition. What we do wish to emphasise is that the wishes of the client must be met if business success is desired, and that photographers must learn to look further than at the mere manipulative excellence of their work. They must be more students of human nature than clever expositors, developers, and printers. Portraits are produced by the amateur in the home circle, and appreciated in many cases because they show the man as he is. Technical work is sometimes done by an amateur in a firm, and is valued because it shows the essential points of the subjects photographed.

Technical Photography. One of the great advantages the technical specialist has over the ordinary all-round worker is a much better and more thorough grasp of the special requirements of his clients. A clever manipulative worker may in many cases deal quite satisfactorily with the photographic difficulties of the work, but it is only by familiarity that the particular demands are met. For instance, a worker accustomed to making outdoor and indoor exposures on a variety of subjects would find little difficulty in focussing and exposing on a locomotive or electric generating plant, but it is quite possible that the resulting picture would be wholly unacceptable to the engineers who had erected or constructed the work. Truly conservative, too many workers would resent criticism, accuse their client of not knowing what he wanted and of not appreciating a good photograph, and, forgetting that not a specimen of photography, but an illustration of some special point was desired, would say such

work was not worth doing. A little more general education and a constant desire to acquire information by observation, together with quickness to apprehend the importance of special instructions, are factors in the successful handling of work of this type. Most important is it to be ready to sacrifice purely photographic conventions and deal with every problem on its merits. We have frequently seen young workers, with minds not set in a cast-iron groove, tackle problems an older hand would have pronounced impossible, and tackle them with very considerable success.

* * *

The International Congress of Photography.

A further circular of the programme of the Congress to be held at Liege from July 16 to 25 reaches us from the secretary, M. Ch. Puttemans, and from it we gather the manner in which the week is to be spent. Sunday, July 16, will see the official inauguration of the Congress and of a salon of artistic photography, and for each day of the week a round of visits, functions, and fêtes is arranged, participation in which should acquaint the visitor to the Congress with the industrial and picturesque features of this part of Belgium. Presumably the evenings are devoted to the discussion of the elaborate series of questions which figure on the circular. The Congress proposes to discuss, among other matters, plate speeds, photometry, standards of coloured lights and screens, optical glasses, lenses, shutters, theory and practice of photography, scientific applications and codification of formulae. An ambitious list in truth, and one which might occupy many conventions. Yet we are astonished to find not a single mention of those who are contributing papers or taking part in the proceedings. We should think it was high time that such announcements were made, particularly as a hearty invitation to the Congress is extended to foreigners.

* * *

Light-sensitive Diazo Compounds.

Although there are at least three distinct and little-known processes which depend upon the alteration in light of diazo compounds, it cannot be said that the chemical change upon which all are based is at all fully understood. The Feertype, Primulin process, and Diazotype are alike in their dependence on the formation of a phenolic body when a diazo salt is exposed to light, and though the compounds employed are sensitive enough to render the processes fairly rapid ones, no practical use has hitherto been made of them in photography. Some light may be thrown on the complex changes which take place, by experiments in progress in the laboratories of Messrs. K. J. P. Orton, J. E. Coates, and F. Burdett, who have recently made a communication to the Chemical Society. The authors have studied the action of an acid in influencing the conversion of the diazo compound into the phenol by the light, and have examined a number of cases in which the decomposition by light takes place with considerable rapidity. The products of the decomposition may be phenols, ethers (such as anisole or phenetole), or phenylacetates.

* * *

Cameras for Telephoto Work.

Rigidity in the camera for telephoto work is a prime necessity, but perhaps every telephotographer does not clearly understand why this should be so. The point cropped up in one of the discussions at the recent Optical Convention, and Mr. Horace Beck remarked that, the nodal points of a telephoto system being so far in front of the lens flange, they were liable to considerable displacement for any

small angular displacement of the lens mount. In other words, stability of the lens board is of much greater importance in the case of a telephoto lens than in that of any other, for a very small amount of "wriggle" will throw the image out of its proper position. The strength and solidity of the front and its constant position at right angles to the baseboard are qualities of the highest importance in a camera for telephotography.

PHOTOGRAPHIC PRINTING PROCESSES.—V. ALBUMEN PAPER.

FOR about forty years albumen paper was, alike by professionals and amateurs, almost the only one employed in the production of photographs, and it is still largely used by the higher-class photographers who issue silver prints. Amongst amateurs and many professionals, particularly those who turn out cheap pictures, it has, during the past few years, been greatly superseded by the gelatine papers. It will, however, be admitted that there is a quality in a good albumen picture that is not surpassed, if equalled by any other glossy paper. The first printing-out paper that was used in photography, as mentioned in the first of these articles, was the plain salted paper, and the difficulty with that in its early days was to keep the image from sinking into the body of the paper, and thus causing the picture to have a more or less muddy appearance, and to lack transparency in the shadows. To obviate this trouble various substances—such as gelatine, Iceland moss, etc.—in small proportions, were added to the salting solution, with the view to filling up the pores of the paper. Amongst the materials employed was albumen, and this led to the introduction of albumenised paper, which, by the way, the user had to albumenise for himself, as at first it was not an article of commerce.

When albumen paper first came into general use it was a very different thing from the albumenised paper of to-day. It was what would now be termed a matt paper for at that period the albumen was largely diluted with water, sometimes with two parts, and at others with only an equal part. When the stereoscope became the rage a demand was made for a paper with a more glossy surface, that would give a better rendering of the finer details in the small pictures. Less water was therefore added to the albumen. Afterwards, when the carte de visite became popular, a still more glossy paper was demanded, and the albumen was then used undiluted, and in some cases it was employed in a somewhat concentrated condition or the paper received a second coating of albumen after the first one had been coagulated. At one period, the manufacture of albumenised paper was an important and lucrative photographic industry in this country, as will be understood when we say that, at about the early sixties the price of unsensitised albumenised paper ranged from twelve to fifteen shillings a quire. During late years, however, the manufacture has mostly drifted to Germany, chiefly to Dresden, and comparatively little is now made in England. But the reader is not so much interested in the history of the albumen paper process as in the working of it.

It may, however, be mentioned that the early albumen paper with a practically matt surface yielded exceedingly fine results of a rich black tone, and we here give a formula for it, as the paper is not now an article of commerce, but is very easy to prepare. This is not the case when one with a highly glossy surface is required, as then considerable experience and knack are required to obtain an even coating, as well as to get the albumen in the right condition.

tion for working. Here is the formula for the albumenising solution:—

Albumen (with the germ carefully removed)...	10 oz.
Water	10 oz.
Chloride of ammonium	200 gr.

This, it will be seen, gives us ten grains of the chloride to the ounce. It will be noticed that this is a much larger proportion of chloride than is employed for modern papers. The mixture is whipped with an egg whisk into a perfect froth, and the membranous shreds allowed to subside, which they will do in ten or a dozen hours. It is a curious thing, and it must be referred to here, that no English paper manufacturer has yet been able to produce a raw paper suitable for albumenising. The whole of the paper used for this purpose throughout the world comes from two, or at most three, factories—those of Kleber Frères, of Rives, and Steinbach, of Malmédy. The former of these is the one that is now most generally employed, and the raw paper may be had from Messrs. Marion and Co., who are agents for its sale. It is supplied of two substances—eight and ten kilos weight to the ream. The one most suitable for our present purpose is the “10 kilo.”

The albumen having been allowed the necessary time to separate from the froth and the flocculent matter to subside, it is strained through fine muslin into a dish. It is then skimmed with a strip of blotting paper if any air bubbles are on the surface. A sheet of the paper is then taken by opposite corners, slightly bent to a curve, and one corner gently laid on the surface of the albumen. The whole sheet is then gently lowered, so as to avoid the formation of air bubbles. It is allowed to rest for a minute or so, then one end is raised and the paper slowly, as it were, *dragged* off, and hung up to dry. When the paper is removed in the way described little or nothing is left on the surface that will drain down and thus produce an uneven coating. The quicker the drying is effected the higher will be the gloss. With slow drying the albumen will sink somewhat deeply into the substance of the paper, which will then have a more matt surface. With the proportion of albumen and water here given the paper will have a semi-glossy surface, but with a larger propor-

tion of water it follows that it will possess a more matt one, and one that is more in accord with those who desire vigorous prints with a more or less matt surface.

The sensitising solution best suited to this paper, and the one which was formerly employed for it, is simply a plain solution of nitrate of silver, 60 grains to the ounce of distilled water. The paper is floated on the solution in the same way as given for the albumen, and allowed to remain for three minutes; it is then fastened by a black pin at a corner to a line, and allowed to dry. After the paper has hung for a short time to drain, the drying may be completed before a fire. This paper, after sensitising, will keep for a couple of days in cool weather, but it is always advisable to use it as soon as possible, as then the whites are purer, and the picture generally is more brilliant than when it has been kept for a day or two. Any of the toning baths which will be given in a future article may be used for this paper, but the one used at the time it was in vogue was a combined toning and fixing one. Here is a formula for one that was very generally employed:—

Water	12 oz.
Hypsulphite of soda	8 oz.
Chloride of gold (dissolved in 2 oz. water) ...	8 gr.
Nitrate of silver (dissolved in 2 oz. water) ...	30 gr.

This makes about a pint of solution. The bath is ready for use after it has stood for ten or twelve hours for the precipitated sulphur to subside. The toning proceeds slowly, and as the bath becomes exhausted of its gold it may take an hour or two; hence there is no fear that the print will be toned before it is thoroughly fixed, as with modern papers and combined baths. Prints produced in the early days of the art by the method here described have proved to be exceedingly stable.

We have here gone pretty fully into this early method of printing on albumen paper, because the results yielded are not surpassed by any modern method where rich black tones are the object in view, and the preparation of the paper involves so little trouble. The next article will deal with the commercial albumen paper as now on the market, and its manipulation.

PAPERS ON PRACTICAL PHOTOGRAPHIC OPTICS.

IV.

The present article on “The Speed of Telephoto Lenses when Employed on Near Objects” concludes a short series of papers dealing with optical questions of importance in practical photography. Those already published (THE BRITISH JOURNAL OF PHOTOGRAPHY, April 28, May 5 and 19) are:—“Focussing Scales and Depth of Field,” by J. H. Taylor; “Lens Calculations Without Arithmetic,” by A. Lockett; “Disks of Confusion and Distances beyond which all Objects are in Focus,” by Rev. T. Perkins, M.A.

TELEPHOTOGRAPHIC optics have generally been treated in a manner which does not commend itself to those who have not gone very deeply into the matter. I propose to deal with my subject by adhering as closely as possible to first principles, and by making no use of formulæ. In carrying out this plan, and with the view of avoiding undue prolixity, I am obliged to assume that my readers are acquainted with the rudiments of the subject.

Telephotographic combinations differ from other lenses in the greater separation between the elements, and also in the method of focussing. In ordinary lens combinations, the Cooke focussing lens excepted, focussing is accomplished by adjusting the distance between the ground glass and the lens. In the telephoto the interval between the two elements is altered. This adjustment alters the equivalent focus. From this it is apparent that the equivalent focus of the telephoto, other things remaining the same, is different from each distance of the object.

The F Value of the Aperture as a Measurement of the Rapidity of a Lens.

The true measure of the rapidity of a lens when photographing any given object is the *cf* value of the aperture; in other words, the back conjugate focus divided by the aperture (effective). In the case of objects at a moderate distance the back conjugate focus approximates sufficiently nearly to the focus of the lens to permit of the substitution of the *f* value in place of the *cf*

value of the aperture. This is the ordinary practice of photographers. For near objects the *c**f* value should always be employed.

All formulæ for conjugate foci are based on the assumption that a pinhole aperture or theoretically thin lens is employed. This very much simplifies the matter; but it is apt to cause trouble in some cases. For instance, if we are working life-size, each of the conjugate foci would be twice *f*, and consequently the distance from the object to the screen should be four times *f*. This would be nearly right if the lens were very thin. But with any compound lens a sharp focus cannot be obtained without sensibly increasing the distance. The correct amount for any lens of large aperture may be ascertained by a simple experiment, provided that you have sufficient length of camera extension. A distinct mark—say, a cross—should be made on a sheet of printed matter, such as newspaper. This is then set up at an angle. The camera is placed with its screen at a distance from the object-mark on the printed sheet exactly equal to four times the focal length. It will now be found impossible to get a really sharp image of the mark on the screen; but the letterpress a little beyond it can be accurately focussed. The distance between the mark and the nearest letterpress which can be sharply focussed is the addendum due to that lens, which should always be added to the calculated distance between the object and screen when enlarging or reducing with that lens.

Ordinary and Telephoto Lenses.

Although this peculiarity exists in all lenses, and ought to be understood, it is not of vital importance in the case of ordinary lenses; but with telephoto lens, on no account can it be neglected.

As an example, I take a lens which I tried some years ago. The positive was 6 in. focus and the negative 3 in. The separation was about 5 in. For distant objects this gave a magnification of $1\frac{1}{2}$ diameters—that is, the equivalent focus would be 9 in., and the back conjugate focus of a distant object would be the same amount. If this lens were focussed on any subject 42 in. from the camera, the magnification would be three diameters and the back conjugate focus 21 in. The ordinary rules would give a back focus of about $12\frac{1}{2}$ in. for a lens of usual form, having a focus of 9 in. under the same conditions. I think that the above shows the utter absurdity of introducing the equivalent focus into telephoto calculations, excepting when dealing with subjects at a very great distance. If you focus by extending the camera the ordinary rules will not apply, and you cannot adjust the distance between the elements without at the same time altering the equivalent focus.

The "Speed" of a Telephoto Lens.

As has been shown above, neglecting minor influences, such as the quality of the glass, number of reflecting surfaces, etc., the speed of any lens depends on two main factors:—

1. The effective aperture.
2. The back conjugate focus when in use.

The proper exposure is proportionate to the square of the back conjugate focus divided by the effective aperture.

Back Conjugate of a Telephoto.

The back conjugate focus, when ordinary lenses are employed on subjects at a distance, approximates to the camera extension. But with a telephoto it very much exceeds this length. The back conjugate focus may be defined as the camera extension required to secure an image of the same size as that given by the telephoto lens, by a pinhole situated in the same plane as the front surface of the lens combination. Perhaps it may be well to remind the reader that the conjugate foci, the object, and the image are in the following proportion:—

Size of object : size of image :: front conjugate focus : back conjugate focus.

How the Telephoto Affects Focal Extension.

The clearest method of dealing with the subject appears to be to illustrate it by an example. For this purpose I have selected one given by Dr. Rudolph on page 14 of his monograph of telephotographic objectives.

The example is that of a full-size image of an object situated 99 in. from the lens. In order to simplify figures I have substituted 100 in. for 99 in. For convenience we will assume that we have an imaginary lens—say, of the stigmatic type—the focus of the front element being 50 in., and that of the whole 25 in. If the front element alone be used, the conjugate foci will be equal to 100 in. each, and therefore the image will be full-size. But the camera extension required would be 100 in.—a highly inconvenient length.

Adding the back element of the stigmatic makes the focus 25 in. A simple calculation will show that with this focus and a front conjugate focus of 100 in. the back conjugate focus will be 33 1-3 in. In the correct position behind the lens we place a suitable negative lens with a screen fixed at a distance of twice its focus behind it. With the screen in this position the negative will magnify the back conjugate focus of the positive lens three diameters, bringing it up to 100 in. as before—that is, equal to the front conjugate focus. Thus, again, we obtain a life-size image. In both cases the conjugate foci are identical, and the aperture remains unaltered. Therefore, the speed will be exactly the same. The only difference will be that the camera extension is reduced to manageable proportions. I have intentionally abstained from giving any value to the negative, because it has no influence on the exposure when the magnification is unaltered. It is a matter to be determined from the focus of the positive, the magnification, and the size of plate to be covered.

The Same Problem Viewed Differently.

If we approach the subject from the standpoint of using an ordinary and a telephoto lens of equal equivalent foci, the results will be less simple.

The equivalent focus of the front element of our imaginary lens remains 50 in., and that of the complete lens 25 in. The latter must be supplemented by a negative and by a screen fixed at its focal plane. This will double the focus of the positive, bringing it up to 50 in., the same as that of the front element. As before, the front element will give a full-size image of an object 100 in. away. The whole positive element will have a back conjugate focus of 33 1-3 in., as we have already seen. Multiplying the back conjugate focus by the magnification—that is, doubling—we obtain 66 2-3 in. Thus, the image will only be two-thirds life-size. (At the same time, the exposure required will be less than one-half.) There are two ways of increasing the image to life-size. We may move the screen back to its original position with regard to the negative, or we may move the lens to a new position 75 in. from the object. Either course involves altering the distance between the positive and negative elements, and consequently an alteration of the equivalent focus. I think that the above will show the utter futility of introducing the equivalent focus calculations except in the case of very distant objects. The proportion between the foci of the positive and negative elements is quite as useless as the equivalent focus, and serves no purpose beyond complicating the matter.

What to Expect from your Telephoto.

It is sometimes claimed that a telephoto gives better perspective than an ordinary lens. This is only true in so far as a telephoto will enable you to increase your working focus. If the distance from the object and the size of the image be the same, the perspective will be the same whether the lens employed be a pinhole, a single glass, a telephoto, or any other lens.

The two important points in which the telephoto differs from other lenses are the variability of focus and short camera extension as compared with the back conjugate focus.

CHAS. LOUIS HETT.

THE WEEK IN HISTORY.

Herschel's Iron Printing.

SIXTY-THREE years ago to-day Sir John Herschel made known to the Royal Society the first iron printing process, named by him "chrysotype." His paper is entitled, "On the Action of the Rays of the Solar Spectrum on Vegetable Colours," and is mostly devoted to the behaviour in light of paper stained with various vegetable juices. "One of the most remarkable results of the enquiry," he proceeds, "has been the discovery of a process by which paper washed over with a solution of ammonio-nitrate of iron, dried, and then washed over with a solution of ferro-sesquianhydride of potassium is rendered capable of receiving with great rapidity a photographic image, which, from being originally faint, and sometimes scarcely perceptible, is immediately called forth on being washed over with a neutral solution of gold. The picture does not at once acquire its full intensity, but darkens with great rapidity up to a certain point when the resulting photograph attains a sharpness and perfection of detail which nothing can surpass. To this process the author applies the name "chrysotype," to recall to mind its analogy with the calotype process of Mr. Talbot, to which, in its general effect, it affords so close a parallel." This process, it will be seen, contains the germ of the platinotype process—i.e., it is the reduction of a noble metal by a photo-produced ferrous salt; but a good deal of water had to pass under the bridges before platinum printing suddenly reached a point at which it assumed practicable and patentable shape. This paper of Herschel's, I may note, does not appear in full in the "Philosophical Transactions" of the Royal Society, but as an abstract on page 393 of the "Proceedings," volume 4.

Iron Printing in 1816.

Sir John Herschel, whose labours in chemical printing are mentioned above, was most certainly unaware of the work of Nicéphore Niepce in the same field twenty-six years previously. On June 16, 1816, in a letter to his brother Claude, Niepce writes of his attempts to devise a photographic process based on the sensitiveness to light of iron salts. "I have read," he says, "that an alcoholic solution of muriate of iron of a full yellow colour becomes white in the sun, and takes again, in the shade, its natural colour. I soaked paper in this solution, and dried it; the part exposed to light became white, whilst the unexposed portion remained yellow. But, as this solution attracted too much moisture from the air, I have no longer used it, as I chanced to come across a much better and simpler substance. A piece of paper covered with oxide of iron, and exposed to oxygenated muriatic acid gas, becomes a beautiful yellow, and bleaches better than the foregoing." Thus it is seen that Niepce conceived the idea, though he failed to carry it out, of applying the iron salts to photographic purposes.

Daguerre's Last Scene-painting.

When Daguerre retired from the photographic business, which he did after being in it for not much more than half a dozen years, he reverted to his old occupation of scenic artistry. The place of his dwelling was the little village of Bry-sur-Marne, outside Paris. At that time there was living there a certain Mlle. de Rigny, a lady who dabbled in the sciences, and who was a sort of patron of Daguerre. At her suggestion, and presumably at her expense also, Daguerre executed a painting for the little church of Bry, which, being placed in an annexe, produced the effect of a considerable chancel behind the altar. On Monday next, exactly sixty-three years will have elapsed since it was formally installed; but it is still there, and anybody who has an hour or two to spare the next time he is Paris cannot spend the time more pleasurably than in taking the electric car to Bry and having a look at it. It has been described as deceptive in the extreme, leading the observer to believe himself in a building twice the size. It is some years now since I last inspected

it, but my recollection is that it was obviously a painting, though an extraordinarily clever one.

The Kennett "Pellicle"—Dried Emulsion in 1874.

Who made the first dry plate? It is a question I would rather not answer, except by saying that the first gelatine plate was not a plate at all, but a dried emulsion which was dissolved in water, and flowed over as many plates as were required.

Those who have been through photography in the days when gelatine was slowly driving collodion from the field, will not need to be reminded that the first step was taken by Dr. Maddox in 1871. Two years later a ready-made emulsion was advertised for sale by Mr. Burgess, of Peckham, but it was soon found that such emulsion would keep only for a very short time, and therefore no use was made of it apart from the fact that the great rapidity of gelatine was not understood in these early days; the plate was grossly over-exposed, and then complained of as foggy and giving no density. There was yet another thing that also conduced to the fogging of the early gelatine plates and their lack of density beyond their being much over-exposed. Photographers, who at first tried them, manipulated them in the same dark room light they had been accustomed to for collodion plates. This was, usually, one sash of a large window covered with a couple of thicknesses of yellow calico, or tannin, and it is now easy to see the effect such a light would have on even a moderately sensitive gelatine plate. However, thirty-one years ago, on Monday next, Mr. Kennett put on the market a dried emulsion, describing the process in THE BRITISH JOURNAL OF PHOTOGRAPHY of June 19, 1874, thus:—"I take the concentrated emulsion, after it has been well washed, from the removable salts, and place it in suitable dishes, evaporating the emulsion till it is of the consistency of thick paste. I then let it cool, and, removing it from the vessels, complete the drying on suitable frames. When dry it can be cut into portions of convenient size, and in this condition is ready for immediate use by simply dissolving in hot water."

I shall have more to say of these early days of gelatine before these notes come to an end. How scanty is the knowledge of many present workers of the gelatine process as to the slow degrees by which photographers have come into possession of their most valuable method. Those who would study the question cannot do better than turn to the article in the Almanac for 1880, in which there is a very clear review of the progress which had been made within about nine years of the inception of the process.

In Memory of Niepce.

I have quoted in these notes rather fully from the letters of Nicéphore Niepce, and I shall quote a good deal more before I reach the end of anniversaries on December 31 next, on which date "Historicus" will remove himself from his weekly place, and be heard no more awaking the echoes of the past. Niepce, even the casual reader of my paragraphs needs not to be told, was the predecessor of all those who have laboured in the photographic field, and that is why I signalise the lateness of any public memorial to him, a delay more extraordinary still in France, where every spare plot of ground is filled with a statue with just about the same avidity once shown by the London County Council in converting every available site into an open space. But it is only twenty years ago on Wednesday next that the statue to Niepce, which stands on the quay in his native Chalon was erected by public subscription. Some ten miles away, in the tiny churchyard of St. Loup de Varennes, he lies buried. His letters to his brother Claude, which contain the chief records of his experiments from about the year 1816, when he commenced his researches, until his brother's death in 1828, are preserved in the little museum, where also the visitor can see the apparatus he employed.

HISTORICS.

THE OPTICAL CONVENTION.

By courtesy of the Papers Committee of the Optical Convention we can now print practically the full text of the discussion arising from certain papers which have already appeared in our pages. The first of these deals with "Aberrations," the subject of two papers communicated on May 31, and printed in our issue of June 2. The general trend of the two papers was towards the classification and

definition of the various aberrations, and in the direction of representing graphically the results of calculations of lens systems and adapting the Hartmann method of testing to permit of measuring and expressing aberrations in the same form. Lord Rayleigh's paper on the "Polishing of Glass Surfaces" is yet to appear, but we hope to give the full text of it, and of the discussions of the remaining papers in our next issue.

ABERRATIONS.

(Discussion of papers read before the Optical Convention, May 31, "The British Journal of Photography," June 2.)

Mr. St. Lawrence Carson: With regard to actual aberrations, there are two ways of looking at the point which, I think, are entirely diverse from one another, and are likely to remain so for some time. The first is the actual calculation of aberrations and the expression of them in numerical form. That leads one to a certain series of results. Von Seidel, I think, got those results in certain cases. For photographic lenses, with which I am concerned, one has to take practice, for the theory is very complicated—if it is a theory at all at present. Taking Von Seidel's results, one gets these five aberrations, and one can calculate the numerical expression for them with a certain amount of labour. Unfortunately, in my own experience, and the experience of most opticians, when you have this calculated expression, if you proceed to construct the lens you will find that even if the two expressions for aberration of the lens are of identical value the performance of the lens may be entirely different, owing, of course, to the point to which Mr. Chalmers alluded—mainly to the distribution of light over the Gauss plane at the image point. That is to say, if you take the actual theoretical Gauss image, the actual point, very few of the rays starting from the object will go through it. You must take a small area to correspond to the object point, and consider that all the rays passing through that small area give you the image. Outside that, of course, there is the scattered patch of light caused by aberration. That patch of light it is that spoils the definition of the lens, and the question, for practical opticians at any rate, is—How is it spoiled? It has always appeared to me that it is spoiled, in the first place, according as this patch is more or less intense; that is to say, you have a certain percentage of loss of light from the actual source. If that is lost, scattered light is concentrated very close to the image—the brilliance of the actual image and of the scattered patch are nearly identical. If it is scattered over a large area, the brilliance of the image is very great compared with the patch, and in actually taking a negative the patch is really invisible except in the case of a long exposure. Roughly speaking, if the brilliancy of the actual image is about seven times as great as that of the aberration patch, caused by all the aberrations, then I think you may say that the lens will give good definition as far as that goes. But there is a further point connected with aberrations which is very much more difficult to calculate, in fact, so far as I am concerned, it has proved practically impossible to calculate, and that is to get a very sharp discontinuity of illumination between the actual image of small area and the aberration patch surrounding it. I have myself constructed a lens which answered to the first condition. It gave a certain amount of aberration for oblique central rays, in which the residual light which did not fall upon the image area was widely distributed: the lens answered the condition that the lost rays should be very much diffused so as to give very weak illumination compared with the small area which formed the actual image. But I constructed this particular lens so that instead of there being a sharp discontinuity from the image to the aberration area there was a gradual falling off, and when you actually examine it with a high-power glass; or, when you take a negative with it, it does not give the definition you expect at first sight. The definition may be all right, but as soon as you enlarge it, even twice, the want of sharpness in the contrast becomes apparent. I believe that is really one root of the difficulty, not only in constructing lenses, but in their performance. I have tried the effect of calculating the total amount of diffused light, and, as nearly as one can, the area over which it has spread, and taking the average amount of diffusion illumination (assuming the diffused light evenly illuminates the aberration area), but it was very unsatisfactory. In some of the aberrations, notably coma, the coma is very concentrated near the image, but the illumination over the average part of the area and discontinuity cannot be calculated. A more accurate calculation or an experimental measurement is necessary. Any test of the numerical value of a performance of a lens must be of value not so much, perhaps, to the optician as to the man who is going to buy the lens; you must give him the assurance that the performance of the lens will give him good definition. Even if you get numerical tests which measure aberrations, it is quite possible that the definition of the lens may be different in two different cases, and until we get round that difficulty, if we ever can, I do not think numerical measurements of aberrations will be of much use from the point of view of the ultimate user of the optical system, although it may be of great use to the optician who is making them. If anything can be done to either devise a practical method of choosing your image

area on the Gauss plane, and then obtaining a discontinuity in the illumination of it and measuring it in practice, I believe that the problem of constructing and testing objectives will be practically solved; but, personally, I do not see at present that there is very much hope of doing it. It is not only that the theory is difficult, the practice, also, is difficult. Although I may take somewhat of a pessimistic attitude, I think the initiation of this discussion by Dr. Drysdale and Mr. Chalmers has been of the greatest value, not only to opticians, but also, I hope, to the users of the results of opticians.

Professor Silvanus Thompson: It is quite clear that the trigonometrical method of following out the individual rays will be more likely to lead to useful results, having measurable quantities which can be specified, than any of the other methods of treating aberrations for this purpose. As Mr. Carson suggests, it is absolutely necessary in dealing with different aberrations to consider the intensity of the light that goes in the different directions. There may, so to speak, be different kinds of aberration in different directions and at different angles, not all equally important in destroying the definition. Dr. Drysdale has not suggested among the tests for aberration some other tests, which, I think, would be quite equally useful to the users of lenses. For example, in testing as to the absorbing properties of the lens, we may imagine two lenses which are quite equal in other respects, in which the glass is so constructed that one will absorb a much larger portion of ultra-violet rays than the other, and they would not be equally satisfactory from the user's point of view—even though their aberrations, strictly so-called, might be exactly alike. With regard to the remark of Dr. Drysdale that the eye, when used in combination with other instruments, cannot be treated always as a portion of a centred system, I suggest that it might be useful in certain instruments to arrange the eye-pieces on them so that they could be swivelled round in some way that you should be able to de-centre the eye-piece so that it might be used, with all the goodness of its central performance, along some oblique direction to receive oblique rays. I am afraid the suggestion is very impracticable from the makers' point of view, but I do not think it is altogether unworthy of consideration. There are a number of cases—they occur occasionally in an isolated form—where some contrivance out of the ordinary run is worth having. It might also be useful to have an eye-piece made, with a fine adjustment—a kind of collar correction—to alter the distance between the field lens and the eye lens, and change the aberrations of the eye-piece for any special piece of work. These suggestions may have some value for individual cases.

Dr. Burton: Professor Thompson's suggestion of a small swivelling movement for an eye-piece is perfectly practicable in certain cases, to give considerable movement. The eye-piece which I have in my mind was used for a focussing screen. The focussing screen was a transparent one, with scratches upon it, so that the eye-piece formed part of the system with an enlarging photographic lens. The instrument was for enlarging stellar spectrograms, and it was necessary to run from end to end of the focussing screen to see that there was good definition in every part. If that eye-piece was merely made to slide laterally it received no light whatever in the out-lying parts of the field. It was so constructed that it could swivel about an axis lying in the focal plane, so that it was made to bring any part of the focussing screen being used into the view of the eye-piece.

Mr. D. E. Benson: I would like to suggest, more from the purchaser's than from the manufacturer's point of view, that an addition should be made to Dr. Drysdale's specification—at any rate, in regard to photographic lenses—and that is, that he should give us some idea of the amount of flare the lens possesses—I do not mean the flare that arises from what might be called coma, but the flare that arises from the internal reflection in the lens. I have had through my hands lenses which the makers assured me gave absolutely critical definition; but if you get a small bright light on the one side and a small dark shadow on the other, your plates are ruined by the internal reflection.

Dr. C. V. Drysdale, in reply, said: Although the discussion has been most interesting, I am perhaps a little disappointed that we have not had many expressions of opinion as to whether there was any possibility of a consensus of opinion on these definitions: but doubtless that will take a long time, and, of course, I am perfectly well aware that many who are best competent to deal with the question are those who feel that time must be given to it. I think it is

a thing we may well keep in mind—whether it would not be advisable, having got to the stage we have, for this convention to appoint a committee to study this question during the forthcoming year, and to report on it to the next meeting, which we hope will take place next year. I cannot help feeling that the matter is of such extreme importance that, in our present state of information, we might try to do what we can. Mr. Carson has brought up the very important question as to the size of the diffusion patch, and has pointed out that our criterion as to focus and definition must deal with the distribution of the light. Mr. Chalmers has pointed out the same thing. But I am afraid that, although that is the case, it does not convince me quite of the difficulty of making the tests. These difficulties of diffusion are, to a certain extent, due to the aberrations of higher orders as well as aberrations of the first order. It appears to me that if we make our tests on the basis I have suggested, at different apertures, that we shall then know the distribution of the light. It is perfectly clear that the distribution of light is a question, to a certain extent, of aperture. If we stop down our lens to a very small aperture, then there is not much chance for the light to diffuse; as we open up, the size of the diffused patch gets greater and greater. If we compare the size of the aberration patch with the size of the aperture, or use two apertures, I think we come to something like a knowledge of the distribution of light in the way Mr. Carson suggested. I know there are practical difficulties, but I do not think they are insurmountable. I certainly do not think there is any theoretical difficulty or practical impossibility of getting this distribution of light in the focus. In view of the extreme importance of the Hartmann method of testing, does Mr. Chalmers

think the very imperfect suggestion I have made of actually visually examining the position of the central diffraction rings for different positions of an aperture in front of the lens would enable us to get that information? Dr. Thompson raised the question of the quantity of light transmitted both for visual and for ultra-violet light. In the paper he will see that I have said—“there should also be stated the maximum illumination for visual or actinic light.” That is so extremely important that I should have been very sorry to have omitted it.

Mr. S. D. Chalmers: In reply to Dr. Drysdale's suggestion, the only drawback to the method mentioned is that it requires very perfect apparatus, because the measurements are not made at the same time; and any slight want of adjustment or want of stability in the apparatus will tend to throw out the measurement, and cause errors to arise. Therefore it is desirable to make all the exposures or measurements for one point at the same time.

The President: In asking you to thank Dr. Drysdale and Mr. Chalmers for their papers, I should like to make one remark with regard to the definitions of aberrations that have been offered. Viewed from the standpoint from which they have been put before us, they are no doubt admirable. At the same time, I think it is of great importance that definitions of aberrations which are adopted should be such as are strictly capable of measurement; and I feel some little doubt myself, after a slight experience in testing lenses, as to whether definitions that depend on determining as accurately as one can the size and position of a patch of light are those which will be found best for specifying numerically the performance of the lens.

THE PRINCIPLES OF TRICHROMATIC PHOTOGRAPHY.

(Discussion of the paper by A. J. Bull before the Optical Convention on June 2, and printed in “The British Journal of Photography,” June 9.)

Dr. Clay considered that Mr. Bull was working on the right lines in endeavouring to reproduce colours of different degrees of brightness; that it was of the utmost importance to reproduce the same colour in the same way under different conditions of illumination, even if this necessitated the less perfect rendering of an evenly illuminated spectrum. Our aim is to reproduce natural colours, which consist of large broad bands of mixed colours, which may be very unevenly illuminated. There can be no doubt that plates do not follow a straight line law, hence a theoretically perfect rendering at one luminosity might be very far out at another, and it is this very difficulty that Mr. Bull is attacking so successfully. He suggested the use of a spectrum from a wide slit as a more satisfactory source of mixed colours than a colour chart.

Mr. A. C. Jolley: One cannot pass without comment the beautiful and convincing demonstrations which Mr. Bull has devised to illustrate his points. The question of filter records intended to follow curves and those having abrupt absorptions was fully discussed in our joint paper of 1904; and experience only tends to strengthen the facts therein stated. No matter how tempting filter records following mixture curves may be in theory, the fact that they will in practice work only at one critical exposure condemns them, since in one subject one may have considerable range of light and shade. It would undoubtedly seem, therefore, that filter records which constitute even bands terminating abruptly between prescribed limits, and

whose overlaps in the yellow and blue green are restricted to a region whose component wave-lengths are to constitute the printing colours, will more truly reproduce a subject with considerable range of light and shade than filters whose records possess definite maxima; and there is but little doubt that the correct regulation of this overlap is one of the most important factors in the successful application of the process.

Mr. Dowse: Changes in hue, consequent upon variation in luminosity or illumination, may be demonstrated by the following simple experiment. Arrange two white surfaces, such as small filter papers, in such a position that they are close together, but unequally illuminated by some source of light. If these surfaces be observed through coloured glass from a distance of a few feet, a difference in colour will be manifest. When the more illuminated surface appears yellow, the other surface has an orange tint; if the former be violet the darker surface becomes bluer in tint. A degradation with the colour nearer the red end of the spectrum seems to take place when the illumination becomes less. Mr. Bull has also pointed out that in examining the spectrum of an arc lamp the sodium D-line, which is always present, appears bright yellow on an orange ground.

Dr. Drysdale referred in appreciative terms to Mr. Bull's work. He was glad to see a general recognition of the necessity for reproduction colours consisting of bright bands.

REMINISCENCES OF THE DUBLIN CONVENTION OF 1894.

II.

Phoenix Park.

I must not forget another incident which happened on a certain evening. Four members met opposite the Bank of Ireland, viz., in front of that historical building Trinity College (where our meetings will take place this year), and decided to go for a drive to Phoenix Park—one of the most extensive and beautiful in the world. It consists of 1,760 acres, and is kept in excellent condition. A good nag was selected, and off we started. The drive was most enjoyable, and the various objects of interest were pointed out by our coachman: the Viceregal Lodge, the Wellington Pillar, the Military Hospital, the Phoenix Column, etc.; but, curiously enough, the spot we were particularly anxious to see was missed. I allude to the scene of that terrible tragedy of 1882. When asked about it, our charioteer said we had passed it. We insisted upon going back. I had often heard that the car drivers evaded the spot if possible; perhaps out of shame—let us hope so. Yes, there was the place, with the turf in the path scored away in the shape of a cross, showing where two defenceless and honourable gentlemen had been

cruelly murdered. Ah, well! That happened more than twenty years ago—“Let bygones be bygones.”

Rain and “Precautionary Measures.”

But to our tale. It came on to rain, and one of our party, a particularly nervous gentleman, was unprovided with either a mackintosh or umbrella. We sheltered him as best we could, but he was so anxious not to catch cold that we asked the javey if he knew where we could get a drop of good whisky. “A' right, Sorr,” said he, and drove to the other side of the park at a furious rate. There, under some trees, he suddenly pulled up, and we descended; so did the rain.

I don't think I should know the house again, but I am quite certain I should know the flavour of the whisky. I never tasted anything like it before—nor since.

I may here remark, incidentally, that only one of our party really wanted any whisky, but it does not do to be unsociable at such times; and the other three of us allowed ourselves to be persuaded to take a little, as a precautionary measure.

"Ye'll get a dhrop of the *raal* potheen here, gintlemen," said he. The *raal* potheen, thought I, and my mind wandered back to Bellamy's old song, one verse of which runs:—

Don't go dhrinkin' of brandy, or hollands, or shrub,

Or gin—them's all doctored, depind av it—

Or ye'll soon have a nose that ye never can rub

For the blossoms that grow at the end av it.

But the *raal* potheen, it's a babby may take

Before its long clothes are cut shorter,

As much as would shwim it, an' divil an ache,

Av its not mixed with too much could water.

I prepared, therefore, for a surprise, and I had it. Would we like it old? Yes. Now there is whisky *and* whisky. What's in a name? as somebody says somewhere—"That which we call a nose, by any other name would smell as much." Many of us have seen two or three brands of liquor served from the same bottle; but this was the *raal* potheen—and *old*.

I suppose I am no judge of potheen, but if what we had was old I should think the new might be useful to clean paint, or, adulterated with beeswax or shellac, would make good furniture polish. To say it went down like a torchlight procession would be to "damn it with faint praise"; however, our timid friend did not catch cold, so it answered its purpose. Potheen is evidently an acquired taste, unless you are born with it; probably that was the case with our jarvey.

Sights of Dublin.

Monday.—During the Sunday there had been many arrivals, but it was not until Monday morning we realised that this was to be a record meeting. The rooms at Dawson Street were crowded, and the Hon Secs. (Messrs. Cembrano and Ruthven) were working "like niggers," or more so. Everybody was being introduced to everybody else; there was a pleasant chinking of money; the pages of the signature book were being rapidly filled up; members (as usual) were clamouring for information which was plainly printed in the handbooks, and every one seemed in the best possible health and spirits. Some, with cameras, hastily signed the book, and then quietly went off to secure pictures of some of the attractive bits previously noted. Then parties were made up to see the sights of the city, and little batches of members started in various directions; the largest parties appeared to be commencing at the Cathedral and finishing at Guinness's Brewery—one of the most interesting things in Dublin.

I should think that during Monday more snapshots were taken in and around Dublin than at any previous period in its history. All the members appeared to be making good use of their time, and seemed desperate in their desire to benefit the plate makers as much as possible. The statuary seemed to attract an enormous amount of attention. There is a great deal of it in Dublin, and, as a whole, it is very effective. Of course, Foley's grand monument to O'Connell is the "pick of the basket," and I am inclined to think that Tom Moore's is about the worst; it is quite unworthy of Ireland's charming poet, who has got no end of people into trouble through writing:

"When we're far away from the lips we love
We have but to make love to the lips we are near."

The suburbs of Dublin, too, came in for their share of the camera—Glasnevin Cemetery, with its fine monuments; the People's Garden; the Zoo, with its lake and shady walks; Kingstown, its East pier and mail boats; the Hill of Howth, with its fine view of Dublin Bay; and many other attractive spots within easy distance.

As for Sackville Street, the Nelson Pillar, the Post Office, the Bank of Ireland, Trinity College with its statues of Oliver Goldsmith and Edmund Burke, and its bell tower, and the O'Connell Bridge, all day long some one seemed to be immortalising one or other of them, and more than one energetic member even strayed as far as Morrison's Hotel (now demolished) in order to photograph the fire-escape down which, a short time previously, a prominent member of Parliament descended, on being surprised paying an amatory visit to a lady well known in Irish society.

However, the longest photographic day must have an end, and as evening drew near numbers of ladies and gentlemen wended their way to the Royal Dublin Society's buildings in Kildare Street, where the official reception took place. First, the official business—Mr. Andrew Pringle in the chair. The Lord Mayor welcomed the members, Sir Howard Grubb gave us an excellent address, and then came the conversation in the magnificent museum. It was a large and influential gathering which met to do honour to the members of Convention, and the electric light and the fine band of the Royal Irish Constabulary added to the brilliancy of the occasion. There was a lantern show, by-the-bye, in a side room. This consisted mainly of slides from negatives taken at previous Convention meetings, and some of the subjects, the portraits especially, seemed particularly puzzling to the uninitiated.

F. A. BRIDGE.

(To be concluded next week.)

FOREIGN NOTES AND NEWS.

A New Derivative of Amidol.

M. REEB, about a year ago, in a paper before the Société Française, suggested the use of amidol in a solution of sodium bisulphite, which was neutralised by the addition of small and increasing quantities of sodium carbonate, but it was found that all plates would not give satisfactory results, in many cases dichroic fog resulting. He has now discovered that the addition of small quantities of pyrocatechine and hydroquinone to the amidol entirely prevents this fog, and that the new compound, which he calls "amidol salifié," will develop in an acid bisulphite solution without any sulphite of soda, but the total time of development is about eighteen hours. The formulæ he gives are as follows:—

Bisulphite Solution.

Sodium sulphite	180 grammes.
Water	800 ccs.

Dissolve by the aid of heat, and add:—

Sulphuric acid	20 ccs.
Water	200 ccs.

Amidol Salifié.

Amidol	2 grammes.
Pyrocatechine	1 gramme.
Hydroquinone	1 gramme.

The actual developer is:—

Amidol salifié	2 grammes.
Bisulphite solution	50 ccs.
Water	100 ccs.

This takes about eighteen hours in all, but by successive additions of 25 ccs. of a 20 per cent. solution of carbonate of soda development is hastened, and the maximum rapidity is obtained when the bisulphite is converted into the neutral sulphite, so that the above bisulphite can be replaced by nine grammes of neutral sodium sulphite, and the same result obtained. One advantage of the new developer is that the solutions keep well.

Canada Balsam in Collodio-chloride Emulsions.

Herr Benzen suggests as a substitute for glycerine and castor oil in collodio-chloride printing-out emulsions the use of Canada balsam, which he states has none of the disadvantages of the

mixture. Contrary to the generally accepted statement that a balsam is entirely soluble in ether, the author states that only partly so, and the insoluble portion should be removed. Parts of Canada balsam should be mixed with fifty parts of the solution filtered and the filtrate placed, in a dish, in

a place free from dust to evaporate. Forty parts of this purified balsam should be dissolved in 460 parts of ether, and 5 per cent. of this added to the emulsion; though for highly glazed papers a little more may be used and less for the matt. The balsam solution should be added to the emulsion after all the other ingredients.

ON THE REPRESENTATION OF MOVEMENT BY ART AND BY PHOTOGRAPHY.

I.

portrayal of motion has long been a task that has concerned artists and photographers. The endeavours of the latter to give an accurate representation of a moving object but to convey the idea that it is in motion have been too often handicapped by the limitations of both the apparatus and the photographer. John Bartlett, a well-known authority on photographic artistic matters in the United States, has written a beautiful article on the subject in a recent number of "Camera" and we think it is of sufficient interest to reproduce in part. Bartlett says:—

The Eye v. the Lens.

The delineation of the forms of Nature the human eye, aided by the most delicate touch, cannot approach the accuracy of the pencil of light, and photography has therefore, directly or indirectly, to a perception of many of Nature's beauties and many of her appearances which the unassisted eye might not recognise as beauties but for the camera's searching eye; yet, from the tribunal of art, judgment must often be pronounced against photography, and the 'book of law' is the conditions imposed by the limitation of our vision. Upon the physiological accuracy of the eye, not to see Nature as she actually exists, its imperfection, as compared with the lens of glass, depends our pleasure in pictures.

Persistence of Vision.

How often do we hear it said: 'A photograph cannot lie'—like Macbeth's witches, it sometimes 'lies like truth.' A representation of Nature, to be true artistically, must be true in the values of light and shade as well as true in drawing, but in the tone the photograph is frequently incorrect. The variety of effects of colour in objects, and the effects produced by reflection and interpenetration of colours, are heightened or modified by perception of vision, and as this impression cannot be reproduced upon sensitive film, even with the employment of orthochromatic plates, the photograph fails to reproduce what the trained eye of the painter sees and transfers to his canvas. Now, still further, it has frequently been demonstrated that the image impressed upon the retina remains there an appreciable space of time. It is not instantaneously formed and then instantaneously obliterated, but its transit allows the superposition of other impressions. It is this peculiarity of vision which enables us to enjoy the so-called 'persistence of vision' and other optical wonders.

Arrested Motion False.

We compel the painter to represent arrested motion, an actual instantaneous attitude, because he has the presentation of a single instant of time, would be as wise as to confine him to the use of colours which do not modify each other harmoniously when in motion, though science proves the isolated existence of primary colours in the spectrum. Objects, though passing continuously through an unbroken series, seem to the eye to have no break in succession, hence our impression of progression, but instan-

taneous photography (that is, photographic impressions of fractions of a second) by isolating any special movement in the series, really destroys all conception of motion. Therefore the reason why the painter of movement never seriously regarded the investigations of Muybridge and others who showed the actual truth of Nature

Art Governed by Visual Laws.

We do find frequent examples in the history of art conformable to the scientific demonstrations; but from the fact that the painters selected only certain phases of rapid movement, we are justified in claiming that they were conscious that art is governed by visual laws which demand a different treatment, and that taste tolerates conventionalities rather than radical representations. When we come to consider moving objects we find plenty of contradiction between what appears to be and what is. Driving clouds or a ship in full sail are easily photographed or drawn, simply because, although moving rapidly, their form varies very little as they proceed, and their apparent form is in no way different from their true form. Even the ever-heaving waves of the sea, though offering peculiar difficulty to the painter, on account of the rapidity of movement, are often correctly drawn: indeed, often more true to moving nature than the petrified presentation of photographic impressions of a thousandth of a second.

Photography Sometimes Helpful to Art.

We cannot, after what we have just said, be accused of partiality to photographic art. We have pointed out its limitations, and perhaps ruthlessly shown its shortcomings in art, but let us say every painter must candidly acknowledge the great service photography has rendered him by treasuring up those transient shapes of sea beauty which his pencil despairs of recording. The Old Masters, even the Venetians, who lived upon the very bosom of the sea, give us but crude representations of the sea. It was left to modern art—we might almost say to contemporary art—to study the volume of the moving waters for its own beauty independent of its association as a conventional background for human motives. Turner and others come very near Nature. They give us the impression of mass and volubility, of transparency and mobility. They show us admirably the lapping and curling of the waves with their lace-like traceries, the intermingling of light and shade, broken up by the little surges and ripples; yet, in all probability, it was not so much their quickness of perception as the revelation of sea movement by the camera. Understand we are not maintaining that all photographs of sea action represent artistic movement. Many present but a petrification, the result, we are inclined to believe, of using a too rapid shutter.

Position Assists Idea of Movement.

But let us return to the discussion of our dictum, that it is not the business of the pictorial photographer to photograph moving objects contrary to our visual impression. There are plenty of artistically true positions, which a moving figure takes for our selection, possible with the use of a slow shutter. Let us suppose an

example: We have two men walking, one of whom has his left leg forward, and the other his right leg. They are going fair heel-and-toe, perhaps not very elegantly, but at any rate it conveys the idea of walking. Now it is self-evident that in walking the legs must pass each other at every step. Let us endeavour to draw or photograph our pedestrian at the moment when one leg is passing in front of the other, and we shall find it impossible to give the idea of fair heel-and-toe walking. Now, why is this? The reasons are twofold; in the first place, at each step there is a momentary pause when both feet are on the ground, and the eye seizes on this pause and naturally associates the position the legs are in with the action of walking. Secondly, it is only in this position that any idea can be given of the length of the step and the rate of the man's progress. A photograph taken at the moment when one leg is passing the other would not convey the impression of forward movement. In nature it is the actual motion of the legs which causes the attitude to appear all right, but if we could arrest it instantaneously the action would appear as cramped in nature as it would in a photographic portrayal. During a thunderstorm at night, if you should ever happen to see a walking or a running man illumined by the flash of lightning, you will notice that he does not appear to be moving at all unless the flash should happen to occur just at the time when his legs are fully extended. The attitude appears always more or less cramped, unless the moment is seized when the runner's legs are fully extended.

Galloping Horses.

The old-fashioned way of representing a horse galloping, the hind legs invariably on the ground and the fore legs well bent (as old, anyhow, as the Assyrian sculptures), was blindly adopted by successive generations of artists up to the early part of the nineteenth century. Vernet was the first to innovate. His studies of horses in motion are superb, the action is always spirited, yet true to nature. His method has never been improved upon, though one occasionally sees a photograph of a moving horse which reminds him of his pictures. Vernet had quick visual perception and artistic selective ability. One would think, too, that Michael Angelo's eye had a sort of photographic shutter attached, so close do his moving figures approximate finely selected snapshot pictures.

Sixteenth Century Painters Worth Studying.

Charles Leslie has called attention to a peculiar conception of Angelo's 'Judith and Holofernes.' The headless man turns on his couch, and the rustling of the curtains, occasioned by the up-raised and moving arm, causes Judith, who is about to escape, to look back. Thus the terror of the scene is indescribably heightened by an attention to the fact of the continuation of muscular movement for a short time after decapitation. The reeling 'Bacchus' of Michael Angelo's is another striking example of the visual perception of this great genius. The sixteenth century painters and sculptors ought to be studied by every photographer in search of pictorial movement. Their work is simple, natural, and true. Andrea del Sarto's 'Madonna della Arpie,' standing so firmly and strongly on her feet, gives us the impression that she is really able to carry the heavy boy on one arm. The way in which she has propped the book against the thigh and rests her hand on the edge, so that a large and coherent design is formed, is a magnificent example of the way in which these sixteenth century painters show life, force, and energy.

Other Examples.

We want to show the great advance in the representation of spontaneity of movement of the sixteenth century painters over those of the previous century. True, the fifteenth century enjoyed the

highest degree of charming movement in the light-footed figures that speed across its pictures. This motive was used with good reason by every artist. In the picture by Ghirlandajo of the 'Birth of John the Baptist' we observe the angel with the candle approaching swiftly, and the servant, who brings fruit and wine, coming bursting into the room, her drapery blown out by the breeze. You will note the position of the feet, giving admirably the heel-and-toe movement referred to above. This representation of movement, so characteristic of the age, finds its sixteenth century counterpart in the picture by Raphael of the fire in the Borgia Palace (Incendio del Borgo). The whole difference in the idea of form lies in the contrast between these two figures. This woman engaged in carrying water, who supports her burden with stalwart arms as she walks quietly erect, is one of those magnificent creations of Raphael's mature and manly sense of beauty. It may not be fair to say so, but it was in the sixteenth century that Baptista Porta discovered the 'camera obscura'; Raphael and Angelo may, after all, have put their heads under the focussing cloth. In Raphael's picture of the Transfiguration we shall notice how quick an eye the great painter possessed. The rapidity and suddenness of movement on the part of the mother of the demoniac boy, whom the Saviour has just healed, is such that the draperies have not had time to follow the impulse of the body. She alone has turned. Her girdle left behind by her movement seems to be placed awry, but we soon perceive that if she were to return to her former attitude, it would be in its proper place.

Limitations of Painting.

Lessing, the great German critic, tells us:—

'All appearances of nature which in their actual state are but of an instant's duration—which can be what they are but for a moment—all such appearances, be they pleasing or be they horrible, received through the prolonged existence which art gives them a character so contrary to nature that at every repeated view we take of them the impression becomes weaker and weaker, till at last we turn from the contemplation in weariness and disgust.'

Le Mettrie, who had himself painted as Democritus, the laughing philosopher, laughs only at the first time we look at the picture. Look at him often, and the philosopher is converted into a buffoon and his laugh into a grimace. We all feel how disagreeable an unmeaning laugh is, and in a portrait, unconnected with story of incident, it becomes unmeaning or worse, especially when the face is made to look at us.

Leave Something to the Imagination.

In the wonderful antique group of 'The Laocöon' the father and his sons are being crushed to death by huge serpents, but the sculptor does not seek to represent in the countenances of the sufferers the distortion which actually accompanies the physical and mental anguish, but the spirit of a great self-collected soul is portrayed. The beholder is rather led to the contemplation of the extreme expected, while he does not actually see it—and so the true end of all art is accomplished by leaving something to the softening influence of the imagination. The emotion of the horrible is eliminated by the presentation of a phase, which is not disappearing by its continuation in art.

In other words, that which is beautiful in a work of art is beautiful, not to the vision as a single isolated phase of a continuous action made for ever unchangeable, but as it is suggestive of succeeding phases, stimulating the imagination to create for itself something which is not actually presented to the eyes, but effected, nevertheless, by their means. The mind thus anticipates, carries itself beyond what could have been actually represented at the precise moment the scene depicts, and its delight is thereby intensely increased.

DEVELOPMENT NOTES.

THE old theory that errors in exposure can be compensated for by tinkering with the developer after it has been applied to the plate still holds good in some quarters, and there are few who are still firmly convinced that if they do not carefully watch the plate during development and look through it at least half-a-dozen times during development, it will turn out a failure. What particular virtues accrues to the plate from looking at it I have not been able to discover. It certainly may happen that it will be fogged by the dark room light, and if pyro-soda be used it can certainly be more deeply stained than would otherwise be the case.

In my early days I admit that I was probably as big a sinner as anyone else in respect of these two points, but a series of personal experiments with Mr. Watkin's system of "time" or "factorial" development proved to my satisfaction the utter fallaciousness of hooking the plate out of the dish every minute to see how it was going on. I found that I could obtain a far more even set of negatives from varying exposures by use of the factor than I could by judging density in the old way.

I found, too, that there was an immense amount of saving, both in time and trouble, for a great deal of my work is developing amateur's negatives, which, as all the world knows, receive vastly varying exposures, some of which may be correct, but of which the majority certainly are not. Examination of the plate during development meant practically developing each plate by itself, but now I can put six quarter plates in a dish and flood them with the developer, and using a pencil and paper to note down the time of appearance of the image, have only to do a simple sum to find the exact time that each one must remain in to obtain the best result.

Quite recently, however, I had a very large number of negatives to develop, which would have entailed many hours of work, and just at a time when I could ill spare it, so I determined to give stand

development a trial, and after the first six plates had been thus developed the whole of the batch were treated the same, with surprisingly satisfactory results, for not a single negative was lost, though, judging from the varying times they took, they must have received the most extraordinary exposures.

The particular formula I used was:

Ortol	10 grains.
Potassium metabisulphite ..	5 grains.
Sodium sulphite	65 grains.
Sodium carbonate	65 grains.
Water	20 ounces.

A dozen plates were placed in the tank and left for a quarter of an hour before being looked at, and they were all finished in less than half an hour, and by using two tanks the large order was soon wiped out, and not a single one was spoilt.

Whether stand development is any improvement on the factorial system for studio work I am unable to say; probably it would be found to be hardly worth while, for there is never such a rush, and then it may not be possible, of course, to obtain tanks for larger negatives, but for quarter plates, particularly when they have received all sorts of exposure, I am convinced it is superior to all other methods. The fineness of grain of the negatives is excellent, they possess good gradation, and no trace of fog from development or stain. I believe almost any other developer but pyro may be used for stand development, with equally satisfactory results.

Theoretically, if Messrs. Hurter and Driffield are right in their contention that one developer will not bring out more than another and the action of light on the plate is absolute, it seems quite reasonable to suppose that a very weak developer may act quite as well as a stronger one provided sufficient time is allowed.

T. C. GRAYDON.

AN APPEAL TO CHARITY.

The Mawdsley Fund.

A FURTHER response to our appeal of June 2 takes the form of the list published below, which represents the further remittances received up to Wednesday morning last. In acknowledging the generosity of the donors, we would say that the total now reached by the fund justifies us in making a regular allowance to Mr. Mawdsley of an amount, which, though not great, will place him in a state of comparative comfort, and will relieve his mind of an anxiety as to how his few wants are to be provided for.

	£	s.	d.	£	s.	d.
Amount already acknowledged				20	0	0
Milton B. Punnett, Esq.	2	2	0			
Anonymous	2	0	0			
Walter Jesper, Esq.	0	10	6			
Johannes	0	10	6			
J. L. Woodward, Esq.	0	10	0			
W. R. Bland, Esq.	0	5	0			
E. J. Ellery, Esq.	0	5	0			
H. M.	0	2	6			
				6	5	6
				£26	5	6

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge de Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Saint-Esprit, Liège.

August 7.—Andover. Hon. Secretary, W. I. Gradidge, Jubilee House, Andover.

September.—Royal Photographic Society, New Gallery, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern Photographic Association. Hon. secretary, William H. Frame, 28, Bank Street, Hillhead, Glasgow.

FORTHCOMING COMPETITIONS.

July 15.—Warwick. Money prizes for members of photographic societies for pictures taken on Warwick Dry Plates. Warwick Dry Plate Company, Warwick.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

PHOTOGRAPHIC EMPLOYEES IN NEW SOUTH WALES.

The first annual meeting of the Photographic Employees' Association of New South Wales was held in the Queen's Hall, Pitt Street, Sydney, during the last week in February. The vice-president, Mr. H. Bradley, occupied the chair.

The Secretary, in presenting the annual report, congratulated the members in being able to report that the past year had been most successful, as the Association started with fifteen members, and had increased to such an extent that the number on the roll now was nearly 100, and the financial statement showed a very good balance in hand.

The election of officers resulted as follows:—President, Mr. J. C. Cruden (re-elected unopposed); vice-president, Mr. H. Bradley (re-elected unopposed); secretary, Mr. Walter Davies (re-elected unopposed); assistant secretary, Mr. J. Stuart, Jun. (unopposed); treasurer, Mr. A. Morrison (re-elected unopposed).

A special vote of thanks was accorded the secretary for the efficient manner in which he had carried out the business of the Association during the past year. He was granted six months' leave of absence, in consequence of his leaving Sydney this week on an extended trip to Europe. The assistant secretary was empowered to carry on all the duties of the secretary, also to represent the Association in the Arbitration Court.

Photo-Mechanical Notes.

Increasing the Sensitiveness of Bichromated Fish-glue and Albumen.

In the current number of "Le Procédé" MM. Calmels and Clerc give the results of their experiments of adding dyes to the bichromated albumen and gelatine as used for the half-tone process. The particular formulæ they employed were—

Water	...	...	...	...	1,900 ccs.
Enamel glue	...	...	...	...	1,000 ccs.
Cologne glue	...	...	...	...	50 gms.
Ammonium bichromate	...	...	...	...	60 gms.
Ammonia	...	...	...	...	10 ccs.

and—

Water	...	...	...	...	1,000 ccs.
Albumen	...	...	...	...	100 ccs.
Ammonium bichromate	...	...	...	...	15 gms.
Fish-glue	...	...	...	...	20 ccs.

At a fixed distance from an arc-lamp of low amperage the exposure for these was forty and twenty minutes respectively. Erythrosine BE, and RE of the Société des Matières Colorantes de Saint-Denis, were tried, and the former was found to be superior. In the case of the enamel process it was found that the addition of 0.1 per cent. of the erythrosine BE reduced the exposure to one-half—that is to say, to 20 minutes; with 0.2 per cent. this was reduced to fifteen minutes, but increase beyond this quantity apparently destroyed the sensitiveness. The increase in sensitiveness was not proportional to the increase of the dye, but, as in the case of an emulsion of the silver haloids, an excessive quantity reduced the general sensitiveness. With the albumen 0.2 per cent. of erythrosine BE, the exposure was reduced to one-half, and with 0.4 per cent. to six minutes; but with 0.8 per cent. there was again apparently no sensitiveness. To obtain the same results with

albumen as with the fish-glue the amount of dye should be doubled; but, although with the enamel the image became the more perfect the more the exposure was reduced by the increase of the dye, with albumen the image had a marked tendency to become flat, and to lose more and more the ratio of its values. From the practical point of view, therefore, the use of erythrosine in the albumen process cannot be recommended for negatives "au trait," i.e., line-work.

Eosine VE and JE, by the same makers, were also tried, but the former proved the more satisfactory. With fish-glue 0.2 per cent. reduced the exposure to seventeen minutes, 0.4 per cent. reduced it to ten minutes—that is, one-fourth of the original exposure; 0.8 per cent. destroyed the sensitiveness. With albumen alone—that is, without the fish-glue—0.4 per cent. of eosine VE reduced the exposure from ten to five minutes. Acridine orange NO (Leonhardt), and various ethyl and methyl violets showed no action; whilst bleu carmine V (Meister Lucius and Bruning) and bleu diamine pur (Casella) were active, but inferior to the above-mentioned erythrosine and eosine.

Etching Steel.

A correspondent of the "Inland Printer" gives the following method of marking steel tools as that adopted by a large house in the trade:—"We first have a rubber stamp made with white letters on a black ground, then we make up an ink to use with this stamp as follows:

Ordinary resin	.....	½ pound
Lard oil	.....	1 tablespoonful
Lampblack	.....	2 tablespoonfuls
Turpentine	.....	2 tablespoonfuls

Melt the resin and stir in the other ingredients in the order given. When the ink is cold it should look like ordinary printers' ink. Spread a little of this ink over the pad and ink the rubber stamp as usual, and press it on the clean steel—saw blade, for instance. Have a rope of soft putty, and make a border of putty around the stamped design as close up to the lettering as possible, so that no portion of the steel inside the ring of putty is exposed but the lettering. Then pour into the putty ring the etching mixture, composed of 1 oz. of nitric acid, 1 oz. of muriatic acid, and 12 oz. of water. Allow it to rest for only a minute, draw off the acid with a glass or rubber syringe, and soak up the last trace of acid with a moist sponge. Take off the putty, and wipe off the design with potash solution first, and then with turpentine, and the job is done."

Callitype.

A copy of the "Hammond Herald," Vol. 1, No. 1, lately received, marks a new departure in trade (?) journalism. All the type matter was written on a Hammond typewriter, within a given number of spaces and with a black ribbon, after which this copy was photo-engraved and arranged in forms for the press.

Naturally, it looks "typewritery," but it is not displeasing, and is quite neat. We shall be interested in seeing future copies.

The editor is Mr. Jacob Backes, who devised the peculiar methods necessary. He styles it "Callitype," and he has written a manual of instruction in the art which will doubtless interest many. Surely the photo-engraver will be interested in seeing that "Callitype" comes into more general use.—*The Illustrator*.

The complete specification of Patent No. 11,239, 1905, for the production of collotype plates (Carl Schaack, 18 Buckingham Street, Strand, London) is open to public inspection before acceptance.

Patent News.

process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for patents were made between 29 and June 3:—

PRINTING FRAMES.—No. 11,283. Improvements in photographic printing frames. James Sidney Lenton, 18, Hertford Street, Coventry.

PRINTING FRAMES.—No. 11,365. Improvements in photographic printing frames. Walter Charles Grubb and Albert Nixon, Eagle Works, Durham Grove, Hackney, London.

PLATE CARRIERS.—No. 11,367. Improvements in adapters or plate carriers for exposing photographic plates or films in the camera. George Wishart, 96, Buchanan Street, Glasgow.

TELEPHOTOGRAPHY.—No. 11,385. Improvements in telephotographic objectives. Paul Rudolph and Ernest Wandersleb, Jena, Germany.

CINEMATOGRAPHY.—No. 11,447. Improvements in adjusting the gearing of cinematograph machines. William Frederic Butcher, 322, High Holborn, London.

DEVELOPING.—No. 11,452. Improved means of developing photographic images. Pierre Mercier, 18, Buckingham Street, Strand, London.

PRINTING FRAME.—No. 11,501. An improved photographic printing frame. Samuel Henry Adams, Scotswood-on-Tyne.

CELLULOID.—No. 11,512. Improved manufacture of celluloid. Auguste Bétal, Birkbeck Bank Chambers, Chancery Lane, London.

PHOTOGRAPHIC CAMERAS.—No. 11,585. Improvements in folding photographic cameras. Kodak, Ltd., 111, Hatton Garden, London. (Frank A. Brownell, United States.)

VIEW-FINDERS.—No. 11,670. Improvements in photographic view-finders. Arthur Lewis Adams, 26, Charing Cross Road, London.

COMPLETE SPECIFICATIONS ACCEPTED.

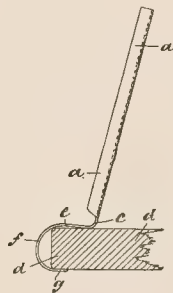
Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

CELLULOID.—No. 15,435, 1904. The claim is for a process of producing celluloid in which the camphor is wholly or partially replaced by one or other of the following classes of compounds:—(1) Halogen derivatives (mono and poly) of primary amines; (2) acid derivatives (formyl, acetyl, ethoxalyl, and benzoyl) of a halogen primary amine; (3) acid derivatives (formyl, acetyl, ethoxalyl, and benzoyl) of the secondary aromatic amines, that is to say, such as contain an aliphatic and an aromatic radical with or without solvent, and, if necessary, with employment of pressure. J. Cox Gardner, 173-175, Fleet Street, London, for the Chemische Fabriken, vorm Weiler ter Meer, Verdingen, Rheinland, Germany.

REDUCERS.—No. 6,276, 1905. The invention relates to a reducer which fulfils the requirements of action chiefly on the denser parts of the negative, leaving the lighter parts, which need no reduction, in as nearly the original state as is possible. The claims are for: (1) As a photographic reducing agent, the use of salts containing cobalt the nitrite radicle group (NO_2 and potassium, sodium, ammonium, or other metals, with or without other acid radicles, in conjunction with an acid such as sulphuric acid; (2) a modified form of the foregoing reducing agent

wherein potassium nitrite, sodium nitrite or the like, and a cobalt salt, with or without a salt of ammonium or the like, are used in conjunction with an acid; (3) the use, in conjunction with a cobaltic reducing agent of the type set forth above, of a bath of dilute ammonia for the purpose of preventing discolouration or change of colour of the image after the reduction. One way of preparing the reducer is as follows:—Four grains of "Erdman's" salt, $\text{Co}_2(\text{NH}_3)_4(\text{NO}_2)_8 \cdot \text{K}_2$ are dissolved in 50 cubic centimetres of water by warming the water towards, but well short of, its boiling point. An orange-red solution is thus obtained which should be cooled (by cold water circulation round the containing vessel, for instance) until its temperature is 60 deg. or 70 deg. Fahr., for example, when an equal bulk (50 cubic centimetres) of dilute sulphuric acid of 15 per cent. strength is added. The mixed solutions may be allowed to cool or may be cooled if necessary by water circulation, after which the reducing agent is ready for use. The action of this reducer is selective to the required degree, as it attacks the deeper deposits of silver in the film on the plate, celluloid film, or paper, much more readily than the half-tone and lighter deposits; hence, by its use a hard negative or print may have its scale of gradation softened without the loss of any appreciable amount of the lighter deposits or half-tones. Indeed, if the reducing solution is allowed to act for a long enough period, it will be found in many cases to intensify the lightest deposits of silver whilst, at the same time, reducing the deepest deposits. The action of the reducer is slow, so that, unlike rapid reducers which quickly attack the light silver deposits, this agent will in use involve no risk of mistake by allowing the reducing action to go too far before the plate, film, or paper is removed from the bath. Harry Edmund Smith, 3, Ezra Buildings, Columbia Road, London.

PLATE AND FILM HOLDER.—No. 15,739, 1904. The patented holder is an open framework with a hook-shaped handle by which it is inserted into solutions, and by which, also, it can be fixed to a shelf or table as in the figure, so that the negative or film can



be set to dry. It is constructed of celluloid or similar suitable material. William Lawrence Parkinson, 3A, Imperial Chambers, 62, Dale Street, Liverpool.

The following complete specification is open to public inspection before acceptance under the Patents Acts, 1901:—

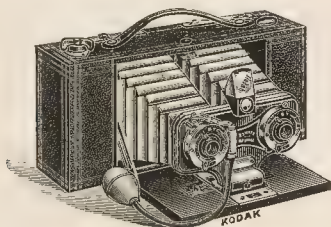
9,323, 1905.—Carpentier. Method of packing and changing sensitised photographic films and apparatus therefor.

CONGRATULATIONS to our good friend A. L. Henderson on the appearance of the following in Monday's "Scotsman":—"Golden Wedding. Henderson—M'Kenzie.—At Newington, Edinburgh, on June 11, 1855, by the Rev. D. M'Ewan, A. L. Henderson, youngest son of Thos. Henderson, surgeon, to Clementina M'Kenzie.

New Apparatus, &c.

The Stereo-Brownie Kodak. Made by Kodak, Ltd., Clerkenwell Road, London, E.C.

The recent revival of interest in stereoscopic photography has promptly brought forth a response from Kodak, Ltd., in the shape of a compact and serviceable stereoscopic film camera, at a very reasonable figure. The Stereo-Brownie, is, as its name implies, yet another member of the popular Brownie family, which seems to be growing apace of late, and like the other Kodaks of this series is a well-made and excellently finished little instrument, with all that is necessary to fulfil its maker's claims. It is of simple construction and weighs less than 30 ounces. The pictures of the stereoscopic pair measure $2\frac{1}{2}$ by $3\frac{1}{4}$ in. each, and the camera can be loaded or unloaded in daylight with spools for ten, six, or



four pairs of exposures. A brilliant finder with hood and screw bush for tripod work is included, and the pair of single lenses supplied cover excellently at full aperture. Both diaphragms are actuated by one movement thus ensuring identical openings. The shutters are of the overset automatic type, and are released simultaneously by either trigger or bulb release. The focussing arrangement is novel, and is the same as that in the No. 3 Folding Brownie, noticed recently in this column. By this ingenious device it is possible to set the distance scale before drawing out the bellows, and the camera front then becomes automatically locked at the required focal distance. As the complete apparatus costs only 50s. we think it will not only be an extremely popular addition to the series of Brownie Kodaks, but will, by reason of its efficiency and moderate price, do not a little to assist in the revival of stereoscopic photography.

The Busch Patent Camera Clamp. Made by the Emil Busch Optical Co., 35, Charles Street, Hatton Garden, London, E.C.

This useful little piece of apparatus has been introduced for use either separately or in combination with the Busch Pocket Stand. It is strongly made of metal, and can be made to grip anything not too large to insert in the jaws of the clamp. Used with the Pocket Stand screwed into a tree trunk or other support it forms a kind of bracket, and enables a large or heavy camera to be used without vibration. For attaching to the backs of chairs or edges of tables, etc., it is particularly useful, and is less likely to injure a polished surface than the Pocket Stand itself. The "Busch" Pocket Stand can be used in most cases to take the place of the ordinary tripod. It is made of well-finished metal, highly plated, and resembles somewhat a large gimlet. One end is provided with a screw which can be turned into any wooden foundation such as the trunks of trees, fences, etc. At the opposite end, on a hinged joint, are provided screws of both English and Continental sizes, which can be screwed into the bush fitted to the camera. The hinged joint allows the camera to be turned in any direction, and it can then be quite firmly clamped by means of thumb screws.

The price of the clamp alone is 3s. only. The clamp and stand complete costs 9s., and the entire apparatus weighs very little and can be easily carried in the pocket.

New Books.

Aide-Memoire de Photographie pour 1905. By C. Fabre. Paris: Gauthier-Villars. 1 fr. 75 c.

Le Developpement en Pleine Lumière. By Ernest Coust. Paris: Gauthier-Villars. 1 fr. 50 c.

For its abstracts of papers scattered through the press and arranged in order by M. Fabre, we have reason to esteem past issues of the "Aide-Memoire," and no doubt its statistical information is reasonably correct, so far as it applies to France. But the particulars of English societies and periodicals stand in lamentable need of revision. In giving the society officers, the compilers apparently make a practice of appending the secretary's address to the president's name, and a great many of their facts are incorrect. The list of periodicals is full of errors, but by an obvious inspiration one of the late contemporaries is being considerably removed by degrees, and figures as "The Photographic Art Journal."

"Photography without a dark room" is M. Coustet's theme, and he tackles it in a half-hearted sort of way. If he is arguing in favour of development in a fully-lighted room, why does he wander into questions of dark-room illumination and monochromatic lights, particularly as he does not object to detail such debateable points as the merits of non-actinic candles—i.e., candles with stearate of lithium or stromtium in their composition, and intended to give a red illumination? Yet he has three of his sixty pages occupied with this topic, and not as much with the Kodak and other development machines. The most valuable part of his work is that which relates to coloured developers, in which are given the formulæ of Lumière and others for this ancient, but spasmodically resuscitated, process.

Booklets published for the Town Councils of Deal, Leamington, and Southwold reach us from the Health Resorts' Development Association. In view of the approaching holiday season, it may interest our readers to know that they are sent free if a postcard request is sent to the town clerks.

A PHOTOGRAPHIC Section is announced in connection with the forthcoming Armagh Agricultural Show, to be held on June 28 and 29, in the beautifully situated Palace Grounds, Armagh. Full particulars will be sent by the Secretary, Mr. Albert E. Craddock, 10, Colles Street, Armagh.

COLOUR PHOTOGRAPHY.—At a meeting of the Academy of Science on Tuesday, M. Lippmann read a paper dealing with the results of his further study of the difficult problem of colour photography. M. Lippmann's record of his researches was of a highly technical but interesting nature, and proved that a considerable step forward has been made in the direction of a practical process of photographing in colours.

PHOTOGRAPHIC Society for Lowestoft.—A meeting was held in the Y.M.C.A. Hall, Lowestoft, on Monday of last week, for the purpose of starting a camera club. Dr. Hutchinson presided, and explained the object of the club, which it was decided should be started. The officers were elected as follows:—President and chairman, Dr. Hutchinson; treasurer, Mr. H. A. Northcott; committee (not exceeded in number eight besides the other officers), Messrs. H. C. V. Blyth, R. Bush Stafford Cox, H. Tansley, and C. Taylor; secretary, B. Corbyn. The secretary or treasurer will be pleased to receive the names of any one wishing to join.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Time.	Name of Society.	Subject.
.....	Bowes Pk. and Dis. Ph. Soc.	Outing, President's Day, Knebworth Park.
.....	Hull Photographic Society	Outing to Brock of Dale Woods.
.....	Cricklewood Photo. Society	Trip to Hadley Woods.
.....	Glasgow Southern Ph. Assn.	Inverkip. Joint Outing with the Photographic Section of the Paisley Philosophical Institution.
.....	South London Photo. Society	"The Development of Rapid Plates."
.....	Southampton Camera Club	Mr. T. Thorne Baker, F.R.P.S. Demonstrations. 1. "The Preparation and Working of Plain Salted Papers," Mr. G. T. Vivian. 2. "Gum Bichromate Printing." Mr. H. W. Miles. 3. "Floral Photography." Mr. A. E. Henley.
.....	Bowes Pk. and Dis. Ph. Soc.	Competitions, Prints of Wimbledon Common and Burnham Beeches' Outings.
.....	Manchester Amat. Photo. Soc.	"Oil Printing." Mr. Walter Yates.
.....	North Middlesex Photo. Soc.	"Platotype Printing (Cold-bath and Sepia)." Mr. J. W. Marchant.
.....	Devonport Camera Club	Trip to St. Michael's Mount.
.....	Everton Camera Club	Day Outing to Mold for the Logger-heads, &c.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

MEETING of the General Committee was held at 51, Baker Street, on Friday, the 9th inst. Present: Messrs. F. A. Bridge, A. S. Wm. Grove, M. Jacolette, A. Mackie, D. Prodder, E. Scamell, G. Sims, and R. Fellows Willson; Mr. Alfred Ellis, Past President, the chair.

Letter read from Mr. Pirie Macdonald, President of the Professional Photographers' Association of New York, addressed to Mr. Wm. Grove, the Hon. Secretary, thanking him for the kindly sentiments expressed on behalf of the Committee on the institution of their Association, and notifying that a copy of "The Photographer," of New York, containing a full account of the initiatory meeting had been sent.

The discussion was resumed on the admission of certificated assistants to certain privileges of membership, and it was finally decided that the Committee would recommend to the members at the next annual general meeting that the rules be amended to provide that certificated assistants be entitled to all advantages of membership except that of voting and taking part in the administration of the Association—upon payment of a registration fee of 1s. per annum. The draft of the certificate was submitted, and it was ordered to be printed and a proof sent to each member of Committee previous to the next meeting.

It having been pointed out that it was the custom of the Committee not to meet during the months of July, August, and September, it was decided to hold a meeting on Friday, June 30.

The remainder of the meeting was devoted to the discussion of the details of the proposed circular. An estimate was submitted of the cost of printing, etc., and approved—four numbers to be published annually at such intervals as might be found convenient.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, June 15. Messrs. S. E. Sheppard and C. E. Mees read a paper on "Some Points in Modern Chemical Photography Bearing on Development." The authors reviewed the conception of modern physical chemistry and dwelt in particular on the relation of solutions and the course of chemical reactions. In the case of solutions it was customary to distinguish between solvent and solute (the body dissolved), but such distinction was purely arbitrary,

though in the case of dilute solutions was a convenient one, for from it came the generalisation that "the solvent affords a free space for the action of the solute, but is otherwise inert," i.e., it acts as a vacuum in which the solute behaves as a gas. This conception, the authors said, had been useful in the past, but would require modification in its application to more concentrated solutions. The "osmotic pressure" of bodies in solution was likened to that of a gas, and reference made to its measurement by hydrostatic pressure in vessels with semi-permeable membranes. Osmotic pressure had analogies with gaseous pressure as expressed in the laws of Boyle, Gay Lussac, and Avogadro, and a study of osmotic pressure led to the discovery of dissociation in solution and the Arrhenius theory of electrolytic dissociation, with the important bearing of the latter on chemical reactions by means of ions. In discussing the course of chemical reactions in the light of modern physical chemistry, it was pointed out that chemical equilibrium was reached when the velocities of two opposing processes are equal, a special case of the law of mass action. One important class of chemical reaction is when one of the reacting bodies is a solid, in regard to which it was insisted that chemical theory does not recognise a reaction between a solid and a liquid. When chalk, for example, is dissolved by an acid, a little chalk is first dissolved by the water, and this is then the "active mass" which reacts with the acid. It could be stated generally that every substance was more or less soluble or has a definite "solution pressure," and its activity in solution may be measured by its concentration. The authors proceeded to apply these views to the development of a photographic plate. A brief discussion followed, in which Mr. J. Sterry, Mr. Sordes Ellis, and others took part.

SUTTON PHOTOGRAPHIC CLUB.—The annual meeting was held on the 7th inst. During the year interesting and instructive lectures and demonstrations were given, several excursions made, and the portfolio circulated. The membership had increased, and there was a good cash balance. The following officers were appointed:—Chairman, Mr. Hector Maclean, F.R.P.S.; vice-chairman, Mr. A. P. Hoole; committee, Messrs. W. R. Baker, G. W. Bradshaw, F. Nicol, and E. B. L. White; hon. secretary and treasurer, C. Thwaites, M.Inst.C.E., F.R.A.S.

THE Phototype Company, of Orchard House, Hounslow, have purchased Miss E. M. Cocroft's painting, "The Widower," now being exhibited in the Royal Academy, and have published some very fine engravings of the picture. The subject is somewhat sentimental in character, but will appeal to the large class of buyers who admire good clean work, and like a picture that tells a tale. The Phototype Company, having purchased this copyright, will supply proofs on Japanese vellum at £6 6s., artists proofs at £2 2s., and engravings at £1 1s.

DELIGHTS of Gum Printing!—We read in the organ of a Midland Photographic Society that gum prints may be fixed in alum or carbon bisulphide (the italics are ours) to remove objectionable bichromate stain. And still the writer can commence: "This fascinating process. . . ."

WITH the approval of the Prince of Wales (the President), the Council of the Society of Arts have awarded their Albert Medal for the present year to Lord Rayleigh, "in recognition of the influence which his researches, directed to the increase of scientific knowledge, have had upon industrial progress, by facilitating amongst other scientific applications, the provision of accurate electrical standards, the production of improved lenses, and the development of apparatus for sound signalling at sea."

News and Notes.

THE sixth Congress of Practical Chemistry will be held in Rome during Easter, 1906. The President of the Societa Fotografica Italiana (50 Via Alfani Florence) as President of the Section "Photochemistry and Scientific Photography," invites all who are interested in these subjects to take part in this Congress. He kindly requests to be informed, as soon as possible, of the subjects of the communications which may be offered for discussion. The programme of the meetings and excursions will be announced in due course.

CELLULOID Fire.—A fire broke out last week in a shop in High Street, Attleborough, where fancy goods were displayed. These suddenly burst into flame, and it was found that the rays of the sun had been focussed through the glass on to some celluloid combs, which blazed up and fired a quantity of other articles.

COMPRESSED Oxygen.—An incident which has caused some uneasiness is reported by the "Bollettino Chimico Farmaceutico." Father Geroni, of the Minore Osservanti, Florence, has sent a letter to the journal, "Il Fieramosco" saying that whilst giving a lantern lecture the oxygen ran short, and a new cylinder was obtained from a neighbouring chemist. The new supply did not give so good a light as the original, and it was discovered that the cylinder contained one-third oxygen and two-thirds compressed air. He went to another pharmacy and got another cylinder, which the proprietor on examination found to be purely compressed air, containing just the percentage of oxygen to be found in the open air. The Florentine pharmacists regard the report as exaggerated.

MESSRS. SARAFIAN BROS., photographic works and photographic dealers, Beirut, Syria, notify us of the enlargement of their premises, and state that their establishment now contains nearly everything that is needed for photography, i.e., apparatus of various makes and sizes, lenses, plates, papers, accessories, etc. Also pictorial photo. scenes, postcards, gravures, artistic materials, etc. Manufacturers are respectfully requested to forward their catalogues together with particulars of their specialties and novelties, with samples where possible, giving the very best terms.

ACCORDING to "The Photographer" (New York), the Lewis and Clark Exposition to be held at Portland will include, by special invitation, twenty-five photographs in its Fine Art Department, a mark of appreciation which St. Louis did not grant the photographers. The twenty-five pictures were selected for the management by Messrs. Herzog, Steichen, Keiley, and Stieglitz, and are the work of Messrs. Herzog, Steichen, Keiley, Stieglitz, Coburn, E. S. Curtis, Dugmore, Dyer, Miss Devens, Eickemeyer, Eugene, Mrs. Kasebier, V. B. Post, Mrs. Sears, Seeley, and White.

A CIVIL Service examination to appoint a Velox printer strikes us in this country as an act of supererogation, but in filling two vacancies of this kind in the Geological Survey at salaries of £250 and £180 a year, examinations were held in Brooklyn, N.Y., recently, and the candidates appointed by their marks for proficiency in the handling of gaslight papers, their experience in practical work, and their knowledge of dry plates, lenses, and enlargements.

OUR American contemporaries always interest us. The current issue of one of them positively excites us, announcing, as it does, a "Rotograph Carbon Lens," which is "prepared at present in twenty colours, while other colours are in preparation." But we hope nobody with misunderstand the real point a—tissue!

GLASS opaque to ultra-violet light is a material of importance to photographers and process operators now that artificial illuminants exceedingly rich in these rays (such as the enclosed-arc and mercury-vapour lamp) are more largely employed. There is the danger of

injury to the eyesight by protracted exposure to illumination of this kind, and therefore the opaque glass which Messrs. Dolland and Co., 113, Cheapside, E.C., are introducing in the shape of "Isometre" spectacles, should receive attention. We recently witnessed a demonstration of the stopping power of an "Isometre" spectacle lens towards ultra-violet light, and we learn from a booklet which Messrs. Dolland issue gratuitously, of the many advantages of these spectacles. The glass itself, possibly, may be found of some photographic service.

ALL the leading photographers of San Antonio, Texas (according to "Wilson's") have joined in a movement to abolish ticket scheme and fakirs, to close all studios on Sundays, and to meet frequently for general good-fellowship. That such a movement as this should come from San Antonio seems remarkable. It is, none the less, to be hailed as an important indication of growth and business acumen.

THE Thornton Pickard competition for 1905 has a special interest for professional photographers, as a new class is instituted, viz. one for pictures taken with the Thornton-Pickard Studio Shutter used either in or out of the studio. Ten of the total £100 presented to the prize-winners are allotted to this class. A circular of the competition has just been issued by the Thornton-Pickard Company Altrincham, and will be sent on demand.

NEGATIVES WANTED. For some months the Rotary Photographic Co. have offered in "The Bromide Monthly" certain special cash inducements for photographers to part with negatives of subjects suitable for post-card and other purposes. This offer they have now made a standing one, and will send particulars of it on application.

PHOTOGRAPHIC Materials Abroad.—A correspondent who sends the following letter to the "Times" of Tuesday last appears to have had an exceptional experience. No one, we imagine, expects the foreign dealer to keep a great stock or variety of British plates, and though we ourselves prefer to take a full supply with us rather than rely on purchases en route, we have, on occasions, been surprised to find we could purchase British plates in small towns in France and Switzerland. As a matter of fact, taking up the current issue of an Italian photographic journal we find three leading makers of British plates prominently advertised. If the "Times" correspondent had consulted one or other of our foreign contemporaries he would probably not have had cause to make his complaint:—"In spite of the excellent state of affairs in our photographic trade, as shown by your articles of some two months back ('Financial and Commercial Supplement,' March 27 and April 3), one cannot help wishing the traders had more of the 'go' of their Transatlantic rivals. During a recent stay in North Italy I made numerous efforts to obtain English plates, yet Venice was the only town in which I succeeded, and here the trade appeared to be confined to one shop, which kept a very small stock of two of the leading English makes. On the other hand, Kodak specialties were obtainable everywhere, and in Venice alone there must be a dozen agents. Previous to leaving England I endeavoured to find out from the manufacturers where their plates were to be got. They could only give me the name of the wholesale agent for all Italy, with whom I had not time to communicate even if he would have supplied the information. Surely it would be worth while to secure the custom of the thousands of English travellers who would so much prefer to use the plates they know. So little is needed to ensure a good sale. An advertisement in the leading hotels, an arrangement with the various tourist agents, and a knowledge by the manufacturers themselves of the addresses where their goods are obtainable in the chief Continental towns would secure a considerable increase of trade. Inability to obtain English plates on the Continent must influence the choice of a camera in favour of a Kodak, and hence affect the home consumption of plates."

Commercial & Legal Intelligence

Exeter County Court last week, before his Honour Judge Lush, a case was heard, in which Annie Spencer, of Manchester, John Parsons, of Melbourne-street, Exeter, on a judgment to recover £36 13s. 6d. Defendant was examined by Mr. Brown, who represented the plaintiff, as to his means. He the amount due was the result of interpleader proceedings and costs due thereon. Mr. A. Martin Alford, for the respondent, his client was one of the victims of the plaintiff's husband, Spencer, who carried on business as the Midland Photo Company, Birmingham. In August of last year the defendant was d, as were many others throughout the country, to hand £100 on being promised a managership in one of his branch. Needless to say, defendant was never appointed. Within a or so of the payment of the £100, Spencer turned himself into ted company, and within a very few months this company, was practically a one-man company, went into voluntary tion. In February last the defendant obtained judgment t the man Spencer for £100. Spencer was at that time living rge house in Birmingham, and defendant, wishing, if possible, sin, at any rate, a portion of his £100, levied execution on his

On the sheriff's officer going to levy, it was found that only oms were furnished, and these very poorly, and the sale pro- only £21. Out of this rent and taxes were a first charge, he result that only £5 18s. 3d. was credited to the defendant. urniture was claimed by Mrs. Spencer, the present plaintiff. ant was too poor to fight the interpleader action, with the hat the unfortunate man was now asked to pay £36 13s. 6d., ount of the interpleader order, and costs. Mr. Alford suggested e plaintiff should get the amount due from her husband, who ill owing the debt, on a judgment, £100 and costs. His said it was a sad case, but the question was the defendant's . He made an order of 6d. per month only. The defendant ld man living in lodgings, and if he discharges the debt at e he will have to live another 120 years.

ERE North American Company.—For the year ended Feb- 23 the accounts show that, after charging the sum of £571 eciation of the Burlington plant, a balance of £2,235 remains. sum the directors are of opinion that at least £1,700 should ined to meet the probable cost of an action to be brought the company.

GRU Frauds by a Canvasser.—At the North London Police on June 8, James Watson, a clerk, with no fixed abode, was with stealing a half-sovereign belonging to a domestic servant, Turnbull, of Alwyne Road, Canonbury. The prosecutrix said May 29 the prisoner called at the house where she was ed, showed her some specimens of photographs, and induced give him an order. He said he was canvassing for a firm printed circulars he produced. She agreed to pay him 4s. but had no silver, so she gave him a half-sovereign to get t. But he did not return, and she heard no more as to her d photographs. It was stated by the detective who arrested t that there were complaints of similar frauds upon servants the metropolis. About a year ago the prisoner was arrested ilar charge, but the servants would not come forward to give t. The prisoner was remanded.

Sutton Photographic Club's first excursion of the season will to-morrow, Saturday, June 17, to Warnham Court, which le for its picturesque scenery and its gardens, and for its ection of modern pictures, Japanese and other art objects, and old iron work of Surrey. Mr. Hector Maclean will the excursion. The second excursion will be on July 1, at trip from the Old Swan Pier to Greenwich, and the ursion July 15, Leatherhead to Boxhill.

Correspondence.

- * * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given*
- * * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

PLATINUM PRINTERS' CATARRH.

To the Editors.

Gentlemen,—I have read with interest the correspondence in your columns under the heading of "Platinum Printers' Catarrh." The letters on the subject certainly seem to show that the manipulation of the platinum process causes some kind of ailment. One of my assistants, who did a lot of platinum work, was greatly troubled with a kind of asthma, which is, I understand, caused in a way by catarrh. He was so bad that he passed night after night without sleep, and frequently had to absent himself from work. The worst attacks seemed to come after a fine day (after a big batch of prints). For the last six months he has not done any platinum printing, and has not suffered in any way from his asthmatical trouble.

Some years ago I did a lot of platinum printing, and used to wonder why I nearly always had a cold in the head.

If it is proved that platinum printing causes catarrh, it would be useful to have the views of your correspondents on the particular part of the process which is responsible for it. For my part, I would blame the hydrochloric acid, the fumes of which are very strong whilst being poured out of a bottle to make the necessary solution, and very likely inflame the mucous membrane (which is the cause of catarrh). It is also possible that the fumes from the developing solution, whilst being warmed, will have a similar effect. If it is the acid, would it be advisable to have bowls of a solution of ammonia about the developing-room to neutralise the acid fumes or act as an antidote?—Yours faithfully,

T. EVERITT INNES.

Heaton Chapel, June 12, 1905.

[We cannot conceive that the weak acid fixing baths employed in the platinum process can be responsible for the trouble alleged to arise from platinum printing. Certainly there is nothing evolved from the hot oxalate bath to cause irritation. It is true that oxalates do undergo a slight decomposition at boiling heat, but the volatile product is only innocuous carbon dioxide gas, and even that in minute quantities. On the assumption that there is a direct connection between the ills experienced by our correspondents and the working of the process, the most likely cause, as we have already stated, is oxalate dust; and no extraordinary care should be needed to maintain the necessary cleanliness. Since the question has arisen we have consulted a physician, who tells us that not a single case of the kind is known to him, personally, and after a search through medical literature for many years past. We are also informed by a well-known authority on catarrhal affections that the conditions, as stated, appear to him quite insufficient to account for the symptoms.—Eds., B.J.P.]

PHOTOGRAPHIC APPRENTICES.

To the Editors.

Gentlemen,—In your issue of the 9th inst., there is a very pitiable statement from a correspondent signing himself "Assistant." It appears that for four years he served his time under indentures to a photographer, receiving the usual low apprenticeship remuneration, and that his reward, after all his years of labour, was to stay on for five months at the munificent salary of 16s. per week! Now he finds that his services are not valued by the profession at more than 25s. per week, and as a printer only.

We should have thought that in four years he would have become at least a fair all-round photographer, for the operating and printing

are mainly mechanical processes; although to excel at either means, as with all other professions, gifts of taste, observation, and refinement, as well as special ability.

"I was never taught retouching," he states. Now, that is just the point upon which we would like to remark. Why do apprentices ever hope to learn retouching, miniature painting, tinting and finishing in B. and W., properly, in the firms employing them; and why do employers ever hold out such fallacious hopes to the apprentices? Each branch enumerated is distinct in itself, and requires a skilled teacher to impart really serviceable and artistic knowledge. Photographers do not keep tame instructors on the premises for the benefit of apprentices! and nine times out of ten, in good-class firms, the chief does not retouch or paint at all, but devotes all his time and energies to the operating and supervision of his business.

He employs more or less capable artists and retouchers, but they are decidedly not teachers; and, when he asks them to kindly show Mr. Apprentice how to do their respective branches of the business, is it likely they are going to trouble much about it when they are already full up and weary with their own work, and when the advancement of the apprentice may mean cutting their own throats in the future? Even with the best intentions, it is more than they contracted for when employed, for they were engaged as workers, not as teachers of others—they have had no experience in tuition, and do not care a rap about it. Many of those already earning their living as B. and W. artists, retouchers, miniaturists, and tinters are open to very considerable improvement in speed and finish; and to these defective assistants, in many cases, the apprentice has to look for his knowledge! It is the blind leading the blind.

There are exceptions, of course; and many firms thoroughly fulfil their obligations to their apprentices; and these words are directed solely to those photographers who so readily undertake responsibilities they know quite well they cannot justly carry out.

We have heard of lady apprentices, especially, who seem to pick up spotting, mounting, burnishing, printing, working up plat. and bromide prints to a fair extent, but who hardly possess a glimmering of retouching or B. and W. finishing, and who, in miniature painting and tinting, are even more defective. The men appear to learn operating and studio routine, and are generally well up in printing, but their retouching and B. and W. work will seldom bear criticism. The fact remains it is downright absurd for employers to expect such Admirable Crichtons! The photographer is asking too much from the one limited brain.

We see advertisements such as this:—"Wanted, Operator-retoucher (skilful with children); B. and W. artist; own aerograph; one who can paint in oils preferred, etc., etc." Man wants but little here below! You may get an assistant with a smattering of each subject, but he cannot be first-rate in all branches, especially for the wretched remuneration too often offered—hence the general turn-out suffers!

We respectfully suggest to the profession that employers teach the work that they do thoroughly understand, and that they advise their apprentices to take lessons in the other subjects from skilled teachers who have made tuition in these branches their special study. General photography would be greatly improved and more artistic ideals would prevail. This would be fair to the employers and fair to the apprentices. They would at least no longer live in a fool's paradise, but at the end of the three or four years be well equipped in all branches, and fit for the battle of life. Employers might allow special and suitable hours for such studies; and then they would not have to read such damaging statements as that made in your correspondence columns of last week—and, by the way, would not have to run the risks of after litigation, as suggested by your reply!—Yours truly,

X. Y. Z.

June 10, 1905.

MODERN CHEMISTRY.

To the Editors.

Gentlemen,—As one who for some time past has given up active work in chemistry, I have followed Mr. Mees' papers on "Modern Chemistry for Photographic Workers" with interest. But I must confess to a certain amount of disappointment at the net practical outcome of the application to photographic processes of the modern theories of physical chemistry.

As the result of five papers on the subject, we learn that development may equally well be regarded from the point of view of ionic interaction as from the old-time point of view of molecular interaction involving simultaneous oxidation and reduction. But is the ionic interpretation really any more explanatory or illuminative of photographic processes than the older interpretation? Do ionic considerations suggest any vital modifications of established procedure, or do they more distinctly point out the directions of further research to the investigator who would further illuminate the yet gross darkness of the dark room? Apparently not; and herein lies the disappointment.

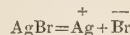
There are, I think, one or two points in Mr. Mees's papers which are worthy of comment.

In the fourth article of the series (May 26), the statement is made that the reaction

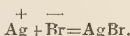
$$\text{Ag} + \text{Br} = \text{AgBr}$$

is not reversible because the AgBr is removed from the sphere of action by precipitation. But surely the modern view is that no such insoluble precipitate is absolutely insoluble; and hence that no body is completely removed from the sphere of action by precipitation. For instance, though for the purposes of analytic chemistry BaSO₄ is regarded as absolutely insoluble, yet, as a matter of fact, BaSO₄ is soluble to such an extent that the proportion thereof present in the saturated solution is some fifty times greater than the proportion of radium in pitchblende. Similarly, when the reputedly insoluble AgBr is placed in water a little of it dissolves; the dissolved portion, being of very low concentration, dissociates almost completely into its ions; and it is only when the product of the concentrations of the Ag and Br ions equals the "solubility product" that equilibrium reigns.

The reaction



does then take place; or, in other words, the reaction



is reversible, as Mr. Mees himself further on in his articles implies when describing development from the modern standpoint.

The statement of Faraday's law, in the article of May 12, is liable to misinterpretation. "One atom of an element can only carry one electron of electricity." This is a very *ex parte* statement of Faraday's discovery, being true only for monovalent atoms, such as Ag. Faraday's law is that the electrical conveying powers of atoms are proportional to their valencies, so that divalent atoms, like copper, carry two electrons; trivalent atoms, like aluminium, carry three electrons; and so on. These fundamental facts are, of course, implied by Mr. Mees in other portions of his papers; but, surely, to avoid misunderstanding, direct statement should replace implication in articles which are professedly for the non-expert reader.

It is rather unfortunate that in his laudable attempt to explain the physical significance of a differential coefficient, Mr. Mees should use as an illustrative example the fall of a body, falling as no body ever falls in nature.—Yours truly,

DOUGLAS CARNEGIE.

Blackheath, S.E., June 10, 1905.

Answers to Correspondents.

* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

Dykes, Challenger Office, Villa Medusa, Boswell Road, Edinburgh, N.B. Photograph of Torpedo-Boat Attack on Channel Fleet and Cruiser Squadron, taken at 12.10 a.m.
 John Bailey, 73, Shirley Road, Southampton. Photograph of Captain Barr and crew of "Atlantic."
 Lockyear, 898, Hyde Road, Gorton, Manchester. Photograph of the Grotto, Pomona Hotel, Manchester.
 Hodgson, 93, Pinstone Street, Sheffield. Photograph of the Sheffield University.
 H. Greenway, 27, Abington Street, Northampton. Photograph of Northants Cricket Club Team.
 Sharp, 38, St. Nicholas Street, Aberdeen, N.B. Photograph of "Robinson Crusoe" Pantomime, Palace Theatre, Aberdeen, 1905.
 Howard, 80, High Town Road, Luton, Beds. Two Photographs of Stockwood House, Stockwood Park, Luton.
 Philip, George Place, Bo'ness, N.B. Photograph of the Rev. W. Smith Hunter.

POSTCARDS.—Will you kindly give the name of any firm that publish a book on pictorial postcard work of all kinds? We wish to know what machine would be required to make same.—W. GORDON.

No such book is published to our knowledge.

ELATINE AND ACETONE.—Can you inform me if there is any chemical which will repel acetone. I wish to treat a gelatine film with acetone, but do not wish it to penetrate the gelatine. I have tried hardening the film with alum, formaline, and I have also tried chrome-alum, but the acetone gets through more or less, with all. I consider that if the gelatine could be treated with a repellent chemical (other than varnish) it might make the gelatine proof against the acetone.—A. R.

We can suggest no further treatment, except, if it were permissible, of giving an extra thick coating of gelatine to which 10 per cent. of formaline was added whilst the gelatine was in the fluid state. Gelatine is insoluble in acetone, and therefore we can hardly understand the acetone getting through if a perfectly homogeneous film were used.

HARRIS.—1. You will find two or three formulæ in the "B. J. Almanac" for 1905, p. 1029. 2. If you want a matt or half-matt surface, sizing is unnecessary; if you want a highly-glazed surface, the paper is unsuitable, and you must use baryta paper.

ENLARGE.—1. It is against our rule to do what you suggest. 2. To do all that you require with a gaslight enlarger you will want a condenser large enough to cover a 12 by 10 plate. The price of this would be very considerable, and we do not advise you to get one unless another illuminant is used. You will want an 11-in. condenser for enlarging from whole-plate. A 16-in. condenser would be necessary to fully cover a 12 by 10 plate, but, with suitable carriers, the 11 in. would serve to enlarge from portions of larger negatives. 3-4. You will find a good-class anastigmat, with large aperture, the best

type of lens for your purpose. The portrait lenses usually supplied with enlargers have a round field, and are not so suitable for enlarging sharp up to the corners of the plate unless considerably stopped down. 5. The same objection in a lesser degree applies to the R.R. lens. An anastigmat by a reliable maker will have a flat field, and will cover the plate perfectly to the corners with full aperture. The R.R. or portrait lens will not do this unless, say, a whole-plate lens is being used to enlarge from a quarter plate.

BROMIDE.—It is difficult to offer an opinion as to the cause of the markings without seeing the print, but, in any case, it is not wise to add anything to the fixing bath. Always use plain, freshly-made hypo solution, and fix and wash thoroughly. If it is necessary to harden the gelatine surface, use a dilute solution of formaline separately—either before or after fixing.

SULPHIDE TONING.—Can you kindly help me in the following questions?—A demonstration on bromide paper toning (sepia) was given by means of two methods—(1) By copper sulphate, nitric acid, and soda sulphide baths; (2) By iodide, soda sulphite, and soda sulphide baths. A tendency to yellowish-brown colour was obtained on some papers; this is my trouble, also. Mr. J. Sterry stated that by using a 1 per cent. solution of potass metabisulphite warmer colours were obtained, and free from yellowness. Query: When, and how, should this solution be used?—CONSTANT READER.

We should say the metabisulphite bath is used instead of the sulphite solution in process (2). There would be no advantage in using it after copper sulphate. If you cannot succeed with the formulæ, why not test your manipulation by one or other of the "sulphide" toners supplied ready made?

R.—We do not think you can blame the water. It is obvious, from the sharply-defined lines on some of the cards, that they were allowed to lie one over the other, and were thus not sufficiently fixed. As the cards are so thick, it is necessary to be very careful about this point, and to leave them longer in the bath than ordinary prints, and to wash them more thoroughly.

RETOUCHING.—(1) I shall esteem it a favour if you will kindly give your opinion of the enclosed specimens of my retouching. They were executed at various times during the last few years, and in many cases the time occupied is not noted. (2) Please say what salary you think I should secure (I am now working for myself). (3) Is the work sufficiently good for a high-class business?—RETOUCHER, Tunbridge Wells.

You send too heavy a batch. Our space is limited, and three samples of the unretouched and the retouched should suffice for the ordinary requirements of inquirers. (1) Your retouching is not first-class, for it is lacking in feeling and softness, and the numerous prints show too similar a treatment. Your own likeness should be much bolder in the texture for this sized face. The freckled girl is merely smoothed up, and the shadows left in too raggedly—the effect is hard! The man with white whiskers is the best effort, but you were too formal and heavy on the lead. Less work on his wrinkled brow would have made for better effect and preservation of character. The retouching is very coarse and broken-up on the children, and opening their eyes is hardly an improvement. The unretouched is a natural and rather comical picture, whilst the retouched is strained, and probably not a likeness. Unless the children could not be taken again, this eye-opening effort is not justified. If it is to be criticised as a piece of knife-work then it is too beady, and should have been pencilled down. Prints sent should not be spotted or worked up. The fine grained copy

of man for enlarging is very good, but the woman is too stiff and white—an unpleasant and difficult subject. (2) We should think about 30s. to 35s. per week. (3) Your work is not up to the highest-class requirements.

RETOUCHING.—(1) Would you kindly pass your opinion re the enclosed prints, which are from negatives of my own work. I enclose prints, toned and fixed, before retouching and after. (2) I have only begun to retouch (learning myself) about two months ago. I know the enclosed prints are not up to the standard to gain a situation, but I should be pleased for your opinion. (3) What do you think I could expect as a retoucher and operator? What hints I have obtained in retouching have been through your valuable paper re inquiries on retouching.—N. E. L.

(1) The retouching is of very poor quality, and the operating is almost in the same category. (2) Two months' study of retouching under the conditions you state are not sufficient to make anyone competent to take a situation. You would benefit by some lessons. (3) Your retouching at present is almost worthless, as it possesses no finish, but for your operating we should consider 25s. per week the best you could secure; but it is always difficult, nay, almost impossible, to judge from such slight evidence of the inquirer and his work.

DRY MOUNTANT.—The formula is (from our issue of May 12):—Shellac, white or yellow, 30 gms.; methylated spirit, 50 ccs.; dissolve, and add gum elemi, 3 gms.; Canada balsam, 5 gms.; methylated spirit, 50 ccs. It takes about twelve hours for the shellac to dissolve; mix the two solutions, and paint both sides of a thin piece of paper and allow to dry; place the paper between the mount and the print, and pass a hot iron over the print, when it will adhere well.

FRENCH STOPS.—I have a French pocket camera with a R.R. lens, "Le petit Bob Idéal," but as the stops are marked in the French way, I shall be glad if you will let me know through your columns the corresponding English numbers. The stops are marked thus, 3, 6, 9, 12, 15, 18, No. 3 being the smallest.—F. C. ROBINSON.

It will be best for you to ascertain the *f* numbers for yourself by measuring the diameter of each aperture and dividing by the distance between this latter and the plate when the lens is focussed at full aperture on a distant object.

YELLOW SCREEN.—In the "British Journal Photographic Almanac," for 1905, there is an article on "Orthochromatic Prolegomena," page 841, by Mr. George T. Harris, F.R.P.S. The writer says on page 846: "To be useful the colour must be a bright lemon yellow, a colour rarely seen in glass, which is usually brownish yellow. The filter used with the illustrations here given was a ammonium picrate, similar to the one originally described by me in the 'British Journal Almanac' for 1893, and I think it would be difficult to beat it for all-round landscape work. "Would you kindly give me full particulars to make a shade (or buy one) similar in every respect to the one Mr. Harris speaks about, and if possible the kind of orthochromatic plates to use?"—J. H.

The instructions given by Mr. Harris in 1893 were, briefly, as follows:—Prepare a glass plate with beeswax as if for enamelling, and coat with a 20 gr. sol. per ounce of Heinrich's hard gelatine. When set, immerse the plate in ammonium picrate solution, 5 grains per ounce, and dry. The gelatine film can then be stripped off and mounted in a collar of stout leather to slip over the posterior combination of the lens. We believe screens from Mr. Harris' formulae (not necessarily those given above) are supplied by Messrs. R. and J. Beck.

COPYRIGHT.—Could you give me your opinion of what I should do in this case? I give one of my negatives to a professional photographer to get some enlargements done. While he has it he makes, without my consent, an enlarged negative off mine; then takes out a copyright on his negative. When I get my negative returned I get my original negative copyrighted. Now the professional photographer is selling prints off the enlarged negative, and when requested to stop he declines. Have I any power to compel him?—JOHN DAVIDSON.

Certainly you have. As you took the original picture the copyright is vested in you, and now that you have registered it you can obtain an injunction restraining the photographer from selling any copies of it, and also recover damages, from the time of your registration, if you can show that you have sustained any loss. The professional's registration is of no use, as the copyright was not his to register. It was a mean thing to attempt, and we should have thought no respectable photographer would have stooped to it.

COLLOTYPE IN NEW ZEALAND.—I should feel highly obliged to you if you could inform me of any firms you might know of that do colotype in New Zealand, or where I might be able to find such information?—INK-PHOTO.

Possibly Wilson and Horton, Wyndham Street, Auckland, or The Weekly Press, Limited, Christchurch. Probably Messrs. Penrose and Co., 109, Farrington Road, E.C., Messrs. Hunters, Limited, Poppins Court, Fleet Street, E.C., or Messrs. Furnival and Co., St. Bride Street, London, E.C.—all dealing with colotype printers and plate-makers—might be able to tell you.

ANXIOUS.—1. Better ask your local police to have a call made on the party. 2. A good formula is:—

A.	
Metal	400 gr.
Soda sulphite	8 oz.
Potass. bromide	50 gr.
Water	80 oz.

B.	
Potass. carbonate	8 oz.
Water	80 oz.

Use A three parts; B one part.

REGISTRATION.—I publish a photograph on a specially worded mount.

Can I have this mount protected by copyright or registration? It is the wording on the mount I want protected chiefly. Can you tell me about the cost and the proper way to proceed?—R. B. GILPIN.

The words cannot be registered under the Artistic Copyright Act. It is possible that the words may be registered under the Trade Marks Act, but as we do not know what the words are we cannot give an opinion. Better write to the Patent Office (Trade Marks Department), Southampton Buildings, W.C., enclosing a stamp for postage, for a copy of the rules.

TITLES.—You should get the "Nameit" outfit, to be obtained from your dealer.

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EX CATHEDRA.

The Focussing Cloth. The ubiquity of the modern hand camera has done much to render the voluminous focussing cloth beloved of Cuthbert Bede of less importance than it was to the amateur of a decade ago. Focussing scales and roll films have tended in many instances to render the use of the familiar square yard of black velvet unnecessary, but we venture to think that the productions of photographers dependent on a distance scale and a viewfinder—often absurdly small and inefficient—do not and cannot compare with the photographic work of those who study their subject in the enveloping shadow of the focussing cloth. Certain subjects there are which do not permit of viewing on the ground glass, but in the majority of cases far better results undoubtedly accrue to the user of a hand camera with a focussing screen if a light tripod and focussing cloth are carried and used more often than appears to be the case with the bulk of present-day amateurs. There is no need to carry a heavy, nor yet extremely large, cloth. The waterproof focussing cloths which are obtainable from any photographic dealer are light, and one about a yard square will fold up into a very small compass, and can be easily carried in the pocket. In addition to this, a protective covering for the camera is ready to hand in the event of rain, which is a consideration in view of the present unsettled state of the weather.

The Focal Plane Shutter. The notable increase in actinic quality of the light during the past few weeks will tempt many possessors of focal-plane shutters to occasionally give the very brief exposures for which this type of shutter is specially adapted. An inspection of a batch of negatives recently taken by means of one of these shutters working at high speed has impressed upon us the necessity of keeping the edges of the slit in the blind free from abra-

sion of any kind. When a speed of, say, 1-800th or 1-1,000th of a second is given, an extremely narrow slit is employed. In the negatives mentioned, transparent lines appeared, stretching from top to bottom of the plate, that is, in the direction made by the passage of the shutter blind. These lines were most noticeable in the negatives which had received the shortest exposure, while in those cases where a fairly large slit had been used they were hardly visible. An examination of the shutter showed that abrasions on the edges of the slit were accountable for these lines. The material of the blind had been slightly torn, and a small tuft projected beyond the edge of the slit. The amount of light cut off by this little bit of fluff would be negligible when the blind was fairly open, but when the aperture was reduced to its smallest—about 1-16th of an inch—the parts of the slit where the pieces of fluff appeared were practically screened across, and allowed no light to pass during the passage of the blind across the plate. It will therefore be wise to carefully examine all focal-plane shutters for this possible cause of faulty negatives, and remedy it by the application of a small touch of adhesive, which should be allowed to thoroughly dry before winding up the shutter again.

* * *

The Amateur Question Again. At a recent meeting of the Manchester Amateur Photographic Society, an interesting discussion took place dealing with the question of placing prices to the photographic exhibits in the printed catalogue, issued at the annual exhibition of members' work, and its effect upon the status of the exhibitor as an amateur. Many diverse views were expressed, but the majority contended that where a demand arose for a copy or copies of a successful photograph, often obtained after much thought and expense, the producer was entitled to realise at least some reward for his ability and outlay, and that his position as an amateur was not forfeited thereby. In support of the argument, the custom of other graphic clubs, mostly composed of unprofessional workers, was advanced. This decision appears to fairly state the case, and in view of the fact that the proportion of sales at any photographic exhibition is usually very small indeed compared with the number of pictures exhibited, and that not many amateurs who exhibit at photographic exhibitions cover their out-of-pocket expenses by sales, we do not think that their status as amateur photographers is in any way endangered by a price appearing in the catalogue after their exhibits. The custom of putting a price on exhibition photographs appears to have arisen more from the desire to possess on the part of visitors to the exhibition than a desire to sell on the part of the photographer. A picture takes the fancy of a visitor, and he wants to buy it. The photographer cannot reasonably be asked to give it away, so a price is fixed, and in future exhibitions, to save the hon. sec. unnecessary trouble, the exhibitor is asked to place a price on his pictures beforehand. In any case, as

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long as the photographer does not make his living by the sale of his photographs, we do not think he can rightly be altogether classed as a professional photographer.

Speed is Essential.

We are constantly coming in contact with black and white finishers who are seeking employment, and whose work possesses good qualities, but who are totally unable to grasp the fact that for such work to be remunerative speed as well as quality is necessary. A girl has had some training at one of the numerous schools of art, and can copy with fair accuracy a head in monochrome, or draw from the cast. She proposes to turn this ability to use, and learns the little tricks of working in the finishing of bromide enlargements. After some practice she can finish a few twelve-tens in a week, and expects to earn at least £1 a week. We recently heard of an inquiry for a finisher who was required to finish a hundred in a week. Of course this was cheap trade work, and not much can be done at a twelve-ten bromide in twenty minutes. The essential point is to know exactly what to do to produce the maximum of effect with the minimum of labour, and there is not time for a superfluous touch. The usual "pot-boiling" methods must be adopted—working, for instance, eight or ten backgrounds straight away with the air brush, and then doing what is necessary with the sable pencil afterwards. "This is not artistic work," says the aspirant for a post. Certainly not; but artistic work, except for the few with exceptional ability, means only a peg or two above starvation.

System and Tact.

Mainly owing to the misconceptions of many of those who have taken up professional photography, there is probably no other business with such a large proportion of workers who fail to systematise their work and methods. To begin with, there is always the difficulty with all artistic work of dissociating *business* and the *artistic element*. A few men of exceptional ability in certain quite unique positions may do well on their artistic skill alone. In the main, however, the second-rate photograph put before the public by the first-rate business man will mean a greater commercial success than the first-rate photograph handled by the man of small business ability. Some people—those, perhaps, who manufacture stuff in bulk and then distribute as orders come in to the warehouse—think of a "business-like man" as one who takes the sitter to-day and delivers the proof to-morrow, and who uses two plates instead of three so as to save twopence. Business ability may, of course, go much further than this. We should be the last to gainsay the value of promptness, but there are cases where too prompt a delivery is apt to disappoint the customer, and lead him or her to minimise the value of the work which has been done. We heard the other day of a ten-guinea miniature which was completed two days after the order was given, but which was put on one side and not delivered for a fortnight, because the lady who had placed the order would have thought ten guineas much too high a price to pay for work which could be done in two days. Human nature must always be reckoned with, and a system which produces cast-iron laws is not usually a success.

Tact in the Reception Room.

As we write the foregoing notes a copy of our contemporary the "Deutsche Photographen Zeitung" comes into our hands containing what professes to be the experiences of one of its staff in the reception-room of a fashionable photographer in the West End of London. There is a rustle of silks in the doorway, and an elegantly dressed woman enters, between whom and the photographer the following dialogue is reported to take place:—"You wish to make an appointment for a sitting, madam."

"If you please, for this afternoon, if possible."

"To-day, madam is impossible; we might say to-morrow before 11 o'clock. (To receptionist) What have we got for to-morrow? . . . At 11, madam, the Prince of D."

"It is too early. Suppose I say to-morrow at 2."

"Unfortunately, the Duke of P. has an appointment with us for that time."

"Well, I can come the following day at 10 o'clock."

"10 o'clock, the 17th, I have Mrs. N. at 10, and the Marquis of W. at 12."

Finally a sitting is arranged for some days later, and the lady departs communicatively gratified with her association through the photographer with a crowd of distinguished people. Now, does our German friend actually think that that is the sort of thing which any leading photographer in the West End will consider "good enough"? A number of studios are well-known to have distinguished patronage, and they are not likely to go out of their way to bait their hooks for the parvenu matron of the suburbs in the way we have quoted. And in the case of other studios which cannot boast the fashionable clientèle, it will need a more accomplished artist in "tact" than we take the managers for to give the necessary verisimilitude to the bald and unconvincing narrative.

Systematic Methods of Working.

It is possible in the actual manipulative details to follow system more rigidly. The methods of printing and mounting, for instance, may be reduced to a mere routine, just as many other manufacturing methods are. Even in the actual studio work of operating, the average photographer will produce his results with more certainty if he systematises his lighting, and, to a lesser degree, his posing. Few workers can light a head seen for the first time on the occasion of the sitting, by intuitive perception. It may be contended that any attempt to systematise artistic work will lead to a fatal uniformity, and will tend to stifle artistic feeling in the worker. We are not suggesting a method for the experienced operator who has been thoroughly trained and has had years of experience. But we are convinced that many workers who photograph sitters after sitters with little or no variation in lighting, or, on the other hand, who make variations without any regard to the type of face being lighted, will find great benefit from a classification of the various kinds of lighting. A few exposures may be made on two models—a full, round face with insignificant features, and a thin, ascetic face with prominent nose and deep-set eyes, the light being arranged as follows:—High side-light, low side-light, top light, front light, light at 45 deg. low, and light at 45 deg. high. The box of plates expended on this test will not be wasted by any means, and prints from the negatives will show very clearly the defects and advantages in each case. This is merely one of the many experiments which might be made. We would emphasise the need of each experiment being made with a definite end in view if the tests are to have any practical utility.

Fraudulent Canvassers.

In our last issue is a brief report of a charge against a photograph canvasser, who was remanded. Last week he was again brought up at the North London Police Court and sentenced to three weeks imprisonment. It was alleged by the police that other persons, mostly servants, had been victimised in similar fashion all over London, but they would not come forward to prosecute. Some little time back we called attention to the fact that a fraud was being largely practised in the suburbs of London as follows:—The canvasser calls at

houses with good specimens and a printed paper, representing that by buying from him for a small sum, sixpence or a shilling, a coupon, portraits will be taken at a certain studio at a much reduced price. The address of the studio is always a long way off. When the distance is objected to the victim is told that the portraits can be taken at a local studio, usually the best in the neighbourhood. When the dupe, dressed in her Sunday best, visits she learns that she has been victimised, and is sometimes hard to convince that the local photographer is not a party to the fraud. This, of course, is exceedingly annoying to him, and the worst part of it is that he is helpless in the matter, as he is not the party defrauded. It is those who have parted with their money, and they are, for the most part, poor servants, who cannot get the time to prosecute the offender even if they wished.

* * *

The Municipal-ised Thames. The inauguration of the London County Council's Thames steamboat service on Saturday last should mark the commencement of a new era for photographers of London's picturesque river. From Hammersmith to Greenwich is a long stretch, and in the ten or a dozen miles covered by the new service of steamers subjects galore for the land-camera man present themselves at every turn. This is particularly the case in that portion of the river below London Bridge, and known as "The Pool." Here are to be found hurrying past or swinging at their moorings, craft of every type and nationality, useful material all for pictorial compositions. Here, too, the atmospheric effects are always of the finest to be seen on any river in the country, if not in the world. They permit the realist to obtain ready made, by straightforward photography, results that surpass the strivings of the impressionistic worker who fakes his prints to approximate nature. Opportunities will also now be at the disposal of the photographer for more easily getting into the heart of that riverside London depicted by the facile pen of W. W. Jacobs. Convenient piers have been built at intervals of less than half a mile throughout the entire route, and are moreover conveniently placed on alternate sides of the river below Tower Bridge. The L.C.C. guide and map for use with the new service will prove very useful to the photographer, and we feel sure that an afternoon spent on one of the boats will not be a wasted one for the man with a camera.

* * *

The Ives Imitating Replicas. In further reference to the announcement a few weeks ago of a method devised by Mr. F. E. Ives for preparing replicas of diffraction gratings said to be less costly and less liable to shrinkage, it is now stated in the "Journal of the Franklin Institute," that the process adopted by Mr. Ives is as follows:—Casts are made from the rulings on speculum metal by covering with solution of soluble gun cotton in amyl acetate and allowing same to dry, after which they are stripped off under water, placed face down on plane glass and the water dried out under pressure, leaving the lines as air spaces between film and glass. They are then sealed up under another glass with a balsam mixture, thus protecting them from injury. Mr. Ives finds that these replicas are good enough for the most serious spectroscopic work, can be made at a comparatively low price, and may be handled freely by students in schools and colleges without risk of injury.

* * *

The Wisdom of Window Display. Dress your shop window smartly and put something in it to set people talking. You need not put very much, but it must be the kind of photography that the passer-by will stop to look at and appreciate. Such was part of the advice which

recent writers on photographers' advertising in these pages had to give, and an instance of publicity which a photographer gains by such a policy reaches us from Penzance. Messrs. Gibson and Sons, of that town, placed in their window certain seascapes, from which act probably they could trace no direct benefit. However, a photographic tourist, narrating his travels in a London suburban newspaper, writes thus:—"One of the finest effects of a sunrise which has ever been seen by the writer was in a photographer's window in Penzance. A whole holiday would not be wasted if it resulted in the securing of such a glorious result as 'Sunrise in Mount's Bay,'—a study which must make every amateur and professional envious. As a composition it is an excellent example. But the choice of the exact moment at which the scene was captured speaks volumes for the ability of the man with the camera. No photographic visitor to Penzance should miss seeing Gibson's window, where another charming picture is the entering of Penzance harbour by a Scilly Isles mail boat during a storm." All of which is a good advertisement for Messrs. Gibson, and will no doubt bring London visitors who see the paragraph to their studio. It is Messrs. Gibson's fault if such references to their work does not advantage them in their business, and it is every photographer's fault if he neglects opportunities such as these of making his work favourably known.

A BUSINESS QUESTION.

IN our correspondence columns this week Mr. F. M. Sutcliffe protests against a state of things which he regards as a widespread source of loss to photographers, and one which, so he appears to think, the photographer may seek to redress by the copyright law. Says Mr. Sutcliffe:—"Some smart person, who comes to be photographed, gets proofs, says they are horrible, has the proofs copied by some cheap firm, and does one or other of us out of our guineas." It is a mean action, but one, nevertheless, which may be done in some instances, as proved by our correspondent's experience, but that it is at all general we are inclined to question. There is no doubt that proofs only are sometimes paid for, and then are reproduced at a cheap rate by copyists, or perhaps by amateur friends of the sitter's. This appears to be the writer's grievance, but upon looking at the matter from a business point of view it will be seen that the grievance is more imaginary than real. If the proofs are kept and not paid for, the photographer has a remedy in the County Court, by suing for their value, according to his price list. If the proofs have been dealt with in the way our correspondent says there could be no defence to the action, as the pictures, which the sitter stated to be "horrible," were not so, or he would not pay to have them reproduced. The photographer would obtain his money, and the defendant would be mulcted in the cost, in the same way as any other tradesman would recover for "goods sold and delivered." Some photographers have had the courage, not "foolishness," to take action, and have recovered their money. Mr. Sutcliffe complains that, "Not only do people have cheap copies made from proofs supplied them, but they often have enlargements done from photographs which they pretend they do not think good enough to order from." But have they not a perfect right to do so? They have—if the proofs were paid for; if not, the photographer can recover the value of them in the County Court. Surely a person has a right to do as he likes with his own? It is certainly very annoying for a photographer to find that his pictures have been reproduced at a cheaper rate than he would supply duplicates for, or perhaps see enlargements made from them at a much lower price than he would charge; but, after all, he has not so

much to complain of, seeing that he has been paid for what he has done, and there the matter ends so far as he is concerned. He has no copyright in the portraits he has been paid for taking. The copyright in them belongs to the customer.

If a photographer invites a person to sit, and does not charge for the sitting, the copyright belongs to the photographer; it is his property. But if a sitter goes to him to be taken in the ordinary course of business, even if he does not pay, the photographer has no copyright in the picture—that is vested in the sitter, though it remains to be proved whether the customer can register a copyright when he has not actually given valuable consideration for the taking of the photograph. We may here quote a case in point—*Boucas v. Cooke*, which was tried before Mr. Justice Ridley in 1902.

Briefly the case was this: The defendant went to a photographer (plaintiff) to have his portrait taken, and said that he would buy the negative if he liked it. No money passed. Some copies were supplied, but the parties did not agree as to terms, and the defendant had copies made from one of the prints, and published them. The plaintiff then registered the copyright, and commenced an action for infringement, claiming penalties and damages, and the court awarded both. This judgment, however, was taken by the defendant to the Court of Appeal, and came before the Master of the Rolls, Lord Justice Stirling, and Lord Justice Mathew, who allowed the appeal, thus reversing the judgment of the court below. The Master of the Rolls, in delivering judgment, said the question, then, was not whether the negative was bought or sold, but whether it

was taken for or on behalf of the sitter for a good and valuable consideration. Upon that question the evidence appeared to be all one way. A person came to the shop and asked to have his portrait taken. Obviously there was an implied promise to pay for it, upon which the photographer could sue the sitter. Obviously there was, therefore, a good and valuable consideration. The appeal, as we have just said, was allowed, and judgment was entered for the defendant with costs. A report of this appeal will be found on pp. 392-3 of our volume for 1903.

Mr. Sutcliffe asks: "Is it not time it was decided that the money value of 'good' or 'valuable' consideration was fixed?" One would have thought he would have known that this was fixed by every photographer when he arranged his price list. Whatever he is paid for taking a portrait, whether much or little, is a good or valuable consideration. If a photographer takes a portrait for half-a-crown, or less, he receives a good or valuable consideration for his work, just the same as if he charged £5 or £10 for it, at least, in the eyes of the law. He is the appraiser of the value of his work. The postscript of the letter is somewhat amusing, when he asks: "Would it not be possible for us to put into our price lists, that unless we were paid £5 to £10, we retain the copyrights." One would have imagined that he would be fully aware that whatever price, small or large, he was paid, the copyright was the property of the sitter and that it could only become the property of the photographer by the customer assigning it to him, and that that must be done in writing. We have dealt with this subject at some length, as some of our readers, like our correspondent, possibly may not have read what has appeared on the subject in our pages during the past year or two.

THE WEEK IN HISTORY.

Photography on Paper in France.

DESPITE the immense furore which Daguerreotype aroused in the land of its birth, it is worth while recalling that no sooner had Talbot's entirely different kind of photography been made known than there were workers in Paris who took up this process with avidity, doubtless seeing in it the germ of endless methods to which the single-picture method of Daguerre was not amenable. Thus it was almost exactly 66 years ago—on June 24, 1839—that an exhibition of paper prints was opened in the "Salles des Commissaires-priseurs" in Paris. In fact, this exhibition was held more than a month before the actual process employed by Daguerre was made known to the public. Bayard was the man by whom this collection was brought together, and his name might well be coupled, though in a minor key, with those of Talbot and the French inventors.

From Niépceotype to Daguerreotype.

Daguerre, in his book upon his invention, was at some pains to point out the entire originality of the process which bore his name, but the correspondence between himself and Niépce during the last year or two of the latter's life bears another interpretation. It is certainly evident that Daguerre was "put on to" iodide of silver by Niépce, who, however, did not use it as the sensitive substance in his process, but as a means of blackening what should have been the dark parts of his subject, but which by his process were represented by bare silver. Thus we find Niépce writing to Daguerre on June 24, 1831, as follows:—" . . . being occupied with the experiments on iodine, I am anxious to let you know the results. Before our partnership, I had made experiments, but without hope of success, as I saw no means of fixing the images, even when the light and shadows had been recorded correctly. . . . However, since you left here I have made another set of experiments, using iodine in a different way.

Your reply when I acquainted you with the results convinced me of the inadvisability of doing more in that direction."

Warnerke's Negative Film and Roll-holder.

Paper for glass, and a pair of rollers on which to wind it, formed the text of Leon Warnerke's argument for tourists' photography exactly thirty years ago. In *THE BRITISH JOURNAL OF PHOTOGRAPHY* of June 25, 1875, he explains the making of his negative paper and the design of his "dark slide." White enamelled paper was coated twice with collodion containing a little paraffin, and twice with a thin rubber solution—these applications being alternated—and finally with gelatine or washed collodion emulsion. This film was stripped from the paper and attached to a glass plate before development. The "dark slide" was similar to those I have already referred to in these notes. It contained space for a hundred exposures, and was provided with an orange window by which the operator could observe the passage of the pencil lines which marked the separation of the different sections. Warnerke's prophecy has been immeasurably exceeded. "Who can dream," he asked, "with the glass system, when going to distant lands, of taking one thousand plates for his long excursion? But with my film that number, or one still larger would not increase the weight of the traveller's luggage by more than a few ounces, and by a few inches the space occupied."

The Ferrous-Oxalate Developer.

It is now eight-and-twenty years since the iron developer was introduced by Carey Lea—to be precise, in *THE BRITISH JOURNAL OF PHOTOGRAPHY* for June 29, 1877. It was advocated by him as a developer of paper (paper negatives), and he gave directions for the two methods of preparing, viz., by solution of precipitated ferrous-oxalate in potassium oxalate solution, or addition of ferrous sulphate to a strong solution of the oxalate.

HISTORICAL.

THE OPTICAL CONVENTION.

The following paper by Lord Rayleigh on the "Polishing of Glass Surfaces" was delivered before the Optical Convention on June 1.

The text printed below is from a shorthand report, revised by Lord Rayleigh.

POLISHING OF GLASS SURFACES.

What I have to bring before the Convention is not absolutely new, or I have already used some of the material at the Royal Institution,* but I do not think the remarks I then made attracted very wide attention, and I was wishful to bring the matter before a meeting like this where there are present so many, not merely theoretically, but practically, conversant with optics, and the more so as some conclusions which I have put forward appear to stand in need of confirmation, or, perhaps, of correction. From a theoretical point of view there is no great difficulty in treating the question of polish. We may consider the standard surface to be a corrugated one, and corrugated in a regular manner, and we may inquire how the reflection of light—or sound, for that matter—is affected by the corrugations, how far the reflections differ from what they would be supposing the surface were absolutely plane. Here the question assumes a specially simple form if we limit ourselves to the case in which the medium is impenetrable to the vibration. In other words, acts as a perfect reflector. In the case of light, we may think of silver as representing a perfect reflector. In the case of sound, almost any solid or liquid body with a continuous surface plays a similar part. Consider then a corrugated surface bounding a material having complete reflecting power, and we shall then find that the question turns entirely upon the relationship between the period, as I will call it, of the corrugation—the distance from ridge to ridge along the surface—and the wave-length of the vibration that is being reflected.

This question was considered long ago by Fraunhofer in connection with gratings; and, I may remark parenthetically, that it seems to me he has never really had full credit for his work in this direction. We well know the effect upon light incident perpendicularly when the lines of a grating are closer together than a wave-length of light. The spectra that would be formed with a grating less closely ruled are, as it were, pushed out of the field and nothing of them is left. It was upon this that Fraunhofer founded a conclusion as to the limits of microscopic power, and to my mind his argument was perfectly sound, as well as his conclusion, if we make a slight correction in it. Fraunhofer, I think, did not quite correctly treat the case of oblique incidence. And we know from the ordinary theory of gratings that if the light is oblique the last spectrum does not disappear until the distance between the lines, the period of corrugation, is as small as half a wave length, so that there has to be a greater degree of closeness if obliquity is admitted.

What is Polish?

Taking, then, the case in which the medium itself is perfectly reflecting, if there are no diffraction spectra formed, it follows at once that the whole of the light must be concentrated in the beam specially reflected, and thus the corrugation has no effect whatever. The surface, however deeply corrugated, is perfectly polished; no light can depart from it in any false direction. From that we may obtain a very good general idea of what is necessary in order that a surface generally should appear polished, although the simplicity of the two dimensional cases will be somewhat departed from. It is all a question of the relation to the wave length. If we are dealing with sound, where wave lengths are comparatively long, then a very rough surface indeed is sufficiently polished to act as a perfect reflector. In fact, we might artificially roughen a surface with attached pebbles, and yet leave it smooth enough to act as a perfect reflector for sounds belonging to the middle region of the musical scale, and the reflection would be as complete as if the surface were mathematically smooth. The pebbles would not act as a defect of polish.

Wave Length and Polish.

But when we come to light, of course, the case is very different. But even here it is a question of what kind of light we are speaking of. A surface may be fairly well polished for red light and fail most decidedly if we use it for the reflection of blue light, or for the more especially blue rays beyond the blue. A surface that would be very imperfectly polished for those rays which affect the eye may be practically well polished for the dark heat rays which are found in the spectrum beyond the red. In fact, I once made an experiment in which I used a ground glass not polished at all, silvered over the roughnesses, and reflected with it the light from a Welsbach mantle used without a chimney. I found that in that way I could get a very good approach to complete "specular reflection" for dark radiation from a surface that would not count as a polished surface at all. The test was made with a thermopile.

Polishing and Grinding.

I need not explain to such a meeting as this what are the practical processes of grinding and polishing glass, but I wish to raise a ques-

tion as to the difference there may be between the two operations. Herschel, than whom in his day there was no greater authority, held the view that the polishing operation and the grinding operation were of one and the same character; that in the grinding—I am speaking of working a hard surface—lumps of glass were broken out by the emery with which the glass was brought into close contact under pressure, and that in the polishing a similar operation was still going on, although on a much smaller scale.

The Mechanics of Polishing.

Herschel expressed surprise that it is possible at all by means of art to reach a surface that shall be polished according to the necessary standard, that standard being set by the wave length of visible light. My own observations upon grinding and polishing glass led me to rather a different view. It appeared to me that the operation of polishing as conducted with rouge embedded in pitch or carried upon a softer material, like cloth or paper, was of essentially a different kind from the operation of grinding. I followed the process under the microscope, which is easily done, especially if the surface is smeared over with a little aniline dye. It appeared that under the polishing no visible pieces of glass are broken away at all. The polishing begins naturally upon the eminences left by the grinding, and in a very few minutes it produces little facets on the top of those eminences, and these soon reach a size sufficient to allow of a certain degree of regular reflection. After five minutes' polishing of a ground surface I found it quite possible to observe interference rings between the very slightly polished glass and a flat and fully-polished one brought into juxtaposition with it. As the polishing proceeds, the area of the facets increases, and new ones are developed; but the point I wish to emphasise is that there is no progress in the polishing. The polish is perfect, where it exists, from the very first.

A Molecular Process.

So long as the area of the facet was visible at all under the microscope, I was never able to see any structure in it. It appears that the progress of the polishing consists only in extending the area of the polished surface, but not at all in improving the polish in any part that has been once polished. In that case we must take a different view from Herschel as to the character of the process. We can no longer suppose that pieces are broken out under the polishing analogously to what happens in the grinding. It seems to me rather that the process is a molecular one, or nearly a molecular one, the upper layer of molecules probably being operated upon by the polishing material. That structure cannot be seen under the microscope is no proof that there is, in fact, no structure until we come to the molecular limit; but the impression produced upon me was that the two processes were so discontinuous that it was a very natural conclusion that in the polishing process the material was acted on molecularly. That is one of the points which I wish particularly to raise, because I am not a practised microscopist, and the observation is one that can be easily made by any one who is accustomed to work glass, and the question seems to me an important one that should be definitely settled.

Polishing Soft Materials.

In what I have said it will be understood that I have been speaking only of hard material. Mr. Beilby has made very interesting observations upon the polishing of softer materials, such as metals, and he holds that in that case the polishing process consists not merely in removing the eminences—the parts which are protuberant—but in filling up the pits with the material removed from the eminences. In that way it is easy to understand that a very much more rapid approach to uniformity would be obtained; but I must say that in my experience with glass—and my experience was limited to glass—I never saw anything to suggest that idea, and my impression is that no material once moved is deposited again, and that the process of polishing has to be continued until all the glass is worn down to the level of the deepest pits.

Polish and Optical Performance.

I have a slide here, made under the microscope, of a piece of glass examined towards the latter part of the process of polishing. The pits are shown dark, and between the pits there is no structure to be seen. These parts are entirely polished. From the amateur's point of view, the polishing may often be terminated at a much earlier stage than would commend itself to a professional optician. I have made lenses which work very well for my purpose, although certainly one would complain if anything of the sort were supplied to one professionally, but I have never been able to see that their performance was any worse. The parts not polished are a very

* "Proc. Royal Inst.," xvi. (p. 563), 1901. Scientific Papers IV. (p. 542).

small part of the whole, and if it is a question only of the amount of light, I do not suppose that the quantity dispersed by the spots would be missed. It might be another matter if it were a question of getting a very dark field for seeing a faint object. I am not suggesting that telescope glasses should not be properly polished, but pointing out that in many cases a very inferior polish suffices. Of course, I only speak as an amateur. In that way not only is the process very much quicker, but there is also less danger of losing the figure of the surface, which is, I think, usually accurate enough at the termination of the grinding, but which is liable to be lost in the process of polishing.

Loss of Material in Polishing.

As to the amount of material that has to be removed in the polishing of glass, I made some observations. Some were made by weighing the glass to find out how much material it had lost during the operation. I started with a very finely-ground surface, rather more finely ground, I think, than is usual in practice, and I found that in order to obtain a pretty good polish it was necessary to remove a weight of glass, corresponding to a depth of about six wave lengths. I do not pretend that such a polish would satisfy the requirements of commerce; probably the six would have to be raised to ten or twelve in order to get down to the bottom of the deepest pits.

In another case I used a disc of glass, very finely ground and polished, in the lathe in rings, the object being to obtain a gradually improving polish over a finite width, increasing from the margin, where very little polishing was done, to the centre of the annulus, where the polishing would be at its best. When these rings were examined under the microscope it was found there were very few pits left in the middle of the ring, and I was able to obtain the result, easily verified by forming interference rings between this and another flat glass, by removal of material to a depth of only two or three wave lengths. I have one or two slides in which bands are shown obtained in this kind of way. This first was from a glass sold to me as a "flat," and it was combined with another which was at any rate much better than itself. The rings were formed with sodium light, and the photograph was taken upon a plate sensitised with cyanine. Although the figure of the glass was not bad from the point of view of general sphericity the spherical surface was very far indeed removed from the plane. This next slide is from a piece of ordinary plate glass, in which the surface is saddle-shape, therefore hyperbolic, showing bands. Observations of this sort are very easy, and it is not difficult to obtain the photographs.

Action of Hydrofluoric Acid on Glass.

I may mention that I made, in connection with this subject, some curious observations upon the effect of treating glass surfaces with hydrofluoric acid. The acid was very dilute, the commercial acid

diluted perhaps 200 times and kept in rapid motion in a bath. I found that, so used, the acid acted much more regularly than I had expected, or I believe would be generally expected, and it was perfectly possible to eat away the surface in a regular manner to any required small depth—such as half a wave length. I was able in that way to prepare rather pretty patterns by etching two flat surfaces in strips and afterwards combining them crosswise, the depths being so chosen as to give the most brilliant colours of Newton's rings. I have a slide which shows the effect of contact with a drop of very weak hydrofluoric acid. This plate had been subjected to various experiments such as longitudinal polishing, but you will see the place where the drop of acid has stood for a few minutes, having the appearance of a hump. It is really a depression in the original glass, and by counting the bands one can see what the amount of depression was; it is about two bands, which would mean one complete wave of sodium light. In those cases we start with glass originally polished. Some very curious observations were also made upon the effect of hydrofluoric acid upon glass originally finely ground. The acid acts in such a way as to eliminate from the roughened surface all the finer irregularities, leaving only those of longer periodicity.

It is not difficult to form a theory and to illustrate that theory by drawing, especially if one takes the case of two dimensions. If one assumes, as seems reasonable, that the hydrofluoric acid acts, then the envelope of all those surfaces will be the surface to be expected at the close of the operation. You see the ultimate result will be to leave the surface in the form of spherical segments, the centre of the sphere corresponding to the deepest places in the original roughly ground surface. I have a slide showing the appearance of such a piece of ground glass after treatment. It appears to be divided into a number of cells, and the wall by which each spherical segment is separated from its neighbour is of the nature of a ridge. Each cell is itself absolutely devoid of structure; it appears finely polished. Although the surface was originally finely ground all over, all the finer irregularities are gone, and we are left with the surface, which in a sense might be called polished, although, of course, it is far from flat. In each case, if we are looking down upon the surface, the middle of these segments will be the deepest place; the ridges are raised and exceedingly sharp. According to the theory I have briefly sketched, they would be mathematically sharp, and such they appear to be. The character of the surface so obtained is illustrated by another photograph, made with a slightly different focus of the microscope. The light comes from a paraffin lamp across which two wires are stretched. Under the focus adopted each of these spherical segments acts as a concave lens. The focus is not the same for all, but they give material for calculating what the concavity was in each case. I found I could make a very good estimate of the exact shape and size of the various cavities.

RAYLEIGH.

REMINISCENCES OF THE DUBLIN CONVENTION OF 1894.

III.

On the Road to Monasterboice.

I am not quite sure, but I think the excursion originally arranged for Tuesday took place on Thursday, and *vice versa*, but like all things in Ireland it came out all right in the end; at any rate, we went to Drogheda, the Valley of the Boyne, Monasterboice, and Mellifont.

The most inconvenient part of this excursion was, that it was impossible to arrange for lunch until our return to Drogheda at 4 o'clock. Many of us had risen early, we had not all had time for a good breakfast, so by the time we were well on the road to Monasterboice there was an aching void. Passing through one of the villages we came across the local "Stores." One car pulled up, then another, then a third. Soon the little shop was raided, everything in the way of biscuits, bread and butter, lemonade, and ginger beer was entirely cleared out in about a quarter of an hour, and a small army of ladies and gentlemen with a snack in one hand and a bottle or glass in the other, could be seen occupying the entire roadway—very informal, not dignified, but very jolly, and the remainder of the drive was enjoyed all the more by those who thus satisfied the vacuum so abhorred by nature.

We wondered at the time why three of the cars did not pull up, but heard afterwards that some of the wives in this party, with that foresight which characterises the sex (bless 'em), had provided

sandwiches and a flask, the contents of which they quietly enjoyed at the end of their drive.

[We are going the same journey again this year—thoughtful wives please copy.—Eds., B.J.P.]

Jaunting Cars.

Riding in jaunting cars requires a certain amount of practice. During the first two or three days several members had complained of having grazed their shins, and having been sorely tempted to use language stronger than they found necessary under normal conditions. There are inside and outside cars, the difference being that the inside cars have the wheels outside, and the outside cars have the wheels inside. The latter are more difficult to get on, and keep on than the former. On the previous Monday, by the bye, two of our members, when the car was rounding a sharp corner, were landed in a prayerful attitude on the pathway, and some of the remarks made by the passers-by were anything but sympathetic.

By Wednesday, however, we were getting more accustomed to the tricks of these vehicles, and not only mounted them gracefully, but were able to remain on them with a fair amount of confidence.

Convention Functions.

The garden party given by the Lord Mayor and Lady Mayoress at Killiney in the afternoon, was most enjoyable. A hearty welcome

mid splendid surroundings, a good band, and fine weather all contributed to make this one of the most pleasant functions held during the meeting.

In the evening came the annual dinner, the best part of which was unquestionably the speeches. The menu was excellent—menu's generally are—but a good dinner on paper, however elaborately printed, is not satisfying. Our good friends had evidently been the victims of misplaced confidence in their caterer, so we took the will for the deed, and drank the toasts with enthusiasm.

Incidental Advantages.

I think we had more ladies at Dublin than at any previous meeting, and since that time the number has greatly increased. It is now become quite usual for members to bring their wives and sisters. The result in many cases being that acquaintances have been made which have ended in the wearing of orange blossoms. In fact only last year, I believe, one more young lady agreed to sacrifice herself on the altar of cake and cards, give up single blessedness and "indulge in the felicity of connubial domesticity."

The Dargle.

On Friday, a most enjoyable excursion to the Dargle, Powerscourt, and Bray. The Dargle, very beautiful, Powerscourt internally and externally very interesting, and Bray (the Brighton of Ireland) very breezy and refreshing. At Powerscourt we lunched on the grass, and had scarcely finished when a heavy shower came on. Most of the eatables had been cleared away either by the members or the caterer, but the tablecloths would have at any rate to be dried and mangled before being used again.

The excursion on Saturday was to Glendalough and the Seven Churches. Train, jaunting cars, and a most enjoyable drive, despite the showers.

Perhaps the first thing that occurs to most people when visiting this interesting and beautiful valley, are the lines:—

"By that lake whose gloomy shore,
Skylark never warbles o'er."

and all sorts of stories are told in explanation of this, the most popular, being, that the workmen when building the Seven Churches used to be aroused to their labours by the skylarks, but when the work was over and all the churches were built, the good St. Kevin forbade any more skylarks to follow the pious birds who had rendered such services to the good cause of religion. In connection with this it has been stated that one day an Irishman went to

confess, and taking a sparrow from his pocket, for fun, threw it up near St. Kevin. "Now, Pat," said the wily saint, "none of your larks"; and this is said to be the origin of the well-known phrase.

The most interesting building in the valley is perhaps the one called St. Kevin's Kitchen, so named because the peasantry mistook the round tower for a chimney.

I believe, on the occasion of our visit, some professor kindly promised to give an address on the archaeological remains in the neighbourhood. Whether he did so or not I do not know, but I did not hear it. To do a thing of this kind at a Convention excursion is very good-natured, but I am afraid is not appreciated as it should be, and it is rather unfair to a learned gentleman to ask him to take up much valuable time which might be utilised in photography, and occupy perhaps the centre of the photographable area for the purpose of explaining something which might or might not have happened 500 years ago.

I mentioned the showers which occasionally interrupted our photography on this occasion. While standing up during one of these I watched for some time a man fishing in the lake. I did not happen to see him catch anything, so said to a native standing near:—

"Are there any fish in the lake?"

"Fish is it! Why, sure in some parts there's more fish than water."

"But that gentleman does not seem to be catching much."

"No, sorr; not now."

"What do you mean by not now?"

"Why ye see, sorr, he's been staying up at the hotel for the last three weeks, fishing all the time, and the artful devils are getting to know him."

Saturday evening saw some of us reluctantly quitting the "Green Isle of Erin," as the Convention practically came to a close with the Glendalough excursion. Some lucky ones were able to stay another week and visit Killarney, Cork, and Bantry, Blarney, and Glengariff. There was only one opinion about the success of the meeting, we had had glorious time in the "distressful country," and its people had done their best to make our visit enjoyable, and fill us with an earnest desire to renew their acquaintance at the earliest opportunity. Eleven years have passed since that time, a few of those members who then shone so prominently have unfortunately gone to join the greatest of all Conventions, but many, thank God, still remain, and are looking forward with pleasant anticipation to the forthcoming meeting.

F. A. BRIDGE.

ON THE REPRESENTATION OF MOVEMENT BY ART AND BY PHOTOGRAPHY.

II.

Raphael's Method.

"RAPHAEL always left around his figures the space necessary to indicate the position in which they were at the moment immediately preceding that chosen for the theme of the picture. He was careful not to fill up the void which in their movement would be left behind them. We here see how it is that Raphael succeeded in giving to his figures that spontaneity of movement and that true and serious grace which leaves an impression so powerful upon intelligent and sensitive minds. Instances may likewise be selected from the works of Titian, the great Venetian painter, in which the expression of movement and animation is portrayed in a wonderful manner. In a small painting, representing Christ appearing to Mary in the Garden, the Magdalen seems fairly to run forward to meet the Lord, her hair streaming and her drapery denoting the utmost rapidity of action, while the hand stretched forth to touch Him is suddenly checked by His words: 'Touch me not.'

Photography and Suggestion of Motion.

It is not pretended that photography will ever aspire to enter the province of imaginative art. With all its vaulting ambition it has never presumed to 'o'erleap itself'; but this shut door does not prevent or debar it altogether an entrance to the temple of art. We believe it has, and will continue to produce, pictures which stimulate the beholder to create mentally something which is not actually before the eyes in the theme it undertakes to represent. That is, it may in a measure be suggestive and bear strong marks of the individuality of the photographic artist, of his permanent personality, and of the more or less accidental impression produced upon him by the sight of the object before his vision.

One of the methods of rendering a photographic picture suggestive is dependent upon the manner in which the idea of motion or movement is conveyed, in which instantaneity, so-called, has no part or lot. By a scrupulous adherence to actuality in movement it takes

away the very appearance of reality, motion, life, action, because it represents the object as if it were petrified in the transient state, fixed constantly in a position which could not be preserved for more than an instant without pain. How insupportable do those statues of heroes become as we behold them upon their solitary pedestals with arms extended, for ever holding that uplifted sword. We look for some indication of what has immediately gone before, and also something of what is about to follow. It is only thus that a figure simulating movement can have full truth and power of expression. The artist, painter, or photographer must ignore, in some measure at least, the extremely narrow limits of the single attitude. This lack of the impression of a continuity of movement is particularly felt when reviewing some of our statues of military heroes.

Sculpture and Motion.

I recall a photograph of a group by the French sculptor Paul Baudry in the foyer of the Paris Opera House. Notwithstanding the violent simulation of motion in outstretched legs and arms, there is conveyed only the impression of an unpleasant immobility. The group is a representation of what a snapshot would give of a similar congregation. It presents purely arrested motion, there is no co-ordination to a general movement, which the mind itself should supply. All the movements do not trend to the idea of one impression. We

have spoken above of the petrified military heroic statue, and of its immobility giving an unpleasant impression, but let us place the same military hero, with uplifted sword and his steed with elevated legs, in fact, in the precise sculptured attitude, in a painting marching at the head of a victorious host with streaming banners, and the mind of the beholder has something to turn to for relief, to refer the attitude to the violent movement, and at once the impression becomes strong and full of meaning.

Association of Ideas.

It might be well, therefore, for the photographer to follow the method of the painter when desirous of conveying the idea of movement, and not to endeavour to seek the representation of action in transient attitudes. A transient attitude may indeed be depicted, but not isolated from its connection with the associated motive, so that the mind weary not of the perpetual sameness.

By association of a special phase in the movement the photographic artist might give an intensity and energy of action to a picture which the isolation would find very difficult if not impossible to support. The figures introduced in a photographic study should be surrounded by that which is needed to explain them, so as to show their relation to the rest of the work."

JOHN BARTLETT.

THE COPYRIGHT UNION.

SOMEWHAT belated, the report of the tenth annual meeting of the Copyright Union has reached our table in the shape of "Copyright Notes," No. 2, an occasional paper issued by the Union, and, presumably obtainable from the secretary, 23, Soho Square, London, W. We could wish that it was superfluous for us to refer to the work of the Copyright Union; but the steady stream of queries on copyright matters which flows upon us week by week supplies proof positive of the ignorance, in the minds of a large proportion of the profession, of the very existence and objects of the Union. Wherefore it seems all the more expedient to set out in full the work which the Union is constantly and silently doing for its members, and to impress upon photographers the benefits to themselves and to the photographic community by enrolling their names on the Union's list of members. We now quote from the report such passages as will explain the scope and influence of the Copyright Union's labours.

Mr. Alfred Ellis, in the absence of Mr. Frank Bishop (president) announced that over 400 letters had been received and had attention during the year; also that 133 photographs had been registered on behalf of members. Two members whose copyright photographs had been reproduced in France, received substantial sums through the assistance of the Union.

Two members, one in Portuguese East Africa and the other in Mombassa, British East Africa, had been paid fees for reproductions of their work through the Union. Another member in Scotland, whose work had been reproduced as postcards, recovered through the Union an adequate amount in compensation, and the delivery up of some thousands of postcard infringements.

Correspondence from New Zealand, Cape Town, and Sydney had been received, asking for advice re Copyright Law in photographs, which was under consideration in those colonies, and in each instance it was strongly urged that reciprocity should be extended to English photographers.

The Secretary's Diary.

The following extracts from the Secretary's Diary will help to illustrate the extent of the Union's influence, and how members as well as non-members look to it as the strong friend to appeal to in time of need.

1. A photographer in Trinidad sends replies to queries re infringement of copyright.

2. A photographer in Africa asks assistance in arranging fees for the reproduction of his photographs.

3. Photographer asks for information as to protection of copyright photographs in America.

4. Member asks query as to piracy of photographs in the United States.

5. Member sends letter from publishers asking for advice, etc., re fees.

6. Member sends particulars of an alleged infringement.

7. Firm sends cheque in payment of fees for right of reproduction of a Colonial member's photographs.

8. A correspondent in Australia asks for suggestions for a Copyright Bill.

9. Photographer asks for advice as to using old subjects copied 20 years ago for customer.

10. A photographer in the West Indies sends particulars of reproductions made without permission in Canada.

11. Member in Portuguese East Africa sends photographs for registration.

12. French photographer asks for information in a press agency.

13. Members ask for particulars of registration in Canada and U.S.A.

14. Bureau International, Switzerland, asks for copies of pamphlets issued by the Union.

15. A member asks for information as to royalties on postcards.

16. Member in India asks for the arranging of fees for the right of reproduction of their copyright photographs.

17. Member in Lourenco Marques asks Union to apply for compensation for the use of their copyright photographs in a steamship company's handbook, which was obtained.

18. Member asks for advice re charges for reproduction of his photographs as letter cards.

19. Member sends particulars of infringements as postcards, which was eventually settled by payment of adequate compensation and costs, and delivery up of some thousands of infringements.

20. Member draws attention to infringements of copyright in

rench illustrated paper, which was settled by payment by compensation and notice in subsequent issue

21. Australian member sends book of photographs for registration.
22. Photographer in India wishes to become a member, and sends photographs for registration.

Advice from the Union.

A Book to Get and to Read.—We have been much interested in reading a most valuable handbook, published by Messrs. Dawbarn and Ward, Limited, entitled:—"Photography for the Press," and we can confidently recommend it to our readers as possessing much good and reliable advice. The price is 1s., and the publishers' address is 6, Farringdon Avenue, London, E.C.

An Important Point.—Will our members be careful in emphasising the fact that there is no usual fee of 10s. 6d., but that it is only the minimum allowed by the Union, members being justified in charging whatever amount they deem necessary and expedient for the use of their valuable property.

How to Fill in the Registration Form.—By the courtesy of the secretary of the P.P.A. we are enabled to give the following extract from their handbook, No. 5, regarding this most important point:—

"The form is divided into five spaces. In the first, under the heading 'Description of work,' the picture should be fully described, commencing with the words 'Photograph of.' Example: 'Photograph of Mrs. Wm. Wiggins, from $\frac{1}{4}$ -plate negative. No. 16,504, $\frac{1}{4}$ -length standing, full-face, holding hat."

"The filling-in of the fourth column is obvious from its heading:

'Name and place of abode of proprietor of copyright.' The name of the firm or company should be given as proprietors, but the signature to the form in the case of a firm consisting of two or more partners, must be signed by one of the partners with the usual signature of the firm, that is to say not by one of the employees, and in the case of a limited company either by the secretary or one of the directors.

"In the fifth column—Name and place of abode of author of work"—if the proprietor himself took the photograph the information in the fourth column must be repeated. If the photograph was taken by an assistant, the name of the assistant and his residential address must be inserted.

"The second and third columns are only for use when a copyright is transferred or assigned from one person to another, and should be left blank in the ordinary simple registration of copyright.

"A copy of the photograph should be attached to the back of the form.

"With regard to the question of stamping forms of agreement of transfer or assignment of copyright, these should be stamped to make them a legal document, a 6d. stamp if the consideration paid is not more than £10."

More Members Wanted.—Are our existing members doing their duty by inducing brother photographers to join? There are always occasions when the strict adherence to Rule 23 is difficult, but when the welfare of the whole body is at stake—we must bear each other's burdens. The secretary of the P.C.U. can always be communicated with at 23, Soho Square, London, W.

THE CHILD AND THE CAMERA.

AN interesting article on the methods of Mr. Richard Speaight, the well-known children's photographer, has appeared in a recent issue of "The Daily Mail." The writer comments on the fact that children are in great demand as bridesmaids, pages, stallkeepers at bazaars, flower and programme sellers at charity entertainments and hosts of other functions, and as each occasion means the wearing of a new costume, sometimes modern, sometimes historical, a visit to the photographer generally follows; and thus it is by no means an uncommon occurrence for the children of fashionable parents to be taken as many as ten times during the season, from the beginning of May to the end of July.

However, in the presence of strangers, children are apt to be self-conscious or nervous, and, therefore, in order to obtain natural pictures the photographer has perforce to make use of all sorts of wiles in order to get a snap at a time when the youngster is posed before the camera.

The Camera in the Nursery.

To get quite fine results it would seem advisable that the little ones should not know they are being taken. Mr. Speaight, therefore, has frequently taken a child from another room. This is done by placing the camera in the nursery or wherever it is wished to get a characteristic picture, and then connecting it with a tube or bulb outside. In a few minutes the child forgets all about the camera, and then, when a favourable opportunity presents itself, the photographer, peeping through a crack in the door or some specially-made "loophole," presses the bulb, and the operation is over.

Child Photography at Home.

Time was when it was usual for children to pay a visit to the photographer to be taken; to-day, however, in many cases parents prefer to have their children taken at home, as there it is easier to get a natural picture. On one occasion a lady well known in society wrote to Mr. Speaight that she wished him to take a photograph of her children playing in the garden. They, however, were not to

know that they were being photographed, as she particularly wished that they should not be taken "posing" or in self-conscious attitudes. Accordingly, the photographer went down to the country, where the children were living, but after several visits found that it was quite impossible to take a "snapshot," as someone had confided to the children that a "photographer from London had come down to take them." Ever afterwards, therefore, they were on their guard, and took the greatest delight in thwarting the photographer's efforts to take them at play. In the end, however, the youngsters lost the day. The juvenile defeat came about in this way. In a corner of the garden there was a huge summer-house, overhung with trees, and facing the lawn. One morning after breakfast the patient knight of the camera took up his stand behind this useful shelter, and, hidden from view, succeeded in getting some admirable photographs. On learning that the pictures had been taken, the youngest child, a little girl of six, tearfully declared that "this was a nasty, mean way of doing things, and that instead of having a doll for her next birthday present she would ask her mother to have the summer-house pulled down."

Child Photography in the Studio.

An afternoon at the children's photographic studio is both amusing and instructive. The writer of the article, anxious to obtain some insight into the art of photographing children, obtained permission to conceal himself in a room adjoining the studio, where he could watch operations unobserved. Soon a little girl of seven, accompanied by her mother, came in. "What have 'oo got to 'muse me to-day?" said the child; "last time I came we played bears." The photographer admitted that it was so, and suggested a repetition of that ingenious game. "Oh, no," replied the young lady, imperiously, "I'm too old for bears now"—dictatorially, "find something else." Accordingly, cuckoo clocks, shaggy monkeys on sticks, and talking dolls whose linguistic feats were confined to "mamma" and "papa," were brought forth, one by one, but all to

no purpose. "I've seen those before," said the child in tones which plainly showed that as far as she was concerned the matter was closed.

A "Live" Accessory.

At this moment a Great Dane dog walked in dignified and stately manner into the studio, and, lazily wagging its tail, ambled up to the child and held down its head to be patted. From that moment all was well, for, oblivious of the patiently waiting photographer and anxious mother, the child made firm friends with the new pet, and was accordingly taken without any further trouble and without the need for stiff and unnatural poses. Apparently there are degrees and degrees of amusing children in these days, and, as the blasé critic scorns the old-fashioned pantomime, so does the twentieth-century child, experienced in the old-fashioned wiles of the photographer, treat with contempt such hackneyed decoys as cuckoo clocks and monkeys on sticks.

The Modern Child.

Years ago a visit to the photographer was an important event

in a child's life; to-day, however, the fashionable young lady of a whole ten years' experience of the trials and troubles of this world looks upon the proceeding as quite a commonplace event. "I shall be photographed as a bridesmaid to Lady —," mentioning a well-known lady's name, "next week," remarked one blasé child of ten as she left the studio where she had just been taken in the costume of a flower-seller at a recent large charity bazaar, "and at the end of the month I am to be taken in my skirt-dancing dress." It afterwards transpired that this world-weary child had already been taken five times since the beginning of the season. The patience which mothers show when their children are taken would prove a veritable eye-opener to those cynics who declare that the modern mother thinks more of the all-important matter—dresses—than she does of her children. The writer during his afternoon's reconnoitring saw one lady, dressed in the height of fashion, submit to having a tennisa toque all but mutilated beyond repair because her little girl took a fancy "to those pretty flowers in mother's hat."

INFLUENCE OF THE LENGTH OF THE TIME OF DEVELOPMENT ON THE DEGREE OF DARKENING OF THE PHOTOGRAPHIC PLATE.

(A Paper read before the Society of Chemical Industry.)

Although the density of a photographic plate depends upon the time of exposure, the developer, nature of bromide of silver* and of colloid in which it is emulsified, etc., yet it is also influenced in a great degree by the time of development.

When the same kind of plates and developers are used, the density for one and the same exposure varies according to the time of development on keeping the temperature constant.

An investigation of this subject was made in the following manner:—

As the developers, edinol and ferrous oxalate of the following compositions were used. The former is known as a rapid, and the latter as a slow, developer:—

1. EDINOL DEVELOPER.

A.	Edinol (powder)	1 gm.
	Sodium sulphite	8 gm.
	Water, make up to	100 c.c.
B.	Potassium carbonate	50 gm.
	Water, make up to	100 c.c.
For use 80 parts of A and 20 parts of B are mixed.		

2. FERROUS OXALATE DEVELOPER.

A.—Saturated solution of ferrous sulphate containing 2 per cent. citric acid.

B.—Saturated solution of neutral oxalate of potassium.

For use 20 parts of A and 60 parts of B are mixed.

The exposure was carried on in the following way:—

Four narrow pieces of an ordinary dry plate (the extra rapid dry plate of Lomberg was used) were loaded in a dark slide. Each 1 cm. of the four pieces was exposed at the same time to a Hefner's standard amyl acetate lamp at a suitable distance, the exposure varying from one (Hefner metre seconds) to 153,600 (Hefner metre seconds). Two of the four pieces were developed with the ferrous oxalate developer and the other two with the edinol.

The time of development with both developers were selected as follows:—

Series I.	10 seconds.
Series II.	20 "
Series III.	40 "
Series IV.	80 "
Series V.	160 "
Series VI.	320 "

The exposed plates were developed always with a constant amount of developer at 18 deg. C. After the development, the plates were laid in 20 per cent. thiosulphate solution for ten minutes and then were washed under running water for one hour.

The density was determined by the Martens's polarisation photometer, and calculated according to the formula given by Martens and Michéll†

$$Dr = 2(\log \tan \alpha - \log \tan S).$$

Dr means the relative density of the developed plate; α , the angle of rotation of Nicols for the part of the plate the relative density of which is to be measured, when both semi-circles of the field of the photometer appear equally light; S, the angle of rotation of Nicols for the unexposed but developed part of the same plate.

Tables I. and II. show these results graphically. [Not reproduced.—Eds., B.J.P.] The curves are constructed in such a way that the ordinates represent the relative density, and the abscissæ, the logarithms of ($i \times t$), i.e., the logarithms of the product of the intensity of light in H.M. and the length of the time of exposure in seconds.

The result show that—

(i.) The density of a photographic plate for an exposure of the same length of time and when developed with the same kind of developer increases according to the increase of the time of development.

(ii.) When the time of development is short, there is no great difference in the density by changing the effectual exposure $i \times t$.

(iii.) By increasing the time of development the differential quotient $\frac{d Dr}{d \log i \times t}$ becomes greater.

(iv.) At an exposure for the same length of time the ferrous oxalate developer gives less density than edinol when the plate is developed for a short time; but when the plate is developed for a long time the former causes a greater density than the latter.

On comparing the relative densities at the corresponding exposures for the successive lengths of time of development the results shown on next page were obtained.

* Vogel. Handbuch d. Phot. Bd. I. (1890), 159; v. Hübl. Die Entwicklung, 9, (1901).

† Martens and Michéll. Archiv. de Genève (4) (1901), 11, 472-487.

Expos. (M.S.)	Edinol 18° C.					Ferrous oxalate.
	DT_2 / DT_1	DT_3 / DT_2	DT_4 / DT_3	DT_5 / DT_4	DT_6 / DT_5	DT_6 / DT_1
1	1.50	1.29	1.75	1.61	1.88	1.77
2	2.00	1.50	1.90	1.80	1.50	1.77
3	1.33	1.69	1.78	1.68	1.61	1.76
4	1.80	1.56	1.82	1.69	1.58	1.79
5	1.82	1.50	1.80	1.61	1.61	1.79
6	1.67	1.60	1.75	1.61	1.67	1.76
7	1.69	1.50	1.79	1.69	1.65	1.76
10	1.50	1.58	1.66	1.59	1.70	1.75
20	1.30	1.62	1.67	1.63	1.73	1.74
30	1.40	1.61	1.65	1.62	1.77	1.73
40	1.50	1.57	1.64	1.62	1.78	1.71
50	1.43	1.60	1.67	1.61	1.78	1.70
60	1.43	1.62	1.67	1.60	1.81	1.67
70	1.37	1.67	1.68	1.57	1.82	1.65
100	1.37	1.67	1.72	1.59	1.85	1.61
200	1.37	1.67	1.73	1.60	1.90	1.60
300	1.37	1.67	1.77	1.60	1.94	1.69
400	1.37	1.67	1.76	1.60	1.96	1.59
Means	1.512	1.586	1.734	1.601	1.739	1.708
Total mean=1.630						
Mean deviation=+ 0.085						

$DT_1, DT_2, DT_3, DT_4, DT_5, DT_6$ mean the densities at the corresponding exposures for the lengths of time of development 10, 20, 40, 80, 160, 320 seconds respectively.

From these data the following Exponential Law of Development may be deduced:—

EXPONENTIAL LAW OF DEVELOPMENT.

(i.) Within the range of the normal exposures, neutral zone inclusive, the density ratio for any two lengths of time of development is constant and independent of exposure ($i \propto t$).

(ii.) The density at a constant exposure is proportional to a certain power of the length of time of development.

(iii.) The density at any exposure for the length of time of development 2^2T seconds is equal to that of T seconds at the corresponding exposure multiplied by C , where C is a constant.

In conclusion I desire to express my thanks to Professor J. Precht, of the Technical High School of Hanover, for his assistance in this investigation.

CHIRI OTSUKI, PH.D.

AN AMERICAN NOTE ON CHILD PORTRAITURE.

HE characteristic type of work that distinguishes the best American portraitists has often formed the subject for comment in the Press. Whether this difference in style is due to the individual or to environment it is difficult to say. The American professional has undoubtedly done much to heighten the general standard of photography of children, not only in the States but also in this country. The following notes from an American source may therefore prove of interest to those who have observed this influence, and sought to discover the cause.

One of the best-known women photographers in New York speaks of the difficulties of child photography, and in an interview with the New York Telegram," says:—

"Posing a child for its portrait is a matter of time and hard work. Some few methods of overcoming the difficulties of the situation are described and endeavours are made, as far as possible, to analyse the means of success. 'I hardly know how I get children to sit so admirably for me,' said she. I suppose, however, that it comes from an entire understanding of children. Probably the mode of treatment differs with each child. They must be managed according to temperament. Yet I never set out to win their goodwill. On the other hand, I rather neglect them, simply leaving them alone to become acquainted with the studio. One or two general rules I do follow, though I never antagonise a child. Rather I humour it, when it is begun to be interested in me. Again, if I begin to think that a certain pose would be just the one for a child to take, it almost invariably happens that this is the last that is natural to him. I never pays to have a preconceived idea of a child's pose. I simply let the boy or girl wander about until I see what it is that he wants to do, and what he will do. Sometimes when a child does not want to do what I desire him I say, 'You won't do that, will you?' Nearly always the mischief in the child makes it go at once

and do that very thing. After one has often failed to make a good picture of a child in its best gown one can achieve a great success by merely slipping an old frock on it. I never let a child become excited. Some persons think tots must be on the *qui vive* in order to look bright, but this is not true. One can never work as well from an excited child.

"I don't consider it difficult," continued the photographer, "and there is no one I would rather see coming into my studio to be photographed than a little child. Perhaps if I had not always loved to be with children I might speak differently, for it takes time to get a child's portrait. I refuse to attempt to do so in less than an hour, and often it takes two or more. However, it depends very largely on the child. The moment he tires and shows the least signs of peevishness it is time to give up all effort for the day and try again some other time, when he is fresh. The mother may bribe it to remain quiet with a promise of chocolates, but the picture will be a failure. I don't mean to say that there is no work about photographing a child in a natural way, but I do believe if a woman has the knack of making these child portraits she will find the labour so fascinating that she will not call it drudgery. I suppose one has to have the gift of managing children born in them. The end to be obtained is to get them posed as unconsciously as possible. I like best to photograph one child alone. I want also as few accessories as possible in the picture, for it is my object to make a portrait of the child; that means to reproduce it as it is—to translate its temperament into the photograph. I don't mind a doll in the picture, and always keep a few toys at hand for the children, but I never pose a child at a tea-table. There would be too much distracting detail in such a photograph. This is merely my personal taste in the matter, however. Laughing portraits I seldom take. They are easy to get, but the result is usually a foolish grin. A child should look bright and intelligent, and a smiling child rarely does so. A child's interesting moments are its grave ones."

GLASGOW Eastern Exhibition.—The annual exhibition of the Glasgow Eastern Amateur Photographic Association will be held from November 25 to December 2 next. In addition to five classes for members, there will be two for associates of the Scottish Photo-

graphic Federation—one for prints and one for slides. To encourage the joint outings with the Shettleston Camera Club a special class for the members of that club and the Eastern has been included for work done at the joint outings.

THE MAWDSLEY FUND.

THE following additional donations have come to hand since last week's list was made up:—

	£ s. d.	£ s. d.
Amount already acknowledged.....		26 5 6
F. Beasley, Esq.	1 1 0	
"An old Liverpool Dry Plate User." 0 5 0		1 6 0
		27 11 6

THE INTERNATIONAL CONGRESS OF PHOTOGRAPHY.

THE meeting of the Congress to be held at Liège from July 19 to 24 has already been announced in our pages, and we are now able to give a list of papers to be communicated, which at the time of writing stands as follows:—

Report of the Permanent Commission on plate speeds, standards, etc. M. E. Wallon, Paris.

The substitution of volumes for weights in photographic formulae. Dr. Henrstay, Angiers.

New researches on detection of forgeries, and other questions of photography applied to criminology. Dr. Reiss, Lausanne.

Fixation of pigmentary inks for three-colour photography and adjustment of light filters thereto. Prof. R. Namias, Milan.

On the composition of mixtures of gelatine and metallic bichromates after exposure to light. A. and L. Lumière, Lyons.

On the theory of stereoscopy. A. Goderus, Gard.

The photographic reproduction of manuscripts. J. Casier, Gard.

The Permanent Commission of the Congress by whom the report above referred to will be drawn up consists of the following:—
Bellieni, France; Miethe, Germany; Cameron, United States; Moissard, France; Chapman-Jones, England; Pizzigelli, Italy; Clerc, France; Puttemans, Belgium; Demole, Switzerland; De Sambuy, Italy; Drouet, France; Gl. Sebert, France; Eder, Austria; Trezniewsky, Russia; Gaumont, France; Walton, France; Houdaille, France; Louis Lumière, France.

As we have already announced, British visitors are invited to the Congress and communications from those desirous of attending should be addressed to M. Ch. Puttemans, Palais du Midi, Brussels.

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge de Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Saint-Esprit, Liège.

August 7.—Andover. Hon. Secretary, W. I. Gradidge, Jubilee House, Andover.

September.—Royal Photographic Society, New Gallery, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern Amateur Photographic Association.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern Photographic Association. Hon. secretary, William H. Frame, 28, Bank Street, Hillhead, Glasgow.

FORTHCOMING COMPETITIONS.

July 15.—Warwick. Money prizes for members of photographic societies for pictures taken on Warwick Dry Plates. Warwick Dry Plate Company, Warwick.

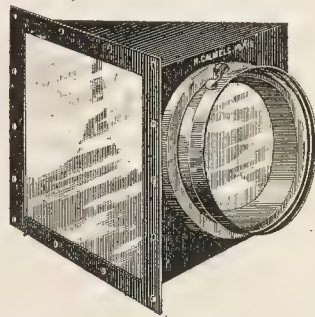
September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

Photo-Mechanical Notes.

A New Method of Using Prisms and Mirrors.

M. CALMELS points out in "Le Procédé" that the usual method of mounting a prism on the front of the lens is extremely liable to produce, in consequence of the weight on the lens mount, unequal strains in the glass, and consequent loss of sharpness through double refraction. Further, that the aperture of the prism is usually circular, corresponding in diameter to the aperture of emergence, which results in a cutting off of the field. To obviate these difficulties, he has calculated out the exact size which it is necessary to give to a prism which can be mounted behind the lens, and the base of



the prism is surrounded by a metal rectangle 4 mm. wide, which can be fastened to the camera front, either direct or on an extension cone which fits the camera front and entirely obviates any curtailment of the angle. The figure shows Calmels' new idea, the lens being screwed into the ring, which can be rotated so as to enable the orientation of special diaphragms for trichromatic work. Precisely the same idea can be applied to the mirror, and the size and weight of both prism and mirrors and the necessary mountings thus considerably reduced.

Wet Collodion Troubles.

The most persistent difficulty in wet plate negative-making is the presence of dust. A perfect sea of troubles arises from

his one small cause alone. One dares not leave windows near the dark room open without screening with several thicknesses of muslin in order to filter the air, and we recently heard of an unfortunate operator who was puzzled by very peculiar spots, which he afterwards traced to the fact that a fire had taken place in a large timber yard in the neighbourhood, and the very fine particles of burnt wood had found their way down the ventilator, and so on to his plates. Again muslin was the remedy. Dust can most effectively be laid for the time being by vigorously using a barber's scent spray filled with water, just before coating is done, but this should not be necessary except on very rare occasions. The dark room for wet plate work should be free from everything except necessities, the walls and ceiling should be painted and the floor concrete, or at least oilcloth, so that the whole room can occasionally be washed throughout.

A peculiar trouble once afflicted a large firm on the Continent some years before they discovered the cause. Their plates could be working well, when suddenly they would begin to fog, get spotty, and, in short, become entirely useless. The operators might be a day or two in misery before things just as suddenly righted themselves again. After making no end of experiments, including the tearing up of the drains, without avail, it was at last found to be due to the dry east wind! Now, when the same symptoms begin to appear, the doors are well watered, and wet cloths laid on the steam pipes, with the result that the trouble is entirely avoided.

A Good Photo-Transfer Ink.

Although good stone-to-stone transfer inks can be purchased, still those who make their own, despite the trouble, are always satisfied they have a better article than they can buy. Here is a well-tried formula for such an ink. It can be recommended also for making the albumen prints for line etching:—

- | | | | | | |
|------------------------------------|-----|-----|-----|-----|-------------------|
| 1. Black pitch | ... | ... | ... | ... | $\frac{1}{4}$ oz. |
| 2. Orange shellac | ... | ... | ... | ... | 1 oz. |
| 3. Mutton suet | ... | ... | ... | ... | 2 oz. |
| 4. Castile soap | ... | ... | ... | ... | 1 oz. |
| 5. Black chalk litho ink (6s. lb.) | ... | ... | ... | ... | 12 oz. |

The ingredients should be put into a decent sized iron saucepan on a stove in the order named, each ingredient being allowed to mix thoroughly well before the next is added. The mutton suet requires scalding, to get the skin away, before it is added, and the fat may be melted from it and then run into the saucepan, leaving the skin behind. After thoroughly mixing, so that a perfectly homogeneous mass results, the saucepan is taken out of doors, a match put to the contents, and the ink allowed to flame away for twenty minutes, when the lid is put on the saucepan. The ink now looks rather peculiar, the top being very lumpy and charred, but it only requires to be passed through an ink mill, which any ink-maker will do for a trifling charge, when it is quite ready for use. For photographic work, the ink is thinned with turpentine, and with a drop or two of oil of spike lavender. For lithographic work it may be thinned with thin litho varnish.

MRS. CATHARINE WEED WARD writes us:—So many of your readers have written to me, in consequence of your kind note re my accident that I beg you to allow me to express here my very sincere appreciation of their sympathy. The accident, which took place on May 23, came very near being fatal, but I was able to be brought home on Saturday, June 17, with only slight permanent injuries, and only requiring rest for a complete recovery. Within a week or two I hope to fully resume my editorial and journalistic work; and, if all goes well, I must to thank many of your readers personally at the Photographic Convention next month.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between June 5 and 10:—

ISO SCREENS.—No. 11,765. Improvements connected with screens for use in isochromatic photography. Harry Ernest Staddon, 173, Fleet Street, London, E.C.

PLATEHOLDERS.—No. 11,786. Improvements in photographic plateholders. Jesse Daugherty Lyon, 18, Southampton Buildings, Chancery Lane, London.

CAMERAS.—No. 11,882. Improvements in photographic cameras. Alfred Edward Bloxsome Ray, 37, Chancery Lane, London.

DISHES.—No. 11,985. Combined development and washing trays for photographic purposes. John Marshall, 37, West Nile Street, Glasgow.

FILING PHOTOGRAPHS, ETC.—No. 12,029. A new and improved device for storing photographic films, unmounted photographs, newspaper cuttings, etc. Percy Gerald Reynell Wright and Houghtons, Limited, 88, High Holborn, London.

CAMERAS.—No. 12,030. Improvements in photographic cameras. Herbert Holmes and Houghtons, Limited, 88, High Holborn, London.

DRY MOUNTING.—No. 12,057. Dry mounting photographic paper (both "printing-out" and "developing"). John Merrett, Trowbridge, Wilts.

COMPLETE SPECIFICATIONS ACCEPTED.

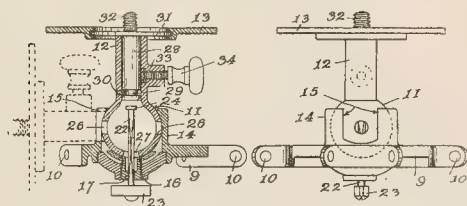
Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

MEASURING SHUTTER SPEEDS.—No. 16,053, 1904. The claim is for apparatus for the testing by a visual method of the speed of photographic shutters. The instrument consists of a stationary plate formed with a slit arranged in front of a source of light, in combination with a revolving disc formed with a slit or slits arranged to travel over the slit of the stationary plate, so that this latter stationary slit appears to be illuminated owing to the principle of persistence of vision. On this action being viewed through the aperture of a shutter which has a shorter period than that of the slit, a dark portion is seen in the slit corresponding in length relatively to that of the slit equal to the difference of periods, which, by gradually increasing the speed of the disc until the dark line is just eliminated, indicates that the period of the shutter and the slit are the same. In timing shutters of the roller-blind or focal-plane types, by employing the speed measuring apparatus with the shutter aperture working parallel to the stationary slit, good results are readily and easily obtained. Abraham Kershaw, Torrington Street, Leeds.

ENLARGING CAMERA.—No. 1,364, 1905.—A camera for both studio and enlarging work. The apparatus comprises a lantern box, lantern, lens, carriers, negative carrier, easel, etc. By bringing together these parts in a suitable manner the apparatus is used for one or other of its two purposes. John Norman Anderson, 178, Wabash Avenue, Chicago, U.S.A.

TRIPOD HEADS.—No. 16,359, 1904. Protection is claimed for a ball-jointed tripod head, the ball joint of which is carried in a

casing, such as 14 and fitting 9, and has a pillar 12 with pinching pin 34, a revoluble stem 28 in the pillar with suitable means to



Figs. 1 and 2.—Sectional side view and side view in elevation of ball-jointed head.

prevent its removal, such as garter pin 30. It has a plate 31, a revoluble table 13 on same, and means on the stem 28 for attachment to the camera, and for adjustably securing ball 11 in its casing. John Ambrose Sprason, St. George's Place, St. George's, Birmingham.

New Books.

"Benson's Facts for Advertisers. 1905." (London: S. H. Benson. 5s.)

Here we have a book, now in its first edition, dealing with the data of the advertising business in a concise and direct manner. It is a collection of useful information which is being continually required by the ad-man, and which usually has to be looked out from various sources. The arrangement of the book is good—the facts are classified in five sections, under the general headings of General Information, Technical Information, Newspapers and Magazines, Out-door Publicity, and Colonial and Foreign Advertising. Each section is printed on a differently tinted paper, thus reducing to a minimum that annoyance generally attributable to handbooks, etc., in finding what is wanted at a moment's notice. Ten minutes' time is sufficient to familiarise one's self with the scheme of the book, after which reference to the index even should hardly be necessary. The volume is certainly of value to photographers who appreciate the power of advertising a studio, as it has much to say on the various media of advertisement, press, circulars, railway, etc., and it appeals also to all photographers, who may think of applying their cameras to modern illustrated advertisement, by reason of its notes and information of current reproduction processes considered commercially.

"THE PLEASANT ART OF PHOTOGRAPHY MADE EASY," adds still another to the many elementary text-books on photography. The author, however, takes hope from the very profusion of literature of the order to which his work belongs, that there is room for one more, and we will do him the justice to say that he discourses on his theme in a pleasant, easy-going way, and manages to convey technical instruction without being dull; and usually his advice is sound technique. The publisher of the book is Guilbert Pitman, 85, Fleet Street, London, E.C., who issues it at 1s. and 1s. 6d.

"HOW TO USE THE CAMERA," by Clive Holland, is the title of an elementary handbook for photographic beginners published by Geo. Routledge and Sons, Limited, at 1s. It is copiously illustrated with reproductions intended to illustrate the various points dealt with by the author in the text.

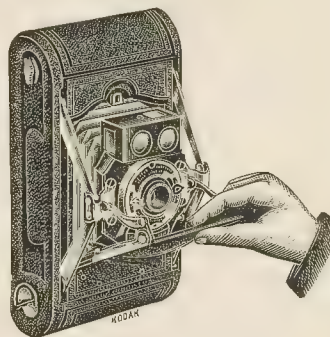
A SERIES of practical articles by J. Cruwys Richards on gum-bichromate work, which originally appeared in "Photography," has been published in book form by Messrs. Riffe and Sons, Limited,

under the title of "The Gum Bichromate Process." Mr. Richards deals in a complete manner with the process, and the ten chapters composing the book are illustrated with examples of his work.

New Apparatus, &c.

The No. 1 Folding Pocket Kodak (New Model). Made by Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

In the 1905 pattern of the well-known No. 1 F.P.K., the Kodak Co. have modified the design in certain important particulars, the nett result of which is assuredly to enhance the value of the instrument in the eyes of the photographic tourist. The working parts are now enclosed by a folding baseboard, so that all mechanism is protected from dust and wet. This safeguard does not entail another



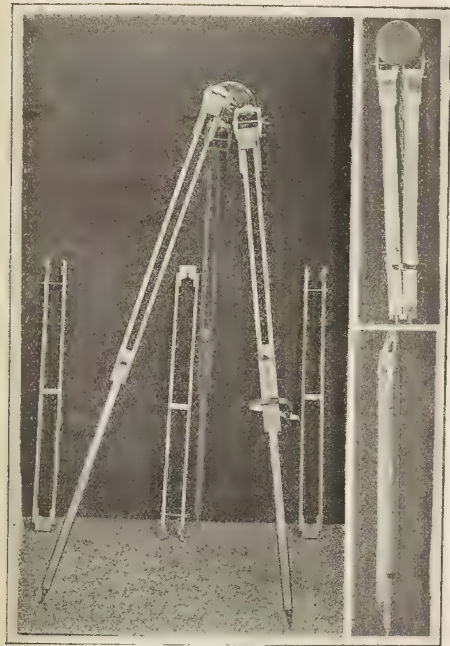
No. 1 F.P.K. (New Model), showing how the lens front moves forward on opening the camera.

operation, for, by a most ingenious device, the lens front is drawn into its proper position by the simple act of drawing down the base-board. In an instant you pull down your cover-board and your lens steps forward into position with almost the human intelligence of a West-end shopwalker. There are other improvements, but this one of the automatic moving front is the only one which the dealer need demonstrate when exhibiting the camera to a customer. It exerts a subtle "there-you-are-Madam" kind of influence, which, if we are not mistaken, will be irresistible. The price remains the same—£2 2s.

The "Swingcam" Camera Stand. Invented and sold by William Butler, 20, Crosby Road, Birkdale, Southport.

Every conceivable position for the camera wherever it may be necessary to plant the tripod—that is what the inventor of the "Swingcam" stand offers to achieve. The construction on which the stand relies to carry this promise into execution is a comparatively simple one. Each leg of the tripod is connected to the head by an attachment which is doubly jointed and also is free to turn at its point of junction with the head. As a result, the tripod acquires a mobility of its parts which permits of the most extreme positions being taken by the camera. The stand being fixed in its normal position, it is the work of a second or two to adjust matters so that the camera points vertically downwards: or just as expeditiously it can be pointed upwards. Any inclinations between these limits are obtainable and the jointed attachment of each leg enables the tilt to be altered without disturbing the position of the feet. In short, the tripod has a greater range of movement than a ball-and-socket head, without the weakness which, by its construction, the ball head

cesses. In the most exceptional positions it is highly stable and rigid, a fact which we attribute to the mechanical strength, yet simplicity, of the jointed attachments. A photographer need not be occupied with the very special work of natural history, surveying, or similar photography—for which the maker specially offers the tripod—in order to prove the value of its great range of movement. To take various positions, in which it is often advisable to place a camera—right



The "Swingcam" Stand, showing triple attachments and extension pieces.

the corner of a room or flat against a wall. With an ordinary tripod it is impossible to do so without sacrificing rigidity, but with the "Swingcam" these particular movements are made at once, and the camera is placed with all necessary stability. Moreover, when thus secured, it can be tilted up and down through a large angle. We venture to say that anybody who has to do photography in confined quarters will appreciate this feature of the tripod. There are some other technical points we might refer to, such as the attachment which keeps the points of the legs vertical however much the legs are spread out, but a booklet issued by the inventor sets forth these and other details by aid of a number of illustrations. The normal height of the tripod is 4 ft. 9 in.; with extension bars, 7 ft. 3 in.

The Cairo correspondent of the "Pelican" writes that "the fashionable mania in that city is to be photographed in mummy frames. These are really coffins, and the spectacle of a pretty woman, in any costume, reclining in one of these gruesome relics of a past age, can only be described as weird in the extreme."

Messrs. P. LEUTHARDT-THORNTON and G. B. Leuthardt-Thornton inform us that they have opened offices at Terminus Chambers, 6, Colborn Viaduct, London, E.C., and have commenced business as general merchants under the name of L. Thornton and Son.

News and Notes.

M. GABRIEL LIPPMANN is reported as stating, in a paper before the Paris Academy of Sciences, on June 3, that in the case of photographs on bichromated gelatine films it has been hitherto necessary to moisten the film each time it is desired to observe the colours. By alternate treatment with solutions of potassium iodide and silver nitrate the colours become permanent and visible after drying.

MANY photographers occasionally want a reliable firm to quickly produce a good half-tone block from their prints, either for advertisement purposes or for picture postcards. The work done by The London Studio, of 20 and 22, St. Bride Street, Ludgate Circus, is well known, and the rapidity with which they turn out orders will appeal to every one who gives them a trial. The quality of the work we have had an opportunity of examining is very high.

SOUTH LONDON Excursion to the Antrim Coast, 1905.—Thursday, July 20, leave Euston about 4.15 p.m., or St. Pancras about 8.20 p.m. Friday, July 21, arrive Larne about 8 a.m. (King's Arms Hotel), breakfast on arrival, remaining to Saturday morning. Saturday, July 22, leave Larne for Garron Tower, passing through Glenarm and Carnlough; dinner, tea, and bed at Garron Tower. Sunday, July 23, at Garron Tower, visiting Glenariffe Waterfalls. Monday, July 24, after breakfast leave for Ballycastle (Hunter's Hotel), passing through Cushendall and Cushendun; walking to Fair Head. Tuesday, July 25, leave for Giant's Causeway (Kane's Royal Hotel), calling at Carrick-a-Rede. Wednesday, July 26, day at the Causeway, with drive to Portrush. Thursday, July 27, drive across country to Garron Tower, remaining overnight. Friday, July 28, drive to Larne, leaving about 5 p.m., arriving London Saturday morning, 29th. The cost of this trip would be as follows:—Hotel expenses, 23; drives, £1 5s.; return fare, £1 8s. 6d. Cost of taking cycles is about 12s.

INTRUSIVE Photographers.—A correspondent of the "Yorkshire Daily Post" at Oberammergau, referring to the influx of visitors there, many of whom have secured room for themselves and friends who are desirous of seeing the performance of "The School of the Cross," hopes that no English visitors will copy certain Americans who have already found their way there. In spite of the strictest prohibition by the Oberammergau authorities, and remonstrances couched in most courteous language, some of these people insisted on bringing cameras into the theatre on Sunday, June 4, and in taking snapshots of the performers and some of the audience. This would in any case be in extremely bad taste, but in view of the prohibition known to everybody it is a violation of rule which might fitly be punished by strong measures. One American was spoken to no fewer than three times, but this did not prevent her from continuing her snapshotting, though she contrived to change her seat so as to be out of the reach of further remonstrance. Why cannot these people try to live up to their blue china?—pertinently asks the correspondent.

MESSRS. RUSSELL AND SONS were honoured with Royal commands at Windsor Castle last week, and took a number of photograph groups of the Royal bride and bridegroom, the Crown Prince and Princess of Sweden, Prince Eugene, and of the Prince of Wales and the members of the Royal Family.

THE Camera as a Temperance Reformer.—The secretary of the National Temperance League, writing in the "Express," says that: "Flats and the camera are among the contributory causes of the new habit of sobriety that is coming over the people. A person living in a flat has no room for a wine cellar, while families living in mansions often find that the wine cellar makes an excellent dark-

room, evicting the bottles of old port to make room for the new pyro." Apart from this, however, we are of the opinion that the widespread popularity of amateur photography takes many men, who would otherwise spend a considerable amount of time and money at lars, out into the open air in pursuit of their hobby, and thus effect a saving in health and pocket.

"FOUR narrow pieces of a dry plate were loaded in a slide casset." This from a paper in the "Journal of the Society of Chemical Industry." It may be pardoned, as from the MS. of a Japanese, resident in Germany and writing in English.

DARK ROOM Safe Lights.—A communication from Professor Adolf Miethe on this subject, which we have been enabled to peruse by courtesy of Messrs. A. E. Staley, sums up the requirements of dark room filters for various purposes, some extracts from which we quote. Mr. Miethe's notes are in reference to the gelatoid filters, of which Messrs. Staley are British agents. Ordinary dry plates, and more so, the ordinary bromide papers, are highly non-sensitive to yellow and red, so that a dark room illumination which transmits orange, red, and even a portion of the yellow light, may be employed. These requirements are met by a filter transmitting light from the extreme red to a wave length of 590. With proper precaution this filter admits of safely developing even most sensitive ordinary plates. A filter which transmits light to a wave length of 620 is, notwithstanding its brightness, applicable—when properly employed—not only in the case of most sensitive ordinary plates, but also for ordinary colour-sensitive plates (erythrosine plates), and is the most suitable one for ordinary use in the laboratory. It answers all requirements that can be made of a very bright, and withal, very safe, dark room light. The filter gives a light six to seven times as bright as that obtained through the best ruby glass of equally slight photographic action. For developing highly colour-sensitive plates, more especially those sensitive to red, the dark red filter No. 4 is suitable: it transmits light only to a wave length of 670, corresponding in brightness to good, medium, bright ruby glass. For individuals upon whom red light doubtless exerts an unfavourable influence, green and brown light-filters supply a sufficiently safe and very agreeable light for working with ordinary dry plates. The light transmitted by this filter consists of two bands of spectrally different light, of one deep red and one yellow-green, which, by combined action on the eye, produce the impression of green.

THE latest wholesale price-list of fine chemicals reaches us from Messrs. Harrington Bros., 4, Oliver's Yard, City Road, London, E.C.

INSECT PESTS.—The "Bromide Monthly" draws attention to the fact that the common earwig will create considerable havoc with damp gelatine films of all kinds, particularly at night when they come out on the prowl for food. Judging from some reproductions we have seen of their ravages one earwig can completely ruin a negative, and the glass is practically cleared of silver and gelatine. It has been known, of course, for some years, at least ten, that flies had a decided fancy for damp gelatine, and that they very frequently cause clear round spots almost like pinholes by clearing off the gelatine and image. By long continued washing in summer, which, by the by, is quite unnecessary, the gelatine is so softened that it may well become partially soluble, and there is a particular microbe which has a name as long as its body is short which delights in well-washed gelatine. This particular pest causes groups of clear spots, which when examined with a glass are seen to be totally devoid of gelatine. The obvious remedies are short but efficient washing and quick drying, and the latter can always be hastened by the use of successive baths of methylated spirit.

WE regret to record the death of Mr. T. C. Hepworth, which took place on the 14th inst., and to whom we will refer further next week.

Commercial & Legal Intelligence

SERVANT Victimised.—James Watson was charged, on remand at North London, with stealing a half-sovereign belonging to Martha Turnbull, a domestic servant, of Canonbury. The prisoner went to the house where the prosecutrix is employed, and solicited an order for photographs. She consented to pay him 4s. on account, but had no change. She handed the prisoner a half-sovereign to get changed, and he did not return. According to the police, the prisoner had not been previously convicted, though there were several complaints that other servants had been victimised in similar fashion, but they would not come to identify the prisoner. Mr. Fordham said that it was a mean theft, and one that he was afraid was rather prevalent. The prisoner had been in gaol a week, and would now go for a further twenty-one days.

CERIOTYPE COMPANY, LIMITED.—This company has been registered, with a capital of £1,000 in £1 shares (nine founders). Object, to adopt an agreement between J. Wagner and E. L. White to manufacture, in accordance with a secret process, materials for sensitising paper, and other materials for photographic purposes, and to carry on the business of photographers, photographic printers, etc. No initial public issue. The first directors are E. L. White, C. Fitch, and T. K. Grant. Registered by A. W. Bartlett, 6, New Square, Lincoln's Inn, W.C.

PHOTOPHANE PRINTING COMPANY, LIMITED.—This company has been registered, with a capital of £5,000 in £1 shares. Object, to take over the business of photographic printers and otherwise carried on by the Photophane Company at the Cranfield Works, Brockley, Kent. No initial public issue. The first directors are H. A. Hutchinson and H. Whitworth. Registered office, 36, Corn Street, Bristol.

A PHOTOGRAPHIC POLICE TRAP.

MOTORISTS BEWARE.

WE read in a Wolverhampton paper an account of an interesting invention which will shortly be placed on the market by a firm in that city. It affects the police and users of motor-cars, and is to be known as the "time-recording camera." Judging from the description the results will probably cause more disputes and wranglings in Court than any previous method employed by the police. A representative of the paper had the invention explained to him. He says:—"The instrument is simplicity itself, the photograph of a passing car being taken by the simple act of pressing a button, as in the case of a snap-shot camera.

"It is really a photograph of the car, the road, and the time which results from the act of pressing the button. The instrument is, in fact, a camera which takes a watch, a signed dating card, and a numbering machine. The watch case can be officially sealed up, and the operator cannot tamper with it. If required, the photograph thus taken may be finished as evidence, while the instrument should be greatly used in time trials and so forth. Any rapidly-moving object may be taken at any given point, and the shutter speeds give a range of exposures from one-twenty-fifth of a second to one-hundredth part of a second. The exact time is shown, the date appears, and the film number. A car may be timed over any distance, and not only is the vexed question of speed to be settled, but the occupants at the moment are photographed, and can readily be identified."

WE look forward with considerable wonder to seeing the kind of photographs that will be produced by this wonderful instrument.

WE regard the possibilities of recognition attached to a photograph of a car travelling at over twenty miles an hour, taken broadside on by a shutter giving exposures from one-twenty-fifth of a second to one-hundredth, as extremely remote.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
14.....	Manchester Amat. Photo. Soc.	Trip to Hathersage.
14.....	North Middlesex Photo. Soc.....	Outing to King's Langley, for Chipperfield.
14.....	Cricklewood Photo. Society.....	Outing to The Hale.
14.....	Hull Photographic Society.....	Outing to Burton Bushes.
14.....	Wallasey Amat. Photo. Soc.....	Field Day.
14.....	Watford Camera Club.....	Langley Lodge Farm.
15.....	South London Photo. Society.....	Trip to City of London.
16.....	Wallasey Amat. Photo. Soc.....	"Use of the Camera." Mr. R. Tunnicliffe.
26 and 28	Everton Camera Club.....	Evening Outings vs Class 1 Competition.
17.....	Royal Photographic Society.....	Technical Meeting. "The Romantic in Landscape." Mr. F. C. Tilney.
27.....	Manchester Amat. Photo. Soc.	"Auto Pictorial." Mr. J. E. Latham.
27.....	Southport Photographic Society	Mold, Loggerheads, and Leete, in conjunction with the Liverpool Photographic Society.
29.....	London and Prov. Photo. Assn.	Annual General Meeting.

CHELSEA AND DISTRICT PHOTOGRAPHIC SOCIETY.—Mr. E. A. Salt gave an interesting demonstration on the platinotype process before the members of this society at the South-Western Polytechnic on the evening of June 1.

THANET PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held at the club-room, Broad Street, Ramsgate, on Thursday evening of last week. The report showed that the year commenced with 77 members, 20 new members were elected, 11 resigned, and 86 remained. Ramsgate headed the list with 59 members, Margate had 22, Broadstairs 4, and Sturry 1. The exhibition was held at the Pavilion, Ramsgate, in November, and a very good entry was secured in the open classes. Arrangements are being made for the next exhibition to be held at the Public Library, about November 23. The following officers were appointed:—President, the Rev. L. J. White-Thomson; vice-presidents, Dr. B. Richards, the Rev. C. E. Eastgate, and Messrs. G. F. Blower, J. H. Forwalk, P. Solly, L. G. Hodgson, and G. W. Simmers. Mr. S. H. Page was elected hon. secretary; Messrs. Hacker and Solly were elected auditors; Mr. P. F. Weeks, hon. lanternist; Mr. L. G. Hodgson, hon. librarian; Dr. Richards and Mr. S. H. Page, delegates to the R.P.S.; and Messrs. Vigar, Francis, Savage, E. Deacon, Hoile (Ramsgate), and Gibbs, Redman, and Adutt (Margate), committee. Mr. Hodgson promised to act as secretary to the November exhibition.

ROTHERHAM PHOTOGRAPHIC SOCIETY.—A meeting of the Rotherham Photographic Society was held on Tuesday evening of last week, when special attention was devoted to the difficulties of beginners, the three vice-presidents giving the benefit of their knowledge. Mr. J. W. Stamp spoke on apparatus and exposure, Mr. W. Firth on developing plates and varying exposures, and Mr. J. Leadbeater on the toning of a batch of P.O.P. prints.

A PROPOSED COMBINED OUTING.—At the last meeting of the South Essex Camera Club, the president (Mr. Walter D. Welford, F.R.P.S.) laid before the members the idea of the various East London and South Essex photographic societies combining on, some date in September for a joint excursion—partly for photographic work, but chiefly as a social gathering. He thought that it would prove a very pleasant event, and might be productive of good in several directions. The idea was very favourably received, by the members, and the hon. secretary was empowered to send out invitations to the various societies. Any societies in the district named not receiving an invitation are requested to communicate with the hon. secretary, J. Michell, 180, Browning Road, Manor Park, E.

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

"SITUATIONS WANTED."

To the Editors.

Gentlemen,—In one of your recent issues a letter or suggestion appeared that if an employer advertised for an assistant it would be only fair and reasonable that each should pay his own postage, as both are in the same boat, viz., one is desirous of the services of good assistant, the other desirous of a good situation. May I venture to say, as a professional operator of some years' standing, that I am surprised at the treatment received by those unfortunate enough to be out of a berth, and I am one of the many. I, as a rule, pay postage for reply, but very rarely receive one. What becomes of the numerous stamps which never find their way back I leave others to suggest. Should I, by accident get a reply, which surely must be a mistake, everything goes smoothly and plain sailing until the salary is mentioned. Then all is over; the advertiser must either have a fit or drop into a state of coma; and you hear no more. There is nothing like patience. I must say I do not think, as a matter of fact, it is ability, but salary, that causes the trouble. I maintain a good man should be paid a good salary. Why should not the salary be mentioned in the advertisement? It would save a deal of time and expense. As to ability, I cannot be such a dummy, having held a position as head operator and artist with a Royal photographer for a number of years, then with a leading firm in Baker Street, W., and latterly with, I may say, one of the best houses in the North; and yet I cannot secure an appointment. Surely I have not drifted so far away from the professional goal to be so useless, or unworthy of hire; if so, I had better start and enlighten my brains with some other mode of obtaining a living.—I am, yours truly,
JUNE 15, 1905.

PLATINUM PRINTERS' CATARRH.

To the Editors.

Gentlemen,—As bearing upon this subject, I may mention that a number of years ago the late Mr. William Thorp informed me that one of his assistants could not bear what he called "the smell" of platino-chloride of potassium. The symptoms were nausea and severe vomiting. There could be no mistake about the fact; my friend tested it thoroughly.

It would seem that platinum compounds have the fashionable complaint of an "emanation."—Yours very truly,
EDMUND J. MILLS.

64, Twyford Avenue, West Acton, W., June 16, 1905.

To the Editors.

Gentlemen,—The distressing symptoms alluded to by "Old Printer," in your issue of May 26, are exactly similar to my own when working with platinotype paper; in fact, I have given up using it. I tried getting my assistant to cut up the paper, but it made no difference, as, directly I started filling in the frames, no matter how carefully I handled the paper, the sneezing and running at the nose commenced, which made it impossible for me to see customers.

I may add, like your correspondent, it is only in the last two years I have been affected.—Yours truly,
F. S.
Colchester, June 16, 1905.

[This correspondence has now exceeded the space we can devote to it, and we must herewith close it. The following facts obtained

from an authoritative source may be stated as confirming the opinion we expressed—when attention was first drawn to the matter by "Old Printer"—and defining the cause and prevention of the affection:—In a few isolated cases, a species of catarrh, with symptoms somewhat akin to hay fever, has inflicted itself on platinotype printers. The direct cause of this is the dust, or small particles of chemicals, which may arise from the paper, acting on a hypersensitive temperament, possibly equally sensitive to other forms of dust. When such a peculiarity asserts itself, careful attention should be paid to ventilation, and the paper should be purchased in cut sizes, so as to avoid cutting it up, and consequent disengagement of small particles. For this and other reasons, tearing the paper should be carefully avoided. Oxalate powder, if inhaled through the nose, will give effects similar to those complained of. This might occur when making up solutions.—Eds., B.J.P.]

MODERN CHEMISTRY.

To the Editors.

Gentlemen,—My attention has kindly been called by Mr. Clifford E. F. Nash, M.A., to a grave error in my last article on chemical dynamics, in which, by some mistake, I calculated the rate of falling of a body and obtained entirely incorrect results.

The formula, of course, is $s = \frac{1}{2}gt^2$, and the section should read:—In the first second the ball falls 16 ft.; in the second 48 ft., i.e., 64 ft. from rest; in the third 80 ft., i.e., 144 ft. from rest; in the fourth 112 ft., i.e., 256 ft. from rest; and the shape of the curve is to be corrected accordingly.

The example still serves in any case to illustrate the nature of an instantaneous velocity.

I must also thank Mr. Carnegie for his courteous letter. If Mr. Carnegie will refer to the commencement of the series, he will see from the note there that the object of the series was not to explain in any sense the application of physical chemistry to photography, but simply to write a short series of articles on pure physical chemistry. I did, it is true, employ photographic examples, but that was not essential to the argument in any sense. Mr. Carnegie's statement that all reactions are reversible is, I think, true, strictly speaking, i.e., $\overset{+}{Ag} + \overset{-}{Br} = AgBr$. But the equilibrium is so far on the side of $AgBr$ that we may usually, e.g., in analysis, consider it as irreversible, though, in development, it is the reverse reaction which is of importance. I am afraid that occasionally I have implied things which I ought to have stated—but it is not easy to always avoid these pitfalls.—Yours truly,

C. E. KENNETH MEES.

Rylands, Caterham, June 16, 1905.

[For instances of the application of physical chemistry to photographic processes, we may refer Mr. Carnegie to the German photochemical papers, or to the papers at present being published by Messrs. Sheppard and Mees in the Proceedings of the Royal Society, or the "Photographic Journal." The whole work of Messrs. Hurter and Driffeld was based on the principles which have now developed in physical chemistry.—Eds., B.J.P.]

A PHOTOGRAPHIC TOUR IN IRELAND.

To the Editors.

Gentlemen,—For some years past the South London Photographic Society have made a trip to Ireland—an annual excursion. This year they have decided to enlarge the scope of the excursion, and, having succeeded in making good terms with railways, hotels, drivers, etc., are willing to extend their advantages to other photographers who may care to join. I append a list of trips arranged, and shall be

glad to enter into correspondence with anyone desiring to make trip. The excursion is suitable for ladies.

I may mention that the South London Photographic Society will not be acting as tourist agent in the matter, and will not make any profit.—Yours faithfully,

H. CREIGHTON BECKETT.

44, Edith Road, Peckham, S.E., June 17, 1905.

[The itinerary of the tour appears under "News and Notes."—Eds. B.J.P.]

THE SPEED OF TELEPHOTO LENSES.

To the Editors.

Gentlemen,—Mr. C. Louis Hett's article on "The Speed of Telephoto Lenses when Employed on Near Objects" deals with a very interesting subject from somewhat peculiar points of view, and as it is rather difficult to follow his statements and arguments, perhaps the following notes will be of assistance to some of your readers.

When a telephoto lens is described as having an "equivalent focal length" equal to, say, 3 ft., or whatever it may be, it simply means that the telephoto and a 3 ft. "rectilinear" would produce the same size image of a plane object at the same nodal distance. It does not imply that the telephoto acts in the same way as the 3 ft. rectilinear in regard to the matters of exposure, depth, and perspective, and as Dallmeyer pointed out in his "Telephotography," the telephoto lens does not do so with near objects, though it is in all respects equivalent to its "equivalent lens" in the case of distant objects. Assuming both lenses to have apertures of the same diameter, then the telephoto with near objects gives greater depth, and narrower angled perspective, and requires longer exposure. A single-view lens, with stop behind differs in just the same way (though in a very small degree) from a rectilinear of equivalent focal length, but when the stop is in front it differs in precisely the opposite manner, giving less depth and wider-angled perspective, and requiring less exposure.

The variations can all be readily calculated if the necessary data are available, but in the case of the telephoto lens all differences are automatically allowed for by the magnification method of calculating depth, exposure, and perspective introduced by Mr. Dallmeyer, and this method is so commonly employed that many have failed to realise the fact that the results obtained by it differ essentially from those that would be arrived at by taking the equivalent focal length and applying the methods usual with ordinary lenses.

The term "equivalent lens" is somewhat misleading when applied in its ordinary sense to the telephoto lens, or to a single "view" or any other lens of "inconstant aperture." With such lenses the Gauss equivalent lens, though truly equivalent with distant objects, with near objects is equivalent only in the one sense of producing an equal size image of a plane object at a certain nodal distance, but, as I have before pointed out in the "Amateur Photographer" for October 25, 1901, all such inconstant lenses may be considered to have a truly equivalent lens for each different distance of the object. This true equivalent lens with an aperture of the same diameter as that in use will, if situated at the entrance pupil of the lens, produce identically the same results as regards exposure, depth, and perspective.

Though I am not aware that Professor Abbe ever referred to this truly equivalent lens, yet, as it is assumed to be situated at the pupil or Abbe point, I take the liberty of describing it as the Abbe equivalent lens to distinguish it from the Gauss equivalent lens situated at the Gauss point. Its focal length is always equal to that of the Gauss equivalent lens, multiplied by the distance from the entrance pupil of the object plane in sharp focus, and divided by the distance of the same plane from the node of admission. In the case of the telephoto lens the Abbe equivalent lens is farther from the object

an the Gauss equivalent lens, and, in accordance with the rule st given, is therefore of greater focal length. As the effective erture remains of the same diameter the f number, or ratio number the stop, is of course increased. The perspective angle of view is erefore narrower and the intensity is less, while the net result the difference in focal length, measurement of distance of object, e ratio of aperture is an increase in depth.

These matters are all of great theoretical interest, and the varia- ns can easily be calculated, but for practical work the magnifica- on method is the one to adopt with the telephoto lens, as the istence of the variations can then be ignored. With the view lens imilar simple method is not easily applicable, but the variations e so small as to be of little moment, excepting in the case of osure when enlarging. Single lenses are frequently used for larging, but very few workers ever realise that in some cases the e reversal of the lens may increase the exposure by nearly 100 per nt., or that an enlargement of only a few diameters renders e well-known table of relative exposures given by Mr. Debenham e useless with such lenses.—Yours, etc.,

C. WELBORNE PIPER.

June 17, 1905.

BUSINESS ASPECT OF THE COPYRIGHT QUESTION.

To the Editors.

Gentlemen,—There is nothing the British photographer dislikes ore than being done by his customer. Yet hardly a week passes at one or other of us is fooled by some smart person, who comes e photographed, gets proofs, says they are all horrible, has the oofs copied by some cheap firm, and does one or other of us out ur guineas.

May I ask, Sirs, if this is to go on for ever, or cannot something ne done to make the smart ones pay for their smartness?

The Copyright Law says that if a person wishes to have the copy- ght of his photograph he must pay a "good or a valuable considera- on for it."

Is it not time it was decided that the money value of this "good" "valuable" consideration was fixed?

As it is, people imagine that they can go to a photographer in the dinary course of business, get a photograph, and have both photo- aph and copyright, whether they pay for it or not.

I do not know how the case appears to you, Sirs, but to a frog like yself, who sees no fun in the stone throwing, such methods are on par with those of the swindler who orders goods for which he ver intends to pay.

I should like to know whether any photographer has ever had the urage, or the foolishness, to take legal proceedings against any- e who has had photographs taken under such false pretences.

Not only do people have cheap copies made from proofs-supplied- em, but they often have enlargements done from photographs hich they pretend they do not think good enough to order from.

Thanking you in anticipation for inserting this.—Yours, etc.,

FRANK M. SUTCLIFFE.

Whitby, June 16, 1905.

P.S.—It would be interesting to know whether a person who has ot paid a "good, or a valuable, sum" for his portrait, say, £5 or £10, is entitled to the copyright of it. The meaning of the words "good" and "valuable" is plain enough. Would it not be possible r each of us to put a certain value on our portrait work, and state ur price lists that unless we are paid £5 to £10, we retain the opyright in the same?

[The subject of this letter is dealt with in another column.—Eds., J.P.]

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, includ- ing queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- *.* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- H. Green, 67, High Street, Dudley. Photograph, Group, Members of Dudley Golf Club.
- G. F. Harris, 123, Queen Street, Cardiff. Photograph, Postcard Reproduction of an Original Oil Painting of the Right Hon. Lord Tredegar.
- A. J. West, Rozel, Villiers Road, Southsea. Photograph of Old Man between two Sailor Boys standing in front of a Wreath where Nelson fell; Bluejacket stands behind them in front of the Ship's Wheel.

N. M. P. S.—The formula appears in our issue of May 19, p. 398.

COPYRIGHT.—I should be pleased if you would kindly answer the following questions for me. I hardly like troubling you on this matter, knowing the number of answers you have given on the subject, but there are still a few things which I am not quite sure about. 1. I am having some postcards printed (from my own negatives) which I have not copyrighted. Could any one else copyright same and thus prevent me selling them? 2. I have seen some of the same views published by a local photographer. If he has already copyrighted his view, can he stop me selling mine? 3. Supposing I purchase a negative from a photographer, can I copyright that and publish it and stop others from copying it?—PRINTER.

1. Certainly not. But why not, before publishing the cards, register the copyright in the pictures, and thus prevent any one from copying them at all? 2. No. He can only register the copyright in his work; he cannot copyright the scene, and you, or any one else, can photograph it from exactly the same standpoint if you like to do so. 3. Yes, if the photographer assigns the copyright to you, and that must be done in writing.

R. SANDIFER.—Thank you, but we do not care to insert the letter. Our stipulation as to name and address is made for self-protection.

B. T. H. (Cardiff).—The idea of the washer is certainly a good one, and based on sound principles. The question is: What will it cost to make? The answer to that decides its commercial success, which, we take it, is what you have in mind. It is not sufficiently better than others on the market to create a demand unless its price can put it at an advantage. We are afraid that the construction makes this impossible.

FILM DRYING FLAT.—Will you kindly inform us through the medium of the B.J.P. a good method of making film negatives dry flat? When dry, they curl up very much, which is a source of great trouble to us.—FILM.

Surely you must be aware of the various non-curling, non-curlable, and anti-curling films now on the market, and extensively advertised in our outer pages. These, being coated with

a thin gelatine film on the back, do not curl up like the old type of celluloid roll film. If you wish to keep flat the films you already have, soak them in glycerine 1 oz., water 1 pint, until flaccid. Then hang up to dry. When dry, place under pressure, and they will remain quite flat in future.

LENS QUERY.—I have a whole plate camera and 11 in. focus R.R. lens and also a 14 by 11 camera but no lens, and I expect to take a few 14 by 11 groups this summer, but do not care to go to the expense of a R.R. lens for that purpose, as I very seldom use that size, therefore I would like to try the supplementary lens. What is the focus of the supplementary lens I should use for my 11 in. focus R.R. lens to convert it into one of 16 in. focus for the 14 by 11 camera? What kind of lens do you consider the best for the purpose, meniscus or what? Now, compare this form of lens with that of a regular R.R. lens of the same focus, and using a stop, say, $f/22$ in each case; what would be the difference between the two in regard to the depth of focus and other qualities?—C. P.

In our issue for February 17, p. 126, appears a note on this subject which gives the very simple rules that will meet every case; but to lengthen 11 in. to 16 a negative lens of 35 in. would be required. A meniscus would be the best form, but, failing this, a plano-concave. It would not be possible to detect any difference between the regularly constructed R.R. and that with the supplementary lens, if both were working at $f/22$, as regards definition, and the depth of focus would naturally be the same.

LICENCE, ETC.—Could you kindly tell me: 1. Is it necessary to have any kind of licence for photographing beanfeast groups, school treats, and similar groups? 2. Is there a living to be made by selling good negatives for reproduction on picture postcards? Could you kindly favour me with the names of any firms who would be open to buy good negatives; or, if this is against your practice, could you tell me of any books where I could gain this information?—JOHN T. WILDMAN.

1. No licence is necessary; but you should first get the permission of the beanfeasters, etc., before you attempt to photograph them, or they may resent it. 2. The postcard market is a very good one at present for reproduction rights. Address the chief postcard publishers with half-plate or larger prints of the subjects you have. There are no books on the subject.

KING.—We will criticise only prints which are properly toned and fixed. When you send these you shall have our candid opinion.

Foco.—The view is one which quite possibly might give the parties the case if they took it into court. We should think your best course is to fall in with their wishes.

EN AVANT.—The cost may vary. "Practical Radiography" (Ward and Isenthal, 6s.) will tell you what is needed for an up-to-date outfit, and Newton and Co., Fleet Street, or Harry W. Cox, Ltd., 1A, Rosebery Avenue, E.C., will quote you and put you in the way and working. We know of no instruction in X-ray work.

W. THOMPSON.—From ferrotype plates, as P.O.P. is done.

C. POWELL AND OTHERS.—In our next.

TONING BROMIDE.—1. When toning bromides by means of hypo alum, why do dark blue-black patches remain, and how can they be avoided (developer metol-soda)? 2. When using ferricyanide, sodium sulphide, I get dirty tarnish marks in the shadows. What is the remedy? 3. Kindly recommend a good book on the subject of bromide working.—CRANK.

1. The dark patches are simply untuned portions of the

original black and white print, and are probably caused by greasy finger-marks. Try rubbing the prints over with a little alcohol on cotton wool before toning. 2. We should like to see the prints, but possibly rubbing with spirit as above will get rid of the marks. See that the prints are thoroughly washed before toning. 3. "Toning Bromides," by Somerville, 1s., and "Toning Bromide Prints," by Blake-Smith, 1s.

CARBONS ON IVORY.—How is a carbon image obtained on ivory for colouring. Have tried single transfer straight on to the ivory, but bichromate stains the ivory badly, and nothing seems to take it out.—CONSTANT READER.

Carbon pictures on ivory cannot be produced by the single transfer method, for the reason you have found. They are done by double transfer. Develop the picture on flexible support in the ordinary way and allow it to dry. Then immerse the ivory and the picture in the following (warm) solution. Nelson's No. 1 gelatine 1 ounce, water 1 pint. Chrome alum (dissolved in an ounce of water) 12 grains. Bring the two in contact, squeegee together, and allow to dry. Then strip off the support.

Gas Explosion at a Photographic Club.—Shortly after a quarter past six on Wednesday evening of last week a gas explosion, attended with serious results, occurred at the Young Men's Christian Association, Grange Road, Birkenhead. The explosion occurred in a small apartment on the ground floor at the foot of the main staircase. This room is set aside for the use of the members of the Y.M.C.A. Photographic Club, who use it as a dark-room for developing their negatives. Throughout the day no member had been there, and the door was kept locked. A member and a caretaker entered the room in the evening, and struck a light. The two men were immediately enveloped in flames, and the explosion occurred. Both sustained severe injuries, which necessitated their removal to hospital. The apartment was completely wrecked, and considerable damage was done to other parts of the building, many windows and doors being smashed.

The fifth Andover Photographic Exhibition will be held on August 7. There will be four open classes, and four open to amateurs residing within a radius of twenty miles of Andover. Particulars will be sent by the Hon. Sec., Mr. W. I. Gradidge, Jubilee House, Andover.

The Photographic Salon is announced to be held in the galleries of the Royal Society of Painters in Water Colours, 5a, Pall Mall East, from September 15 to October 21. Entry forms and full particulars may be obtained from Mr. Reginald Craigie, the Camera Club, Charing Cross Road, London.

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EX CATHEDRA.

The prospectus of the fiftieth annual exhibition of the Royal Photographic Society has been published, and we note that although it is in the main similar to those that have appeared in previous years, the particulars and regulations are more concise. The absence of medal awards in the pictorial section, of course, leaves a blank, although the plan of not charging for wall space is again adhered to, and it remains to be seen how the new method of half-price tickets for members and members of affiliated societies will affect the attendance at the exhibition. We also note that with the exception of the announcement in the general regulations that "lantern and stereoscopic slides will be suitably displayed," there appears to be no provision for their entry in the pictorial section, nor yet a separate section for their consideration. The exhibition will be inaugurated on Wednesday, September 20, by a private view, followed in the evening by a conversatione. Further particulars are given in another column.

* * *

Signs are not wanting on every side to indicate that the holiday season has now fairly set in. Holidays, or preparations and speculations relating to the holidays are in the air, and the omnipresent camera is also coming in for its full share of consideration in the all-important question of the holiday season. Indeed, it would be extremely hard nowadays to find a family on holiday bent, amongst whom at least one camera was not to be found. The vast number of cameras and materials that are employed during the holiday season have been forcibly brought to our notice by a recent inspection of the warehouse of one of the leading photographic wholesalers. Stock rooms capable of accommo-

dating many hundreds of cameras of every make and description, and thousands of grosses of plates and packets of printing paper were being emptied as fast as supplies could be obtained from the makers. In the basement hundreds of cases, ranging from boxes half a yard cube to huge tin-lined iron-bound chests, were being packed and loaded on to waiting railway vans, at express speed, and we were informed that this but represented the daily routine during the season. In fact, the demand at this time of year usually far exceeds the supply. Visits to other big wholesale firms convinced us of the truth of this statement, as the same scene was being enacted there also. One pauses in wonderment at the contemplation of the extent of these supplies, the amount of which would stagger the average user of photographic materials. One endeavours to realise the potentialities that are presented by even one day's output by one wholesale firm alone. The miles of holiday exposures, acres of prints, and vistas of exhibition masterpieces, as yet *in nubibus*, would give the photographic statistician a problem of no little proportion, and incidentally afford an excellent clue to the present state of the English photographic market.

* * *

Holiday Exposures.

A contributory cause of many holiday exposures resulting in failure is the lack of attention paid to the subject of changing and packing plates whilst on tour. Many a fine holiday's work has been quite wasted through inattention to this detail. The idea that seems to permeate the brains of many photographers on their holidays, is that having made the exposures, the plates or films can take care of themselves until such time, several weeks, or maybe months, later, when the negatives are developed after the return home. A plentiful crop of fogged, pinhole, scratchy, and light-struck negatives are brought into being, and abuse is heaped on the plate-maker, the camera, the lens, and, in fact, everything but the real cause—lack of proper care after exposure. All brands of plates are admirably packed nowadays, and therefore when slides are being filled all wrapping papers, etc., should be saved, and the plates repacked after exposure, as nearly as possible in the same manner as before being taken from the box. They should be packed in couples, film to film, with nothing between, and each couple should, if possible, be wrapped in oiled tissue paper—of which a plentiful supply can always be carried. The plates are then packed in fours in the original wrapping paper and replaced in the plate box, which is finally tied round with string and a label stuck on the outside containing a number or numbers corresponding to data in the exposure notebook. Both exposed and unexposed plates are perhaps best carried wrapped up with one's clothes in the travelling trunk.

B

Changing Plates on Tour.

It is not always wise to depend on finding a convenient dark-room in which to change plates whilst on tour. Much better be independent and rely on the accommodation afforded by one's lodgings and such accessories as can be easily carried. These need not exceed a small fabric folding ruby lamp, a few cycle candles, and some dark-room pins, unless some trial exposures are to be developed, in which case the equipment can be increased to the extent of some "tabloid" developers and fixer, a couple of celluloid developing dishes, a celluloid measure, and a small folding washing rack, if it is desired to keep the trial negatives. Plates can thus be easily changed or developed in the evenings. No special precautions are necessary to cover the window of the room on an ordinary dark night beyond pulling down the blind, but if it is a "bright" night, or moonlight, or a street lamp is shining into the window, a blanket should be pinned over all by means of the dark-room pins; while a couple of sound blankets carefully fastened over a window with the blind down will usually be found ample protection in the middle of a bright day. In any case the plates should be changed in the darkest corner of the room away from the window. Very little practice will enable the photographer to perform the changing expeditiously, in addition to adding a small number in pencil to the corner of each plate (film side) as it is removed from the dark slide. These numbers should be consecutive and should agree with the notebook record. They will remain on the film after developing, washing, and drying, and thus afford a permanent reference number.

An Outlet for Holiday Photographs.

The majority of holiday photographs—that is, photographs taken during the annual holiday—are seldom seen or heard of again after the exposures have been made. This is perhaps a wise decree of Providence, made on behalf of plate makers and the long-suffering friends of the amateur photographers, who snap away a gross of plates or more as a matter of duty during their three or four weeks' rustication or sojourn by the seaside. Nevertheless, there are other photographers who take their hobby more seriously, and a great many to whom the proportion of satisfactory results to the number of exposures made is a prime consideration. It is strange, however, that these photographs, often of topical and pictorial value, are not turned to account to the pecuniary advantage of their producers. A collection of good holiday snapshots of an interesting character submitted to the illustrated papers will often result in a goodly crop of half-guineas, that will do much to intensify the photographer's interest in his work, to say nothing of making the annual holiday an extremely cheap one. Of such papers, a high-class production, such as "Country Life," offers the best opportunities for holiday subjects of general interest. Photographs dealing with striking incidents of the countryside and topical events in the world of outdoor sports and pleasures always meet with full consideration at the hands of the art editor, and the reproductions in this particular paper are probably as fine as half-tone work for periodical illustration well can be.

A Penny Camera Outfit.

Since the existence of a halfpenny set of printing materials was brought to our notice we have had our attention drawn to a more serious and determined effort to draw the youthful population into the photographic net. Camera, plate, and chemicals for a penny! The proposition, made in the window of a sweet-shop, is not a mere catch-line to entice

the passer-by into purchasing the "Weekly Home Blitherer," or some other product of decadent journalism. For one penny you positively obtain a pinhole camera (and no mistake about the pinhole, which is evidently the result of a sharp prod into the cardboard delivered with a hatpin at the rate of eighty a minute by a robust young woman), one plate, developer (two solution), hypo, and a sheet of instructions. We can quite endorse the appeal in the latter not to make the pinhole larger—it is quite large enough. The instructions are accurate and inspiring, e.g., the following:—"A Ruby Lantern for the dark-room is often wanted. Boys, you can make one by cutting a hole in the side of a wooden box, and pasting a sheet of red paper over the hole, and placing a small lamp inside the box." But we will not anticipate the pleasure which our readers may wish to extract for themselves from the maker's circular.

Printing Without Light.

Professor Otsuki, when reading his recent paper on the action of hydrogen peroxide on a photographic plate before the Society of Chemical Industry, exhibited some remarkably good copies made by a modification of Ostwald and Gros's katatype process. They exposed the negative to peroxide vapour, instead of treating it with the aqueous solution. In the full text of the paper now published the method of making the copies is described:—"An ordinary photographic negative is exposed to an aqueous solution of the peroxide, and then, in the dark, is pressed closely against a photographic plate in a printing frame for some time. At the dark parts of the negative the condensed hydrogen-peroxide is decomposed catalytically by the metallic silver, where it is absorbed by the gelatine of the clear parts of the negative without decomposition. A latent image of peroxide is thus formed, and is transferred to the second plate, producing a positive image on development. In like manner, the latent peroxide image can be transferred to plain or gelatinised paper, and either may be treated with some salt, which is easily oxidised by the peroxide, producing a positive image of oxidised salt on the paper. Thus, a ferrous salt produces a faint image of ferric salt, which is changed to black with a solution of pyrogallie acid.

Shrinking Cameras in Hot Weather.

Users of hand cameras occasionally find that their negatives are not so sharp as they should be, while at other times they are perfectly satisfactory, although the lenses are in all cases set to the scale marked upon the camera. A case of this has recently been brought under our notice and the details of it may, just now, be of service to some who use cameras of the cheaper kind, which are furnished with lenses of large aperture. The camera was a cheap one of the box form, but the lens with which it was originally fitted had been replaced by one of a more expensive kind working at $f/6$. This had been done some time ago. A focussing scale was marked upon it, not by calculation, but by trial and error, and all went well until quite recently. The cause of the trouble was not suspected until we found that when the lens was adjusted according to the scale, the camera had to be racked a little inward to obtain a sharp negative. Now the cause was obvious, the wood of the camera had shrunk from its original dimensions at the time the scale was adjusted, sufficient to throw a wide aperture lens out of its best focus. Box-form cameras are generally built with the wood cross-wise of the grain as regards the longest dimension (the length) of the instrument. It is

well known that the expansion and contraction of wood is greatest cross-wise of its grain. Some woods, indeed, will contract more in the width of a twelve inch board than they will in eight or ten feet in its length. With these facts before us it is easy to see that a rigid camera with the scale adjusted early in the year, perhaps after it has been unearthed from a damp room where it was stored for the winter, would, after being carried about in the sun during summer weather, contract sufficiently to throw a large aperture lens out of its sharpest focus, more especially if it were worked with a large stop. In the case of a single lens, or one with a small aperture, the loss of sharpness due to the shrinkage of the wood would pass unnoticed, and it is only when lenses with large apertures are employed that the trouble becomes manifest. With a lens of, say, five and a half inches focus, such as is usually employed with quarter-plate hand cameras, worked with an aperture of $f/6$, a difference of a sixteenth, or even a thirty-second, of an inch would very materially interfere with the sharpness of the image.

* * *

High prices for engravings. There is, we think, little question that photogravure has enhanced the price of engravings by the older engravers. Indeed it seems to have almost killed the old style of line and mezzotype engraving. The old engravers have died and there are, practically, no new ones to take their places, hence it is that where fine impressions from the plates of the old artists come into the market they usually fetch high prices. For example, at an auction sale (Christie's) one day last week there was a keen competition for the twelve colour prints "The Months," by Bartolozzi and Gardiner, after W. Hamilton, R.A., and they were knocked down for £162 15s. A pair of prints "Guinea Pigs" and "Dancing Dogs," by T. Gauguin, after Geo. Morland, made £136 10s. Valentine Green's four print "George Washington" sold for £131 10s. "The Birth of a Heir" and the "Christening," by Biggs, after W. Ward, realised £298. It is noteworthy that these fees were all paid by picture dealers. Two or three days later, at the same auction rooms, a small collection of water colours and oils were sold, and the day's sale realised just upon £19,000.

* * *

Industrial Alcohol. Some time ago we made a few comments on the report of the Committee appointed to inquire into the desirability of permitting the use of duty-free alcohol for industrial purposes, so as to enable manufacturers here to compete, commercially, with those of certain refined materials produced in other countries, where, for manufacturing purposes, duty-free spirit is allowed. At the time our comments were made we expressed the hope that Government would take a favourable view of the subject, and permit the use of duty-free spirit for industrial purposes. If that were done, it would be of some benefit to photographers, though to the extent it would have been when the collodion process was the one universally employed for negatives. The liquid constituents of collodion consist of about equal parts of ether and alcohol, and the latter is, roughly, three times the price of the former, owing to the duty upon it, whereas, if there were not that duty, it would be less than a quarter of the price of the ether. This would mean a very material reduction in the cost of the process. Wet collodion is not yet so obsolete as many may imagine. It is still used almost exclusively by process-workers and those who supply enlargements where an enlarged negative is necessary, as in the

carbon and the platinotype processes. To such, and still more to the makers of collodion papers, the price of collodion, is a material consideration. The Bill, now before Parliament, to deal with the industrial employment of pure alcohol, is drawn up on the lines recommended by the Committee which recently presented its report. Thus the Bill adopts one-nineteenth of denaturant in methylated spirit instead of the one-ninth in vogue at present; it provides for the use of industrial spirit without payment for Excise supervision; it proposes the removal of the surtax on wood-spirit; and it promotes greater facilities for the sale of mineralised methylated spirit.

* * *

A Proposed New Spirit.

At present methylated spirit contains ten per cent. of wood naphtha; if the Bill passes it will contain but five per cent. Five per cent. of wood naphtha in the alcohol used for collodion would not be harmful, provided the naphtha were fairly pure. But hitherto the Excise authorities would not allow of that; every sample has to be submitted to them before it is used, and if it is at all refined it is rejected for the purpose. The greater proportion of the collodio-chloride paper used in this country comes to us from Germany, and there the methylated alcohol only contains five per cent. of naphtha, and that of a purer kind. There special alcohol for manufacturing purposes is a regular thing, but whether this or the five per cent. methylated is used for chloride paper we cannot say. But if the small proportion of naphtha were tolerably pure the one kind would be, for this purpose, practically as good as the other.

* * *

Poisonous Cerium Salts.

It would be easy to prolong a list of substances of photographic importance which are strong poisons. In fact there are few photographic "chemicals" which can be called comestible bodies; they are all injurious if you take enough of them. But as the photographer is accustomed to use, not to imbibe, the solutions, one has no need to trouble his head with the toxicology of pyro or mercury. It is important, however, that he should be warned of possible harm in the ordinary use of his materials, and that is the point of view we have taken in the short series of chapters on poisons which concludes this week. As we end our notes we see the announcement of the poisonous properties of cerium salts, which are stated to resemble those of lead or antimony in their effects. The antidote is a weak solution of an alkali which precipitates the cerium as an insoluble hydrate.

* * *

Seasonable Display.

It is well known by those who have made great commercial successes that the capture of the eye is the chief thing. We referred a week or two ago to the evils following the production and output of "good photographs," pointing out that the excellence of the technique was only a part, and a comparatively less important part, of photographic business. The effect of this on the window or showcase display is also to be considered. Merely because the specimens are still good prints is no reason why they should remain on view. The thoughtlessness in showing portraits in furs during the dog-days is not merely irritating, but is bad business. The lady in a summer muslin will be much more tempted to patronise the establishment if most of the specimens are of ladies and children in white or light dresses, the prints made in the cool grey of bromide or platinotype, and mounted on light boards. The setting of

the display, too, is most important in its reflex action on the mind of the possible customer. Dirty and faded red plush, with a score or so of dusty dead flies, inevitably suggests that the studio and dressing room will be in the same unpleasant condition, and the whole prospect becomes repugnant at once. Another order is lost.

* * *

Canadian Photographic Manufacturers

A visit is now being paid to this country by a party representing the Canadian Manufacturers' Association, a body formed to forward the interests of Canadian industries, and consisting of 1,800 members. According to some statistics, given by the secretary to an interviewer, photographic materials in the colony are in the hands of nine establishments, representing a capital of about £24,000, and producing an output to the value of £46,000. These concerns are said to employ 96 people, and to pay them £6,376 annually in wages. Canada is making great strides in chemical industries, and does not confine its manufactures to soap, glycerine, ammonia, and similar products, but is putting refined chemicals, textile dyes, and other highly manufactured articles on its own and possibly other markets.

POISONS USED IN PHOTOGRAPHY.—III.

IN the two previous articles we dealt with some of the more important photographic poisons having an injurious action on some persons who employ them. There are still a few more that must be referred to. In regard to metol, in the first place there is no question that, with some persons, it produces very unpleasant effects on the skin of the fingers and hands. Indeed, some workers have had to entirely to relinquish its employment solely on that account useful as it would be to them. Its action in some instances—and the early symptoms particularly—are not altogether unlike those of bichromate of potash—an irritation on the backs of the fingers which develops into a kind of subcutaneous eruption on the parts with, later on, a drying or peeling of the skin. Metol appears to take effect—where effect is taken—in a much shorter time, and with less use of it, than does bichromate of potash. A useful allayer of the irritation is the carbolic lotion given on p. 383 ante.

The ill effects of metol can be more easily avoided than those of the bichromate, inasmuch as, with neatness in working, the solution need not come in contact with anything but the inner extreme tips of the fore fingers and thumbs, either in the development of plates or papers, and they, by reason of the thickness of the skin at those parts, are not likely to become affected. The fingers need not be put into the solutions at all. The plate, or paper, can be raised from the solution—for years we have used a quill toothpick for the purpose—then, in the case of plates, they can be held at the corner or edges by the forefinger and thumb, sloping downward, so that while they are being examined the solution drains off into the dish instead of into the palm of the hand and between the fingers. India-rubber finger stalls of extreme thinness are sold at the photographic warehouses. They are so thin that they cause no inconvenience in working, and they effectively prevent the solution coming in contact with the fingers, and they are quite inexpensive. In the days of the wet collodion process it was easy to distinguish the neat from the slovenly worker, after the day's work was done, by the silver stains on their hands. The former would only have the insides of the fingers and thumb of the left hand and the two forefingers and thumb of the right one badly stained,

while the latter would have the backs of all the fingers and hands, sometimes also the wrists, badly stained. Similarly would this be the case with many workers with metol and the other developers if they left the tell-tale stains which are unavoidable in working the collodion process.

Bichloride of mercury is a deadly poison if taken internally, but despite—or perhaps we should say in consequence of—repeated cautions, we have not heard of its solution having an injurious action on the skin, or ill effects on the system. In the previous article of this series we referred to a recent note in "Wilson's Magazine" in which the writer speaks of salivation being caused by working the platinotype process for brown tones, due to the bichloride of mercury, and it will be remembered that we expressed ourselves dubious on the point. Bichloride of mercury is largely used in the intensification of negatives, and no case has come under our notice of any inconvenience arising therefrom. As a matter of fact, a very weak solution of the bichloride is frequently employed as a dressing for wounds after surgical operations. In the practice of the Daguerreotype process the operators were somewhat freely exposed to the vapour of mercury in the development of the image, yet we have not heard that it had any serious result upon them.

Formaline is said to have a hardening action on the skin, causing it, after a time, to crack and the fingers to become sore. It is easy to see that such may be the case when it is largely used. We all know its effects on gelatine, and the skin, after all, is but untanned leather, or gelatine.

It is a curious thing in connection with those substances which affect the skins of some persons that it is not always the, to all appearances, most delicate skins that are the most readily effected by them. We may mention that one worker of the carbon process who has worked it daily for the past couple of decades or more has a most delicate-looking skin, yet he has never suffered the slightest inconvenience from the bichromate of potash, while, on the other hand, others we know with apparently thick and robust skins have suffered badly from it with less than a year's working.

In bringing these articles to a conclusion, it may be asked if the chemicals used in photography are really so injurious as some would have us to believe? That the bichromates are, when largely used by some persons, is beyond question, and the same may be said with regard to metol. But in many instances even these substances get credit for more than is actually due to them. It often happens that some one breaks out in a slight rash on some part of the body, or has some little ailment he cannot account for. The local "medico" is consulted, and diagnoses the case, which may be a very simple one. But not infrequently the patient asks, after explaining that he practises photography, if it is likely that the poisonous chemicals he uses is the cause of the trouble. The reply sometimes is that it is possible that they may have had something to do with it. The patient, after what he may have previously read, at once jumps to the conclusion that the chemicals are the cause, and probably promulgates the idea among his acquaintances.

Still, in dealing with chemicals of a poisonous character, it is always wise to guard carefully against any possible ill effects from them. This may be done by making it a rule to always well wash the hands with plenty of soap and water, preferably warm water, after the operations are completed. As a last word, it is our opinion that, with the exception of metol, used without care, there is no chemical used in photography, on an amateur scale, from which the worker need be in fear of suffering any ill effects.

PHOTOGRAPHS IN COLOURS FROM NEGATIVES BY THE LIPPMANN PROCESS.

(A Paper read before the Paris Academy of Sciences.)

The following note relates to the well-known method of reproducing colours by the exposure of a sensitive transparent film backed with a reflecting surface of mercury. The colours are visible by reflected light when the plate is developed. It is known that the nature of the sensitive film is immaterial to the process; it can be gelatino-bromide of silver, or bichromated gelatine, albumen, or cellulose.*

When the sensitive surface consists of a bichromated film, it is fixed by simply washing in water; the colours then make their appearance, even while the film is still wet. They disappear on drying, to reappear again and again every time the film is wetted.†

The above phenomenon is doubtless caused by the hygrometric properties of the film. The bichromated body becomes less able to swell in water wherever the action of the light has been greatest, i.e., in the maxima of interference. Moisture renders the plate heterogeneous, in an optical and physical

* When employing cellulose, the process is as follows:—The cellulose is dissolved in Schweizer's solution and thus applied to a glass plate. When the film has been obtained, it is decolorised by washing with dilute hydrochloric acid, soaked in a three or four per cent. solution of potassium bichromate and put to dry. It is then exposed in the mercury dark-slide until a faint brown image is obtained, and it then only remains to remove the bichromate, washing the plate in pure water, when the colours appear.

† (Schweizer's solution, here recommended by Professor Lippmann, is a saturated solution of freshly precipitated copper hydroxide, $\text{Cu}(\text{OH})_2$, in 20 per cent. ammonia.—E.S. B.I.F.)

‡ In the case of gelatine which swells greatly, the plate should not be completely wetted, but should be dampened only with the breath or with alcohol.

sense, by breaking up its surface according to a periodic law, and the question arose in my mind whether this transitory effect of moisture could not be permanently replaced by that of a solid, stable body.

I soaked the plate in a solution of potassium iodide instead of in pure water. On drying, the colours were visible, though feebly so. The potassium iodide thus remained in the film, unequally distributed between the maxima and minima of interference. On proceeding to pour over the dry iodised films a solution of silver nitrate (20 per cent.), the colours became extremely brilliant, and, on drying the plate, lost none of their striking character.

There is no doubt that silver iodide is formed in the film, and is unequally distributed throughout the thickness of the coating. But it remains transparent, in a state of pseudo-solution, in the solid film. It has no other effect than to produce an intensification of colours, persistent after drying.

It will be seen also that when viewed by transmitted light, the complementaries of the colours are observed, and these negatives are extremely brilliant. Should it be possible to obtain the same result, not from bichromated films, which are feebly sensitive and isochromatic, but from gelatino-bromide films, the problem of multiplying prints in colours in the ordinary way in a printing frame would be solved.

GABRIEL LIPPMANN.

PHOTOGRAPHERS' ADVERTISING.

The following contribution from a photographer by no means unknown in professional circles is written after perusal of the recent articles in these pages on the same theme (THE BRITISH JOURNAL OF PHOTOGRAPHY, March 24 and 31, and April 7, 14, and 21). Though the writer has the same object before him—the local advertisement of a photographic business—the suggestions he makes run in quite a different channel, but one of which certain men can make effective use.

The subject of advertising deserves the greatest attention on the part of professional photographers, for in these days of commercial competition it is necessary to keep one's business constantly before the public mind to secure recognition; but, while the ordinary methods of obtaining publicity, which have been so ably expounded, are worthy of due consideration, there are other methods which, under some circumstances, are equally efficacious.

Professional "Advertising."

When one, as a stranger, settles in, or visits for a time, a town, how soon it is that one learns the names of some of the local doctors, solicitors, dentists, and others, and even knows them by sight, even although in their business capacities one has no occasion to hold personal communication with them. Doctors, lawyers, and dentists are not allowed to advertise directly, so they at least cannot thrust their names forward through ordinary advertising channels, yet they do manage to be very successfully, to get themselves and their businesses known so thoroughly that even strangers to a town are very well acquainted with their existence. The advertising pages of the local paper are innocent of their names, but the pages of reading matter bear frequent testimony to their doing something or other to bring them in prominence and to make themselves generally known to all sections of their fellow townsmen. It is not entirely altruism that induces men to spend their time and energy doing the unpaid work of the community.

From Members of Parliament and county magistrates downwards to the officials of the local debating society, every one expects a return of some kind for his services—not necessarily a pecuniary gain, but something that is equally valuable—social distinction. Lawyers, doctors, etc., gain both by busying themselves with public affairs, for their business is of a kind which is almost inseparable from the personality of the individual. They are generally keenly alive to the fact that people will go to a professional man of whom they know something on a matter they would hesitate to take to a stranger. A photographer's business is often very much on the same lines—a personal business; and many of his customers do not merely go to his place of business, but they go to him personally. Moreover, photographs are not in any sense necessities of life, and people want reminding that they want them. The more the photographer mixes with his fellows, the more frequent the reminder.

Business via Social Intercourse.

In every town there are always many groups of persons who form themselves into communities for various objects. The churches and chapels, with their social reunions, the cricket, football, and golf clubs, the natural history, microscopical, photographic, and choral societies, and others too numerous to mention, all may be converted into happy hunting grounds by the photographer who is not afraid of spending a little time and money on the pursuit of fresh business. The subscriptions are usually quite small, and easily recouped by a very few orders. It is not necessary to take a very active part in the proceedings of any of these communities to become known by the members. The display of a little tact and the show of some interest in the particular pursuit are quite sufficient to make acquaintances, and every acquaintance is a possible—even a probable—customer. The cricket club, if it wants a group,

will rather employ their member, Mr. Camera, than an outsider, and every member who sees a print will feel increased interest in it because it was done by a fellow-member. People who are quite unapproachable in the ordinary way descend from their altitudes in the pursuit of their hobbies, and then is the opportunity for the enterprising member of the particular community who happens to be a photographer to do a little indirect advertising.

"The Quality of Mercy is Not Strained."

A few pounds spent on charitable or semi-charitable objects are not ill-spent under any circumstances; when the subscription of a few shillings to an object deserving in itself also secures a line in the subscription list published in the local paper, the benefit to the receiver is not lessened because the donor may be advantaged. It is an advertisement he is legitimately entitled to, and he will be making no more use of his charity than the majority of those whose names appear above and below his in the list.

It is not to be supposed, however, that every photographer can become an individual of prominence. It depends upon the

manner of man he is, the locality of his business, the class of trade he does, and other things. The value of doing so depends upon his ideas of photography as a calling. If he look upon it merely as a manufacturing trade, the puff direct will serve him best; but if he treat it as a profession, that his productions are imbued with his own personality, in making himself known and appreciated he will make his work known and appreciated. Unfortunately for themselves, professional photographers as a class are characterised by an unaccountable aloofness. They are sometimes too socially disposed in some directions, but generally too little so in directions which would be more profitable. In other professions there are rigid codes of professional etiquette designed to prevent illegitimate competition. The photographer, unrestrained in this way, too often seeks to increase his business at the expense of his brother's, instead of making fresh business for himself. In the ridiculous warfare which ensues the object of it is often forgotten, and both sides lose. It should be the aim of all to increase the general demand for photographs, and he is the most successful advertiser who convinces people that they want the articles he is prepared to supply.

CASUIST.

A FIXATIVE FOR CRAYON AND PASTEL WORK.

PROBABLY the greatest drawback to finishing enlargements in pastel has been the extreme difficulty of fixing the work so that it does not smudge or easily rub off. The material has such a delicate hold to the paper surface that a mere flick with a duster is often sufficient to completely smear the picture with streaks of pastel powder.

Crayon artists who have never tried fixing pastels on photographic bases may probably doubt the existence of the difficulty, as there are on the market various "fixatifs" for fixing crayon work. They are, unfortunately, totally unsuitable for photographic work, as they dry over a gelatine film with a more or less patchy and glossy surface, totally ruining the work.

Again, a fixative which will do tolerably well for a rough paper is useless for a smooth one. I have tried diluting the "fixatifs" on the market so as to make them dry flatter, but the result is unsatisfactory. After making extensive experiments with various gums, gelatines, etc., and many diluents, I have settled on a formula which gives very good results on both rough and smooth papers, and can be safely used without fear of spoiling either the enlargement or its mount, the latter being quite as essential as the former, for it is impossible to cover it so that the fixative will not travel on to it. When perfectly dry, it will stand dusting and practically as much rough usage as a water-coloured enlargement would do.

The Perfect Fixative.

In order that the reader may understand the difficulties in the way of making a perfect fixative, it may be as well to point out the necessity that the preparation used should not discolour the enlargement or its mount; should not dry glossy, white, or patchy; should not form tears or spots; should dry quickly, and not carry off the powdered pastel—or, in other words, remove the work. In connection with this latter point (which will remind the retoucher of the trick some negative varnishes have of removing retouching), I found that by far the greater proportion of compounds used removed part of the work, and so were useless.

Fixative Constituents.

Of the most suitable bases for making a fixative may be mentioned mastic and celluloid. The former is more useful than other resins or gums on account of its greater hardness combined with elasticity. Mastic is partly soluble in alcohol, methylated spirit, or ether, but a tenth part of it (which

gives it its elasticity) called masticine, is insoluble therein. I find that amyl acetate dissolves the mastic acid, and also has some effect on the masticine, for a clear and bright solution can be effected with but little precipitation. The two, therefore, used together make a fairly passable fixative, but disposed to deposit in fine string lines and rings, whilst if ether, alcohol, or methylated spirit is used instead of amyl acetate, whitish crape-like markings are apt to make their appearance, as also they do if a fixative composed of celluloid, alcohol, and ether is used, unless it is made so strong in celluloid as to cause it to dry glossy. Celluloid and amyl acetate would do admirably but for its disposition to remove portions of the pastel-work; but by combining them with mastic we get a satisfactory result.

The Formula.

No. 1.

Mastic	...	...	...	...	...	24 gr.
Amyl acetate	...	...	...	...	...	3 oz.

Dissolve by agitation, and allow to stand some hours before use.

No. 2.

Celluloid (film clippings free from emulsion will do)	...	...	...	...	...	7 gr.
Amyl acetate	...	...	...	...	...	3 oz.

Dissolve by agitation, and when No. 1 solution is clear, mix both together, and keep for use in a short-necked and tightly corked bottle.

How to Apply the Fixative.

Procure from the artists' colourman a spray diffuser, which is composed of two little pipes, which when opened out for use are at right angles to each other. Place the picture to be fixed in a vertical position, and then insert the end of one of the pipes (the finest one, and made of metal) in the bottle of fixative. Put the other, and larger, tube to the mouth (which must be emptied of saliva and the lips dried), blow through it in the direction of the enlargement, which should be about fifteen inches away. The fluid will be brought up through the smaller pipe and sprayed on to it. Direct the spray to the upper edges of the photograph, and then work across and down as rapidly as possible, and using only a very small quantity of fluid, otherwise it will run in unsightly tears down the mount. But in applying it is best to cover the entire enlargement, and not only the part worked up, as in

course of time the part not covered may yellow more readily than that which is fixed.

When covered, dry the enlargement by waving in the air, and also rotate it so that the fixative does not dry in curves. If it does it will leave unsightly glossy lines, and although these may be removed by dabbing (without rubbing), using cotton wool moistened with amyl acetate for the purpose,

yet it is far better to avoid having to do so. When surface dry, it should be allowed to stand by for an hour or so to harden, and then it can be subjected to any careful handling without risk of damage, and if properly done it will be found that the fixative has dried in a way so that it is impossible to tell without rubbing whether the picture has been fixed or not.

ARTHUR WHITING.

PSEUDO-PHOTOGRAPHY.

IN 1897¹ Dr. W. G. Russell first described the peculiar phenomena which occur when certain metals or non-metallic substances are placed in close proximity to gelatino-bromide plates. In the following year, at the British Association meeting, he advanced the statement that the results were due to the vapour of hydrogen peroxide, and in a later paper² he shows that one part of the peroxide in one million of water will produce a developable image, and that blotting paper and other substances impregnated with the same and dried will also affect a plate; further, that all bodies which are opaque or transparent to the emanations from metals and terpenes are opaque or transparent to hydrogen peroxide. Experiments are detailed which show that all organic bodies that can act on a plate are capable of giving rise to peroxide when they oxidise in moist air.

The question as to how the peroxide passes through such substances as gelatine, celluloid, goldbeaters' skin, parchment, &c., is answered by Dr. Russell in effect:—"Not by the ordinary process of diffusion, for hydrogen cannot diffuse through it (gelatine), so that it must be by a process of dissolving, or very feebly combining with the medium or with constituent of it, and thus travelling through, escape on the other side." To explain the action through celluloid, Dr. Russell shows that whilst camphor itself is a non-active body as regards the plate, yet it can absorb the emanations from hydrogen peroxide, zinc, copal, &c., and can then affect the film, and he says:—"Thus the camphor, which is a principal constituent of celluloid, may enable hydrogen peroxide to pass through it. Gutta percha and indiarubber also permit the passage of the emanations, and they are said to be allied in construction to camphor, and thus their action is explained."

Another interesting experiment by the same author shows that absolutely dry zinc placed in chloroform, ether, and alcohol showed no action, but that on the introduction of the minutest trace of water, such as the very thin film adherent to a small glass rod, the zinc became active. Further, bright zinc oil imparted activity to inactive benzine and petroleum spirit.

At the meeting of the British Association already referred to, H. Bothamley³ referred to cases in which images previously impressed on dry plates by light were destroyed by vapours given off by printers' ink, the material of the hinges of dark slides, &c., and that these vapours were capable of passing through paper. Sir Wm. Abney showed that solutions of hydrogen peroxide will destroy a latent image, and therefore Bothamley states that "combining these results with Russell's, it follows that hydrogen peroxide, acting in small quantities for a short time, will produce developable images, but acting in a larger quantity or for a longer time, will destroy the images previously produced by light." This is confirmed by some interesting experiments carried out by Luppö-Crämér in 1902,⁴ as will be seen below, but it is as well to record that Le Roy⁵ in 1894 showed that hydrogen peroxide solution rendered strongly alkaline would act as a developer.

Luppö-Crämér's experiments were carried out by cutting plates into narrow strips and immersing them to half their length in hydrogen peroxide solutions in test tubes, and then washing and developing. Experiments with collodion emulsion plates gave negative results, and it would therefore seem more probable that it is not the silver bromide which is affected, but the "gelatino-bromide of silver," and that hydrogen peroxide therefore belongs to those substances which destroy the union between the gelatine and the AgBr molecule, and reduces the latter to the reducible state in which it is met with when precipitated.

The want of action on collodion plates apparently refutes the suggestion which Chapman Jones⁶ states he made in 1898:—"That as all the active substances experimented with in this connection were susceptible of oxidation by mere exposure to air, and as during their vigorous oxidation (combustion) a form of radiant energy which will affect a photographic plate was certainly produced, it might be that the slow oxidation produced a similar form of radiant energy, just as the total heat effect is supposed to be the same whether the oxidation is slow or rapid. I pointed out the relatively enormous exposures given in Dr. Russell's experiments. One ten-thousandth of a second is certainly ample time to produce the developable condition in the silver salt of a gelatine plate when it is exposed to burning zinc, and it seems not unlikely that an exposure of, say, six hours to the slowly oxidising metal should produce a similar effect, for this increase in the time of exposure is equal to the increase of from one second to more than six and a half years."

Luppö-Crämér gives the following tabular statement of his results:—

Per cent. H ₂ O ₂ .	Dipped Half.	Free Half.
·0001	Slight action.	None.
·001	Considerably stronger.	None.
·003	Very strong.	None.
·01	Stronger than last.	Slight action.
·1	Slightly stronger than last.	Marked action.
·3	Less strong.	More than the dipped half.
1·0	Slightly less strong.	Complete reduction.
3·0	Perfectly clear; no action.	Complete reduction.

The author suggests that solutions between 0.03 and 1.0 per cent. may be said to give an appearance similar to the neutral condition of light solarisation, whilst with 3 per cent. complete reversal by chemical means is produced.

It is also pointed out that it is only hydrogen peroxide in the neutral state that causes this action—acidulated, it apparently has no effect—and that there is no veiling with alkaline peroxide. Ammonium persulphate acts in precisely the same way as the peroxide, only more slowly, as also does sulphuric acid, therefore it is an open question whether peroxides or persulphuric acid are not present in sulphuric acid.

Graetz,⁷ in 1903, advanced the theory that the Russell phenomena must not be ascribed to the primary action of the per-

¹ B.J., 1897, p. 437.

² B.J., 1898, p. 246.

³ Brit. Assoc. Report, 1898, p. 850.

⁴ B.J., 1902, p. 928.

⁵ Bull. Soc. Franc., 1894, p. 23.

⁶ Knowledge, Jan., 1905.

⁷ Phys. Zeitschrift, 1903, p. 160.

oxide, but rather to "rays" analogous to the well-known Becquerel rays, and compared the formation of the hydrogen peroxide to the formation of ozone by Becquerel rays. That the active agent is not ozone would appear to be proved by the experiments of Villard,⁸ which showed that in its pure state ozone had no action on a gelatino-bromide film, but if paper, aluminium, or bismuth were placed near the film, then there was action. This was confirmed by Dony-Hénault,⁹ who found that ozone only acted in the presence of easily oxidisable bodies, and he ascribed the action to the formation of hydrogen peroxide.

The subject is further complicated by later researches of Graetz,¹⁰ in which it was proved that the action took place when a strong stream of air was blown between the peroxide and the film. Russell also had pointed out, 1898, that the "vapours" can be carried along in a current of air, and will act on a plate on which the air impinges. Further experiments by the same author showed that action took place even when the film was not exposed directly to the peroxide, but with the plate reversed, and that a piece of metal on the film gave a lighter image of itself than the unprotected part. On the other hand, certain liquids, such as ammonia solution, alcohol, and water, produced a stronger action, whilst petroleum and turpentine gave a weaker action than the water. One might be tempted to interpolate the query as to whether this might not be due to the gelatine being rendered more permeable to the developer, only this would not apply in the case of alcohol, and a curious phenomenon of marginal action was

noted, for when the action was generally lighter, the margins showed still lighter, and when darker, the margins were darker. A possible explanation of this in the face of accurate measurement is the question of contrast, as when looking at an H. and D. strip precisely the same appearance is seen, but Graetz also suggested that in all probability it was due to small differences of temperature, as a glass vessel filled with warm water placed on the glass of the plate gave a lighter image, whilst one filled with ice gave a darker one.

Precht and Otsuki¹¹ explain away Graetz's assumption of a radiation effect by proving that in all cases where action by hydrogen peroxide was found, the presence of the peroxide could be detected on the film by means of titanium-sulphuric acid, and they come to the conclusion that the action must be ascribed to the condensation of hydrogen peroxide on the film.

Schaum¹² explains the absence of action of ozone as being due to the different sensitiveness of plates, and to the different behaviour of the gelatine used in preparing the plates. He further states that ozone acts even when there is no readily oxidisable body present, and when, therefore, peroxide cannot be formed, which is directly opposed to the observation of Dony-Hénault, cited above.

It may possibly be permissible to draw attention to the fact that Von Aubel¹³ has pointed out that the peroxide from turpentine, etc., acts on the electric resistance of selenium cells in exactly the same way as light, and that these notes are an append to those on Prof. Otsuki's paper in the B.J. for May 5, p. 342.

A. D. PRETZL.

⁸ Phys. Z. tschrift, 1903, p. 416.

⁹ Phys. Z. tschrift, 1903, p. 416.

¹⁰ Z. tschrift für Phys. Chemie, 1901, vol. 47.

¹¹ Verhandl. Deutsch. Phys. Ges., 1905, p. 53.

¹² Phys. Z. tschrift, 1905, p. 73.

¹³ Moniteur de la Phot., 1903, p. 243.

THE WEEK IN HISTORY.

Progress in Emulsion Making.

"PELLICLE" and "pellicular films" are common words in the literature of sensitive materials during the seventies. The term originated, I believe, with the "pellicle" of Mr. Kennett ("The Week in History," June 16), but a number of other workers were intent on perfecting a dried emulsion. One notable paper is that of the late Colonel Stuart-Wortley, published thirty-one years ago to-day in THE BRITISH JOURNAL OF PHOTOGRAPHY. In making his emulsion, Colonel Wortley departed from previous methods in working at a high temperature (180 deg. Fahr.), with the object of forming the emulsion quickly. "Pellicle films" innocent of glass were aimed at in these experiments, and favourable reference is made to flexible films, thick and thin, of gelatine only. I suppose there are still many photographers living now who have clear recollections of the early days of gelatine, and the fiery discussions which emulsion questions aroused at the (then) Photographic Society of Great Britain, now the Royal Photographic Society. I well recollect the passages at arms working at the late Colonel Stuart-Wortley and Mr. Kennett anent priority of emulsion inventions. Colonel Wortley's temperament might be fairly described as "peppery," and his connection with the Uranium Dry Plate Company incited him to contest the rights of other inventors more keenly than he would have done in his private capacity. But the London Society has always been tenacious of life, and the rows of those days were not able to break it up.

The Waterhouse Stop.

One of the questions which I imagine is frequently put to Major-General Waterhouse, the present President of the Royal Photographic Society, is: Are you the inventor of the Water-

house diaphragm? The answer is, No, for it is exactly forty-seven years ago that a namesake of General Waterhouse's, one John Waterhouse, of Halifax, gave a description of this form of stop in a letter to the Society. His suggestion was made in reference to portrait lenses, and was published with an illustration in "The Photographic Journal" for July 21, 1858.

The first Waterhouse stops fitted by some of our opticians had a hinged cap over them to prevent the light gaining access between them and the slot in the mount. But afterwards, with neater work, this was found unnecessary. Prior to the introduction of the Waterhouse stops the stops—usually one, or sometimes two or three—were fitted in the hood of the lens and were pushed quite close up to the surface of the front combination—obviously not their best position.

Panoramic Photography Sixty Years Ago.

To-day, precisely sixty years have passed since the first panoramic camera was exhibited to the French Academy of Sciences by its inventor, M. Martens, who explained this application of the Daguerreotype process. The construction of the instrument was based on the horizontal turning movement of the lens over the whole horizon, the image being received on a sensitive Daguerreotype plate bent to a circle, with radius equal to the focal length of the lens. A vertical slit behind the lens, and travelling with it, restricted the field of view to the centre of the optical field, and gave a very sharp picture. M. Martens lays stress on the proper adjustment of the axis of rotation of the lens—so that the image of an object does not move on the ground glass—and the apparatus as he designed it is practically identical with present-day instruments employed for the same purpose.

The Copyright Act.

"We congratulate our readers on having at length obtained, by the passing of the Artistic Copyright Act, the means of protecting their works from being pirated by those who prefer robbery to work, or who have neither the wit nor skill to produce anything original of the smallest value. It is full time that a stop should be put to the nefarious practices of those who trade unfairly upon the mental labours of others, and we are rejoiced to find that the long-desired measure of justice to the chief ornaments of the photographic guild has been placed within their reach."

The congratulation and the rebuke are from THE BRITISH JOURNAL OF PHOTOGRAPHY, the former immediately after the passing of the Artistic Copyright Act on July 1, 1862, the latter six months later. A first effect of the Copyright Act was to show up the malpractices of certain photographers who were making a living from the illicit copying and reproduction of paintings and engravings. Alliance of print publishers with reputable photographers was discussed as an aid to taking action against these black sheep of the profession, but a few penalties under the new Act speedily showed the wrong-doers

"We are glad to find that several of our most eminent professional photographers are employing the strong arm of the law through the agency of the Artistic Copyright Act to inflict a just retribution upon those hangers-on to the photographic art who prefer to victimise those who have earned for themselves a name. This they do by the double injury of defrauding such artists of the opportunity of disposing of the fruits of their labour, and, at the same time, by detracting from their reputation by the inferiority of the specimens supplied."

that their practices profited them nothing in the end. Even now, forty-three years after the passing of the Act, its provisions are grossly misunderstood by those who should be versed in the protection which it grants, to them and its bearings on their photographic business. Probably no subject has so consistently been dinned into the ears of readers of the B.J. as the law of artistic copyright, and still the queries which I observe week by week on another page are chiefly on this ever-green and ever-uncomprehended topic.

Daguerre's Diorama.

The possession of an excellent memory is one of the qualifications which the present writer can put forward to justify the part he is taking in the arrangement of these notes, but in anticipation of certain criticism, he would admit that his age is actually less than a hundred, and that a proportion of these retrospective paragraphs owe their existence to a diligent and lifelong study of photographic literature. Thus, in recalling the fact that to-morrow, July 1, exactly eighty-three years will have elapsed since Daguerre first opened his celebrated panorama, the writer would not ask acceptance of that statement on the strength of his "personal presence." But the incident is worth recording, as Daguerre was led to apply himself to photography in the desire to obtain records of natural scenes for his diorama. Two other events of his life took place in the first week in July. In 1833, on July 5, his partner, Nicéphore Niépce, died, and in 1839 (July 2) Daguerre himself was nominated to the Legion of Honour by Louis-Philippe.

HISTORICIS.

RETOUCHING AND COLOURING PRINTS.**I.**

The following practical hints on the spotting and colouring of prints are abstracted from Schultz-Hencke's work, "*Anleitung zur Photographischen Retusche*," as recently issued by Herr Gustav Schmidt, of Berlin, in a fourth and revised edition. The volume does not limit itself to the working up of prints, but in translating from its pages we have collated a number of points and prescriptions on branches of work less dwelt upon by photographic writers than the retouching of the negative.

Working Conditions.

The best position as regards ease of working is to support the print to be retouched on a drawing-board placed at an angle of 45 degrees. To this board it may be fastened by drawing-pins or rested on a shelf made of a thin slat of wood, which may be fastened in the same way. A piece of clean white blotting-paper and ordinary white drawing paper should also be pinned to the board. The former serves to remove excess of moisture or colour from the brush, whilst the latter can be used for testing the colour to see whether it matches that of the print. If a table with a drawer be used, the latter may be pulled out a little way, and the drawing-board placed with its lower edge in the drawer, and, as the back rests against the edge of the table, it will be easy to alter the angle of the board by pushing the drawer in or pulling it out a little.

Brushes and Colours.

Naturally, several brushes will be required, and a soft, wide dusting-brush should be procured. Sable brushes are the best, and from Nos. 1 to 6 will be enough for all purposes; two or three water-colour saucers or tinting tiles should be also provided. The colours required for spotting plain paper prints are Indian ink, Spanish red, vandyke red, vandyke brown, Chinese white, and neutral tint or indigo.

The Indian ink, or, as it really is, Chinese ink, should be carefully selected, nothing but the best being used, as this works up better than the inferior qualities. The colour of this is really a brownish black, and to make it a chocolate or blue black, which are the prevailing tints of plain paper prints, one or the other of these colours must be added. Safflower red can be obtained in the form of sticks, and is used in this form for culinary colouring. It is superior to carmine or crimson lake, as it has less tendency to separate out when mixed with the Indian ink. The best blue is water-colour indigo or neutral tint.

Preparing the Colours.

In mixing the colours, it should not be forgotten that they dry lighter. The correct way to mix them is to damp the tip of one of the fingers, rub it on the colour cake, and then rub the colour off on the saucer, this being repeated with each colour, and then the whole well rubbed together with the finger tip, so that a perfectly homogeneous mixture is obtained. Supposing we wish to use these colours, a little patch of each should be made on the tile or saucer, and then they should be gradually mixed with one another, a little dab being made from time to time on the sheet of paper on the drawing-board to see how near the colour matches that of the print. A brush should be charged with the colour and wiped half dry on the blotting-paper, and then applied to the print with the extreme point of the brush, with a wiping and not a dotting motion, as the latter leaves too much colour on.

If sufficient colour is not applied at first, the same place must not be gone over again until it is dry, otherwise the first coat of colour may be wiped off. Care should be taken not to go beyond the edges of a spot or a darker margin will show, and for large spots it is advisable either to use somewhat similar strokes as when re-

touching with the pencil, or else to fill up the middle and then carefully dot round it. With a very light or very dark portion of the print it is easy to match the tint at once, but for the middle half-tones it is better to apply the colour two or three times.

Albumen and Emulsion Papers.

The utensils for glazed surface prints are the same as for those on plain paper prints, but the colours must be mixed with a vehicle which will dry bright, and an excellent one is albumen and gum. It can be made by beating the white of eggs to a froth, allowing to stand for a day to liquefy, filtering it, and adding to it half its volume of clear 1:4 gum arabic solution.

Special retouching colours are made by Günther Wagner, either in the form of dry sticks, when they must be mixed with the above-described albumen solution, or in liquid form. Winsor and Newton's moist cake colours are also excellent for this work. A bottle of glycerine, two flannel rags, and, of course, clean water, are also required. Instead of the tiles or saucers, a piece of plain glass with a sheet of white paper under it, may be used, or a piece of opal glass.

As the surface of the prints does not readily take the colour, it is advisable to rub it all over with one of the flannel rags dampened with a drop of glycerine, till it appears uniformly matt, and then to use a dry rag till the original glaze has returned.

To mix the colours, the brush should be charged with the albumen solution and with slow strokes passed over the surface of the colour until it is well charged. Then, with gentle pressure, the colour should be transferred to the palette. All the colours should be treated in the same way, and then mixed—with as slow and gentle a movement as possible so as to avoid air bubbles, which are very likely to form.

It is advisable to try the colour on a dark portion of the print, and if it dries with too much glaze it is far better to mix the colour

afresh; if it shows rather less glaze than the original surface of the print, it can be easily brought up by subsequent touching-up with weak gum water.

The foregoing remarks apply to the dry colours mixed with the albumen and gum solution. If the prepared colours are used, the operation is, of course, much easier, as the colours have to be merely transferred to the palette and thence to the print; still, if these colours are thinned down they will dry with less glaze, and therefore it is advisable to thin them down with the albumen-gum solution and not with water.

It is extremely important to have the brush of the exact dryness, and this can be seen by making a short stroke with the point of the brush. If the lower end of the stroke is darker than the top, the brush is too damp, and some of the colour should be removed on the blotting-paper.

With these papers, as with plain paper, a second application of the colour must not be made till the first is dry, otherwise too much colour will be taken up, and it will run towards the edges, and give a light spot with a darker margin.

Naturally, as in negative work, the first thing to do is to remove obvious defects, such as white spots, then we may proceed to the actual working-up of defective prints; but it is impossible to give precise directions, as each print will require individual treatment, and it is only by experience that this can be learnt, but the following hints may be useful.

Flat prints can be improved by deepening the shadows and lightening the high lights. For harsh prints, the reverse holds good. Detail may be put in the hair, the pupils of the eyes may be touched, the nostrils and the lips, as a rule, want deepening in tint. The eyebrows may be strengthened, and the shadows under the brows lightened.

A continuation of Herr Schultz-Hencke's notes, on carbon and bromide prints, must be deferred until next week.

A MODEL PHOTOGRAPHIC INSTALLATION.

THE following description of a modern photographic establishment, intended primarily for reproduction work, is from the "Scientific American," where Mr. C. H. Claudy, a practical photographer and writer, thus describes and illustrates a visit to a notable installation of studios and dark-rooms.

The recently completed photographic department of the Geological Survey at Washington is a model plant in every respect. It represents the height of convenience, the greatest availability of apparatus for the greatest possible amount of use, and the largest possible economy of effort for the required output. This state of affairs exists as the result of most careful planning by the chief of the division, Mr. Norman W. Carkhuff, who has spent the five years during which he has been in charge of the work in tireless endeavour to save time and expense, and increase output.

For Efficient Work.

Everything in this establishment is calculated to increase the efficiency of the individual workman. The apparatus is so arranged that the minimum of time is required for its correct adjustment, and the worker is made comfortable in every way possible, it being the theory that good air, plenty of it, and a cool temperature make for better work than hot, stuffy, and uncomfortable quarters;

fact which everyone who has ever worked in an improperly constructed dark-room will at once appreciate. Nothing has been of too small a nature to receive attention, the smallest details, such as the size of the lens boards, the height of the cameras, etc., having been most carefully thought out. The entire result is a laboratory and photographic gallery which is unique in every way.

A more particular and detailed description follows, which should bring out these points. It must be mentioned, however, that in one respect this workshop, or series of workshops, is not as good as might be desired, and that is in the question of available floor space. The Geological Survey occupies the greater part of a privately-owned business building in Washington, which is too small for the immense interests it contains. Consequently, the photographic department is crowded into a smaller space than it should be.

Camera Facilities.

Entering the department, the visitor passes through the office to a door which can only be opened from the inside, except to those who know how. Passing through this portal, the visitor will find himself in a long and narrow passage, from which open doors, leading to the various rooms. Proceeding along this passage to the left, you enter the gallery, where the first work is done. Here are two large cameras, each taking a plate 28 x 34 inches in size. These cameras slide to and fro on tracks, where they can be instantly locked in position at any point. The fronts of both these cameras are movable up and down, and to and fro, which movements are controlled from the rear by means of revolving rods connected to gearing. This simple idea took considerable working out, but the mechanism was finally simplified to a practical working basis. The result is a saving of several hours a week, otherwise spent by the workmen running around the camera from under the focussing cloth, to adjust the position of the lens. There are twelve lenses in this department, ranging from 20 millimeters to 31 inches in focal length. Except those used only in microscopic photography, every lens in

the place is on its own front board, and every lens will fit every camera, without any adjusting. another simple feature which saves much time. The plate-holders for these cameras are heavy affairs

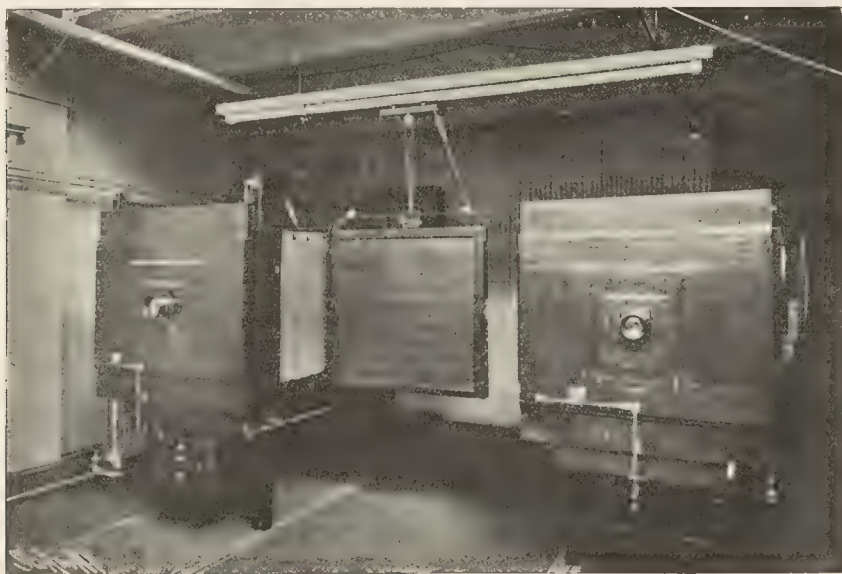
that room has an opening in its wall, leading into the gallery into which the plate-holder just fits, and where it can be instantly locked to make a light-tight joint. The plate is prepared in the dark-room,



Printing Room, showing drying racks on right and movable hypo trough on sink at left.

naturally, and usually take two men to carry them. Here, however, they are suspended from an overhead trolley line, which runs both lengthwise and transversely, so that they may be carried from dark-

slipped into the plate-holder, which is then closed, and, if desired, the opening can then be closed also with a shutter, keeping the dark-room light-tight when the holder is removed. Stepping into the



Studio, showing adjustment of lenses by fittings operated at the rear of camera.

to camera and back again by one man with the greatest ease. The plate-holder remains hooked to this trolley all the time. Instead of being carried around the passage and into the wet-plate dark-room,

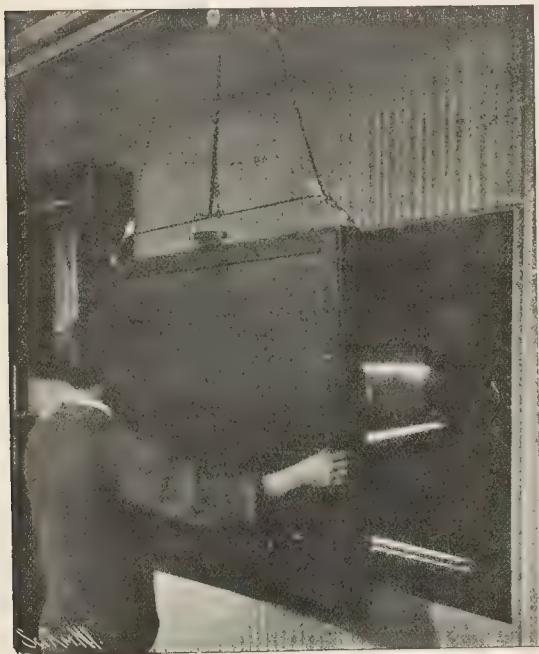
gallery, the workman unlocks the holder, and, simply pushing it on its trolley, guides it to the camera he wishes to use. A slight pull on a handle raises it the inch necessary to fit over the pins, and the

work is done. The opening in the dark-room is at the exact height that the plate-holder is when suspended from the trolley. The amount of work saved by this system amounts to a very large percentage. Besides requiring the services of only one man, it enables him to work with the utmost despatch.

Lighting Arrangements.

The trolley system is also applied to the electric lights used to illuminate the copying-boards. These lamps can be placed in any position anywhere about the copying-boards, and at any height, and all by simply pulling or pushing them into position, where they stay where they are wanted. This arrangement permits the most critical lighting to be made in the minimum of time, a very important consideration, as orders for maps are often sent for immediate filling. The copying-boards are square to the beds of the tracks of the cameras, which beds are cement, laid on the iron structure of the building, so that no vibration caused by walking around or other movement can affect the exposure.

Next to the dark-room, where the wet plates are prepared and developed, comes the intensifying room, then a washing room, then a drying-room, and lastly a glass-cleaning room, all in a line, so that the plate has never to be moved backward, but always progresses forward. Further down the passageway is the printing room. The printing, both from wet-plate negatives and from paper negatives, is done in a large pneumatic printing frame. This is designed expressly for the work, and, so far as the locking and attaching of the



Taking the plate-holder from the dark-room by trolleys.

rubber cloth are concerned, is the only one of its kind extant. Although it requires most careful locking to be effective, Mr. Carkhuff devised a means whereby the locking and unlocking of the back of the frame could be accomplished in one movement of a hand lever, instead of the eight separate movements formerly required. An air-pump exhausts the air from this frame, applying thousands of pounds of atmospheric pressure to the negative and paper, and thus ensuring

an absolutely even contact between them. The back of the frame is counter-balanced, to avoid the needless exertion of strength in raising and lowering it. The frame stands in front of a shutter, behind which is a powerful electric light. This shutter is operated by a foot-lever, and for the average exposure is made to work in about half-second. A specially-prepared developing paper is used, particularly adapted to printing in line, which is the bulk of the work done here.

Fixing and Washing Fixtures.

The print is developed by hand and fixed in a large bath, which can be seen at the end of a big washing sink; this can be swung up out of the way when the latter is wanted for washing the print. The fixing solution collects in a partition at one end of the big tray, and remains there until the tray is lowered, when the solution resumes its former position. When the prints have been washed, they are dried in racks, consisting of spring rollers on which is wound cloth. Through the free end of this cloth, which ends in a turn-over, is thrust a stick. Uprights with serrated edges stand the proper distance from these rollers, and the stick is so fitted as to slip into these serrations. By this device an immense number of prints can be dried at once, and in a very small space, and when no prints are being dried, the cloth stretchers are out of the way. The uprights are movable, also, so that this entire space is available for other things when wanted.

Storing Paper.

A large oak case holds the various sizes and varieties of papers used. Each separate flat cupboard has a false bottom, which can be readily removed. When a fresh consignment of paper is received, this false bottom is taken out, loaded with the paper, and slid back into place. Any one compartment can be opened without exposing the others, and the paper is absolutely safe in them. By using a scheme of this kind, not only is a great saving effected in paper, but in the time required to handle it, and in space formerly occupied by the boxes in which the paper is packed. The ventilation scheme comprises electric fans so placed that they do not merely agitate the air, but actually carry it out at the top and draw fresh air in from out-of-doors.

In the smaller dark-rooms and Velox printing rooms the small work is done. The Geological Survey takes thousands of pictures in the field every year, and these are all developed and printed here. There are a number of small dark-rooms, each a model in its way, and all absolutely clean. The keynote of the whole establishment is absolute cleanliness, and the photographic visitor at once remarks the absence of paper on the floor, junk in the corners, and useless bottles and chemicals on the shelves.

Eleven men are regularly employed in this establishment, and with the great number of labour-saving devices, they easily do the work of triple their number under ordinary circumstances. It is necessary that they should, for the twenty rooms of the laboratory will not stretch, and the work must be done by the force which can be comfortably put in them. Hence every improvement which is made must be either to save space, time, or money.

THE MAWDSLEY FUND.

THE following donation brings the total amount received, in response to our appeal on behalf of Mr. Peter Mawdsley, to £28 12s. 6d. The money thus collected is being applied in the way we have already stated, and will be sufficient for the needs of our friend for some considerable time. We do not, therefore, propose to keep the list open longer:—

	£	s.	d.
Already acknowledged	27	11	6
H. Snowden Ward, Esq.	1	1	0
	£28	12	6

"ZIGO" SUMMER-HOLIDAY COMPETITION.

A new competition is announced by Thomas Illingworth, Limited, of Willesden Junction, London, N.W. Cash prizes are offered for the best prints made on "Zigo" self-toning paper from negatives exposed during the months of June, July, August, and September, 1905. The following are the prizes and conditions:—

Class A for small prints (for a set of three "Zigo" prints from same negative not more than 5 inches in length)—First prize, cash £5; second prize, cash £2 10s.; third prize, cash £1.

Class B for large prints (for a set of three "Zigo" prints from same negative, more than 5 inches in length)—First prize, cash £5; second prize, £2 10s.; third prize, cash £1.

Class C for postcards (for the best "Zigo" postcard, one card only for each entry)—Five prizes are offered of £1 each.

Conditions.—1. The competition is open to all amateur photographers who have never taken a first or second prize in any photographic exhibition or competition. The competitor may send any number of prints from different negatives, in one or both classes, but each set must be entered separately. A set of prints is understood to be three prints from one negative, printed on "Zigo" self-toning paper, either glossy or matt, from negatives exposed during the months of June, July, August, and September, 1905. 2. Prints must be mounted, but not framed. 3. Prints only to be sent in—not negatives. 4. All unsuccessful prints will be returned, provided the senders enclose stamps for return postage. 5. The negatives from which the prize winning prints are made to become the property of Thomas Illingworth and Co., Limited. 6. All prints to be sent in not later than October 31, 1905. 7. All prints must be accompanied by the entry form on the fourth page of this circular, and have the name and address of sender on the back of each print, and be addressed to—"Zigo" Competition, Thomas Illingworth and Co., Limited, Willesden Junction, London, N.W. 8. Application forms for the competition will only be supplied through photographic dealers; if your dealer has not them, he can obtain a supply by sending us a postcard. 9. No employee of Thomas Illingworth and Co., Limited, will be allowed to compete.

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issot, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge de Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Saint-Esprit, Liège.

August 7.—Andover. Hon. Secretary, W. I. Gradidge, Jubilee House, Andover.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield. and James W. Wright, 62, Vale Road, Sheffield.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 8, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern Amateur Photographic Association.

December 1-5.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern Photographic Association, Hon. secretary, William H. Frame, 28, Bank Street, Hillhead, Glasgow.

FORTHCOMING COMPETITIONS.

July 15.—Warwick. Money prizes for members of photographic societies for pictures taken on Warwick Dry Plates. Warwick Dry Plate Company, Warwick.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

THE R.P.S. EXHIBITION.

THE entry form and prospectus of the fiftieth annual exhibition of the Royal Photographic Society has been published. The exhibition will be held at the New Gallery, 121, Regent Street, London, W., from Thursday, September 21, to Saturday, October 28, and will be divided into the following sections:—

1. Pictorial photographs.
2. Scientific and technical photography and its application to processes of reproduction.
3. Photographic apparatus and materials.

The Selecting and Hanging Committee is composed of the following gentlemen:—Messrs. W. R. Bland, Furley Lewis, G. A. Storey, A.R.A., W. T. Greatbatch, J. C. S. Mummery, A.R.I.B.A., and B. Gay Wilkinson, and other members will be appointed later.

The Judges and Selecting Committee in the scientific and technical section are Messrs. T. Bolas, F.I.C., F.C.S., Douglas English, B.A., T. E. Freshwater, F.R.M.S., Chapman Jones, F.I.C., F.C.S., E. Sanger Shepherd, E. J. Wall, and Major-General J. Waterhouse, I.A. This section will comprise examples of work shown for its technical qualities and apparatus used in photographic investigation, e.g., the various processes of colour photography, the photographic reproduction of paintings, drawings, maps and plans, photographs by artificial light, photography as applied to industrial and educational purposes, astronomy, spectroscopy, geology, meteorology, microscopy, medicine, surgery and the Röntgen rays, surveying and engineering, zoology and botany, telephotography, new processes, photography as applied to military purposes, recording instruments, etc., negatives, transparencies, stereoscopic prints and slides, lantern slides, and general work.

This section will also include all exhibits relating to or illustrating any process of photo-mechanical reproduction, viz., photogravure, line and half-tone photo-engraving, photo-lithography, collotype photo-zincography, Woodburytype, polychromatic printing, etc.

In the pictorial section, no exhibitor will be allowed to submit for selection more than six photographs, and these may be by any process.

Photographs already shown at any public exhibition within the London postal district will not be eligible for admission, nor will photographs coloured by hand. No photograph will be eligible for admission unless the exhibitor signs the declaration on the entry form that the work is entirely his own.

There are no medals offered in the pictorial section this year, and there will be no charge for wall space. Medals will be placed at the disposal of the judges in Section 2.

Exhibits sent by carrier must be addressed to the Royal Photographic Society of Great Britain, the New Gallery, 121, Regent Street, W., and must be delivered, carriage paid, on or before Thursday, September 7. Exhibits may be delivered by hand, unpacked, at the New Gallery, on Friday, September 8, between 10 a.m. and 6 p.m., after which time and date no exhibit can be received.

Each photograph in Section 1 must be separately framed, but Foreign and Colonial exhibitors may send photographs unframed. They must, however, be mounted. The Society will provide frames, without charge, for such photographs accepted.

The Central Hall will be reserved for exhibits of apparatus and material (Section 3). Floor space will be let for the erection of stalls. Applications for space should be made by letter not later than Saturday, July 15. Stallholders must provide all tables, stands, counters, showcases, etc. The designs for all structures, decorations, displayed signs, notice boards, etc., must be submitted to the Organising Committee for their approval. Attendants, if necessary, must be provided by the exhibitors. Orders for goods may be taken at the stalls, but no delivery at the exhibition will be allowed. Catalogues, circulars, and price lists may be distributed only from the stalls. Any special lighting required for the stalls must be arranged for by the exhibitor at his own expense. No exhibitor will be permitted to transfer or sub-let any part of the space allotted to him, and no substance of a dangerous nature will be allowed upon the premises. A list or description of the exhibits to be shown in this section must be in the Secretary's possession not later than Wednesday, September 13, if it be desired that particulars shall appear in the catalogue.

Stalls may be erected and exhibits arranged between the hours of 10 a.m. and 6 p.m., from September 11 to September 16, after which time any space allotted but unoccupied will be disposed of as the Committee shall decide.

The charges for space, and all further particulars concerning the exhibition, may be obtained from the Secretary, Mr. J. McIntosh, 66, Russell Square, London, W.C.

Photo-Mechanical Notes.

Newspaper Half-tones.

In reference to our comment some weeks ago, Messrs. W. and G. Baird, of Belfast, write as follows:—

"We have seen a copy of your criticism on a half-tone block of Mr. C. H. Shelley, which appeared in the 'Belfast Evening Telegraph,' and we think it unfair to condemn this process because one particular portrait happened to turn out not quite up to the mark. We have taken great trouble all along with half-tone reproductions in our various newspapers, and think we can claim, without being egotistical, that we have reached high-water mark. We send you a number of papers containing illustrations of this description, including one of yesterday's issue, and we think you will admit that nothing better has appeared in any British newspaper. For various causes the blocks do not always turn out all that could be desired—a bad original, engraving from another half-tone print, unsuitability of paper, and other reasons may be the cause. We think, there-

fore, in justice to us, that you should give us credit for the good work we are constantly turning out, and not base your criticism on an exceptional case. You, as photographers, will undoubtedly be acquainted with many of the difficulties that have to be encountered, and it would be unfair to criticise this work from a photographic standpoint, or from the results obtained by magazine printed on art paper."

Messrs. Baird, we hope, will acquit us of any intention to reflect unfavourably on their work in newspaper half-tones, which is uniformly excellent. They and other photo-engravers supply what newspaper publishers demand, but our note was penned as much as a warning to photographers as a criticism of the present fashion in newspaper illustration. A photographer who supplies a photograph "for reproduction in half-tone" probably anticipates that his work will reappear with a fine ruling of a 133 or 150 line screen. He may overlook the fact that "half-tone" now very largely means the coarse-screen block of the newspaper, and many photographers would object to their work appearing in this form, excellent as the work is considering the circumstances of its production.

"Devils" in Half-tone.

In the current number of the "Zeitschrift für Reproduktionstechnik" attention is called to the occurrence of "devils" in half-tone, quite analogous in appearance to those met with in photogravure, but mainly in the high-lights. When examined with a magnifying glass they showed a deeply etched centre with ragged radiating lines, and they occurred practically in straight lines. It is assumed that this throws considerable light on the phenomenon, and that they are due to extremely fine capillary apertures, which were formed by scratches in rubbing the fish-glue coating, so that the etching fluid penetrated through the scratches more rapidly than through the other parts of the film. The explanation advanced as to the size of these half-tone devils is that by capillary attraction and diffusion a constant stream of fresh ferric chloride passes up and down the little canals. The ferric chloride solution for the fish-glue process is as a rule extremely acid, and the point is whether this acidity can be so far neutralised, as it is in photogravure etching, as to prevent the formation of these defects. But apparently this is not so, as when this point is reached the solution will no longer etch deeply enough.

Trichromatic Work on Ordinary Plates.

Dr. Stenger has been experimenting with ordinary, that is non-colour-sensitive, plates for making the three negatives for trichromatic printing, and some monochrome half-tone illustrations of his results are given as a supplement to the "Zeitschrift für Reproduktionstechnik," together with comparative pulls from a panchromatic plate. A careful comparison of the pulls shows that an ordinary plate can be used for this work, with, of course, enormously increased exposures. Another point incidentally mentioned is that it had generally been considered that the gradation for green, yellow, and orange-red on ordinary plates is not the same as for the blue, but this, by these experiments, has been proved to be wrong. The increase in exposures was considerable, for with a colour-sensitive plate the ratio was 1 : 8 : 25, whilst under precisely the same circumstances the ratio for the ordinary plate was 1 : 750 : 9,000. Dr. Stenger comes to the conclusion that in the most favourable cases a panchromatic (commercial) plate has its green sensitiveness increased about a hundred times and its orange sensitiveness about six hundred times; whilst a bathed plate shows an increase of 180 to 200 for the green, and from 1,500 to 1,700 for the orange. Whilst Dr. Stenger's experiments are interesting, they will hardly induce anyone to use ordinary plates for trichromatic work. It will doubtless be remembered by our readers that Mr. F. E. Ives showed, some ten years ago, some trichromatic transparencies made on ordinary plates.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between June 3 and 17:—

Mounts.—No. 12,273. Photographic mount. Eston Saxe Cheney, 36, Chancery Lane, London.

Vignettes.—No. 12,310. Improvements in copying vignettes for photographic purposes. Richard Hoh and William Hahne, 18, Buckingham Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

Cylindrical Printer.—No. 15,421, 1904. The patent supplements No. 23,014, 1901, and relates to a simplification of the means employed to support the semi-cylindrical table, and to ensure closer contact between the negative and the printing paper. The semi-cylindrical transparent printing table is attached to upright supports by means of hinges in such a manner that when the table is in a horizontal position it rests upon the supports and when in a vertical position it bears against the faces of the supports. B. J. Hall, 39, Victoria Street, Westminster.

Portable Dark-Room.—No. 8,017, 1905. A portable and folding dark-chamber forming, when mounted, a rigid box provided with a viewing hood having red and yellow glasses, two lighting frames, plates of ground glass for regulating the amount of light, a movable mirror enabling the negatives to be examined by transparency and capable of serving as a reflector for illuminating the interior of the dark-chamber, removable shelf bars, a small lower door for the introduction of articles, and two sleeves for the manipulations which the operator has to undertake. Louis Navarre, 65, Grande Rue de la Guillotière, Lyons, France.

Development Process.—No. 17,192, 1904. Paper is coated with a light-sensitive preparation, such as ferric-ammonium citrate, exposed under a negative (printing being controlled by observing the visible image), and a bichromated-gelatine pigment-paper brought into contact with it. By this means a reduction of the bichromate or the like takes place at those parts where, by the action of light, the salt applied to the primary substratum is reduced. At these parts the gelatine contained in the pigment-paper becomes insoluble in hot water. Both papers adhering to each other are placed in hot water, and the pigment-paper is developed in the same manner as in the single transfer process. Thereby the pigment-paper will adhere to the primary paper if the latter is covered, in addition to the sensitive salts, with such substances as are used for manufacturing single transfer-paper, as, for instance, gelatine hardened by alum. Both papers can be again separated from each other a short time after their being brought into contact, whereby the whole pigmented gelatine adheres to its original stratum, but now contains reduction products of the bichromate on the affected parts. The pigment-paper is then brought into contact with the ordinary transfer-paper and the pigment-paper developed. In this case the sensitive paper should not contain any substance which retains the pigmented gelatine, but should contain such a substance as will facilitate the stripping off of the pigmented gelatine, as, for instance, dextrine. Instead of chromated pigmented gelatine-paper, chromated papers prepared with gum or similar substances and colouring matter can be employed, also mixtures of bichromates or chromates with any colouring matter

and gelatine or gum, or similar substances, which are applied in a liquid state to the copy exposed to light. For practical use, the following examples may be indicated:—1. Smooth paper is treated with a solution of—

Gelatine	1 gm.
Alum	0.1 gm.
Citrate of iron and ammonium	2 gms.
Water	20 ccs.

After drying, the paper is exposed to light until the details are just visible in the light parts of the copy. Then the pigment-paper is impregnated with a 5 per cent. solution of bichromate of potassium, the excess of the solution is removed, and the paper is immediately pressed, without being wetted, upon the above copy, so as to avoid air-bubbles. After drying the development is effected in the usual manner, whereby the picture adheres to the originally sensitised paper. 2. Smooth paper is covered with a solution of—

Dextrine	10 gms.
Citrate of iron and ammonium	10 gms.
Water	100 ccs.

After drying, the paper is exposed to light, as indicated in example 1, and then pressed upon the chromated pigment-paper. After about one minute, the two papers are separated from each other, the pigment-paper is quickly rinsed with cold water and then pressed upon dry ordinary transfer-paper, or any other correspondingly prepared substratum, thereby avoiding air-bubbles. After completely drying, the development is effected in the usual manner. 3. A heliographic printing plate is preliminarily prepared in the usual manner, covered with gelatine and dried. Then the plate is chromated in a 5 per cent. solution of bichromate of potassium. The surplus of the solution is removed and a paper, prepared as indicated in example 2, and exposed to light, is then pressed upon the plate. After about one minute, the paper is drawn off, and the plates are dried and washed. Dr. Ludwig Strasser, 34, Kantstrasse, Charlottenburg, Berlin.

New Books.

"Anleitung zur Photographischen Retusche und zum Uebermalen von Photographien." By D. Schultz-Hencke. Berlin: Gustav Schmidt. M 2.50.

Few books in any language treat so fully of the various retouching arts applicable to photography as this German volume, now in its fourth edition. It devotes itself less to the methods of negative retouching than to the different modes of working up prints. In this latter task, it considers the different requirements of silver, platinum, carbon, and other prints in the matter of making colours and crayons "take" to the surface, and we can give no better notion of the quality of its instruction than by collecting, as we do on another page, certain of its precepts and formulae.

"The Hand Camera and What to Do with It." By W. L. F. Wastell and R. Child Bayley. Published by Illiffe and Sons, Limited, Price 1s.

This book, which is intended to take the place of the work on "Hand Camera Photography" by W. D. Welford, deals fully and comprehensively with every type of the modern hand camera and methods of working, and gives full instructions for all those forms of photography in which the hand camera can be employed. Lenses, shutters, movements, and fittings come in for ample consideration,

and the exposure from the point of view of the plate and of the subject is also dealt with. Work with films, development, printing, enlarging, and sundry other matters likely to be of great service to the user of this popular type of photographic outfit are discussed in a practical manner, and working formulæ are given whenever possible. The book, which is a bulky little volume, is admirably illustrated with good half-tone reproductions of hand-camera photographs by Mr. R. Child Bayley.

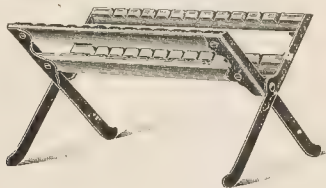
"HORSHAM AND ST. LEONARD'S FOREST," the delightful part of the Weald of Sussex so quickly reached by Londoners, is the subject of Vol. 38 of the *Homeland Handbooks* (The Homeland Association, Limited, 22, Bride Lane, Fleet Street, London, E.C., 1s.). Guided by it, a great variety of beautiful country can be visited, and we commend it particularly to the Metropolitan photographer seeking fresh fields for week-end rambles with his camera.

WHERE to go for a holiday? Those in the throes of indecision should be glad to obtain the "Seaside and Inland A B C Holiday Guide," issued by the Wentworth Publishing Company, Clun House, Surrey Street, Strand, London, W.C., price 1s., which says what there is to say of the salient features of holiday resorts with commendable brevity.

New Materials.

"A new Negative Draining Rack." Made by Houghtons, Limited, 88 and 89, High Holborn, W.C.

This new draining rack is constructed on practical lines in a sensible manner. It is extremely rigid, and when it is opened for use the legs extend to the right distance and cannot be forced further apart. These legs are of metal, and the rack itself is of cherry wood with grooves cut to take twelve negatives, and they are so shaped that the water which drains from the surface of the negatives will



not accumulate at the bottom edges of the plate. The grooves are placed $\frac{1}{2}$ in. apart, thus allowing more ventilation than usual. The drying is therefore accomplished in a much shorter time than is usually the case with draining racks in which the grooves are close together. No metal comes into contact with the negatives, but we think a slight improvement might be effected by the addition of a small strip of metal fastened to the back of each grooved piece of wood to prevent warping. The rack is well made, and is cheap at 10d.

"Seltona-Platino" Printing-out Paper. Sold by the Leto Photo Materials Company, Ltd., Rangoon Street, London, E.C.

This self-toning collodion paper, issued with a matt surface only, lends itself admirably to either of three methods of treatment, viz.: (1) fixation simply, giving sepia tones; (2) fixation after immersion in a salt bath—blue and purple tones; and (3) toning in a platinum bath for warm black tones. Printing must be decidedly deep, as the prints lose a good deal in

depth in the after-operations, but with this precaution the paper calls for no especial comment as regards manipulation, and yields a variety of tones, according to the method adopted, a feature which must recommend it to the professional worker. It is issued in all the usual sizes, packets, boxes, and postcards, at a price based on 17 per dozen 24 by 20 sheets.

RECEIVED.—The "Marion-Iso" Plate (Marion and Co., Ltd.). Herold's Emulsion Gelatine (Otto Rosenstiel). These articles will be noticed in due course.

WHITE'S Patent Multiple Postcard is the latest novelty in picture postcards from the Photochrome Company, of Cheapside. The postcard takes the form of a thin card wallet, open on one side to permit the viewing of a picture card within. If this card is pulled out at an opening left at one end, another view is disclosed, and by pulling still further a series of smaller views, separately mounted on small cards, appear in rapid succession, each turning over and showing yet another picture on its back, like the leaves of a miniature book. Each complete card is, therefore, a small view album in itself, and, as a pleasing novelty, should command a ready sale.

News and Notes.

We are sorry to see from the current "St. Veronica" that Editor Dr. George Ewing has been too unwell to take any part in its production. We miss the forcible comments on men and matters in India, and selfishly wish our *confrère* a speedy recovery.

THE programme of the examinations of the City and Guilds of London Institute is now published by John Murray, Albemarle Street, and contains the syllabuses for photography and photo-mechanical processes. The subjects on which questions will be asked in the examinations in May of next year differ very little from those of previous years. The examiners in photography are:—Sir W. Abney, Mr. G. Watmough Webster, and Mr. J. D. Geddes.

THE Croydon Camera Club have fixed the date of their annual exhibition for November 8 to 15 next, to be held in the Horniman Hall, North End, Croydon. Six open classes have been arranged, including a special class for lady exhibitors only. The exhibition secretary is W. H. Rogers, 88, Woodville Road, Thornton Heath, who will be pleased to forward entry forms and answer any inquiries.

"THE Urban Cinematograph Films." A comprehensive illustrated price-list of Urban films has been sent us by the Charles Urban Trading Company, Limited, of 48, Rupert Street, London, and as an example of descriptive advertisement in catalogue form would be hard to beat. The quality of the Urban films is amply demonstrated nightly at the Alhambra Music Hall, and the enterprise of the company is well indicated by the range of subjects touched upon and the promptness with which news items are portrayed and displayed on the screen, which can, under the circumstances, almost be regarded as a sort of illustrated supplement to the morning papers, the pictures being, moreover, reproduced with all the additional charm of motion. The company's registered trade mark is "Urbanora"—we put the world before you"; and every body interested in cinematography or the display of animated pictures, should apply for a copy of this bulky catalogue without delay.

"NIHILISTS IN RUSSIA" is one dramatic film just listed by Messrs Gaumont and Co., Cecil Court, Charing Cross Road, London, W.C.

WOMEN'S Studios in New Zealand.—Operating in the studio with the camera was for a long time reserved for men only, who have

also had the monopoly of running the show, but at Napier and Wellington ladies have for some time been proprietors of the studio (according to the "New Zealand Photographer"). At Nelson, Mrs. Brusewitz ably represents her husband as operator in the studio, and at Christchurch Miss Beattie Bond advertises her business as the People's Studio, and herself as the Lady Photographer.

DEATH of Mr. T. C. Hepworth.—Our intimation last week of the death of Mr. T. C. Hepworth was received as we went to press, and we must now more adequately express our regrets at the demise of a man whose name, at any rate, must have been familiar to all classes of the photographic community. Mr. Hepworth was a journalist and a lecturer as much as a photographer. In fact, his popularity on the lecture platform was the most distinguishing feature of his professional career. In the Midlands and the North of England, where the instruction lecture commands a keener audience than it does in the South, his lantern discourses on scientific topics



The late T. C. Hepworth. Died June 14, 1905.

were among the fixtures of the season, for he possessed the rare gift of making an intricate subject clear and attractive to the non-scientific hearer. Mr. Hepworth was associated with photography in a number of ways. For some years he was proprietor and editor of "The Photographic News," and a good many contributions to the photographic Press of recent years came from his anonymous pen.

MESSRS. GOLDSMITH, of Manchester, held their annual picnic on Saturday last in the Greenfield district, where the party enjoyed rambles among the lovely glens and on the Yorkshire hills. The after-dinner speeches, although brief, proved the good feeling which exists between employers and employed, and "good luck to the firm" was the universal theme.

R.P.S. SPECIAL MEETING.—The special meeting called for July, to receive nominations and to elect members, will be held on Tuesday, July 11, at 66, Russell Square, W.C.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
1.....	Bowes Park and Dis. Ph. Soc....	Outing. River Thames.
1.....	Glasgow Southern Ph. Assn....	Outing to Garelochhead.
1.....	Manchester Amat. Photo. Soc.	Social Gathering.
1.....	Cricklewood Photo. Society ...	Outing to Virginia Water.
3.....	South London Photo. Society...	"Toning Bromide Papers." Rev. H. O. Kenton.
3.....	Southampton Camera Club	"Photographic Dodges." Mr. C. C. Cook.
4.....	Manchester Amat. Photo. Soc.	"Cloud Negatives and their Use." Mr. J. W. Wade.
4.....	Rotherham Photo. Society	"Chromotype Printing." R.P.S. Lecture.
4.....	Sheffield Photo. Society.....	Annual Meeting.
5.....	North Middlesex Photo. Soc. ...	Lantern Slide and General Print Competitions. Amberley Outing Print Competition.
6.....	Röntgen Society	Annual Meeting.
6.....	Hull Photographic Society ...	General Meeting, Society's Rooms.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING Tuesday, June 27. J. C. S. Mummery in the chair. Mr. F. C. Tilney read a paper, entitled "The Romantic in Landscape." The lecture did not in any way deal with photography or photographic methods, although the occasion was announced as a technical meeting. The lecturer dealt in a thoughtful manner with the questions arising out of a critical inspection of some of the works of the best landscape painters of the past 150 years, and drew the general conclusion that these works of art were more imbued with the air of mysticism and romance than could be achieved by modern photography. He prefaced his remarks by defining "romantic" as pertaining to romance, meaning thereby any fictitious and wonderful tale, anything fanciful or marvellous, suggestive of mystery and adventure in the style of the Middle Ages as opposed to the classical antique. Therefore, wild and picturesque scenery, characterised by strangeness and mystery, would appeal to the imagination as romantic. He particularly instanced the pictures by Claude as arousing and stirring the sentiments and passions by their suggestion of the unknown. The romantic in art was subjective, and this suggestion of mystery in many of the landscapes referred to tended to arouse the romantic feelings of the beholder. The play of light was always an important factor in romantic scenery, while dark shadows and murky spaces, with their air of mystery, always aroused romanticism inborn in all of us. The marvellous and uncanny always fascinated us, and dark woods, caverns, and deep shadows in landscapes took hold of the imagination. Mr. Tilney stated that all broad scenic effects were borrowed from romantic art, of which scene painting was a type. Scenic effects were not to be confounded with stagey effects or bathos would inevitably result, and the best and most striking results that touched our imagination were obtained from subjects that were not too crowded in treatment, but in which simplicity and dignity were predominant. Such broad, simple methods, free from distraction, especially if a certain indication of the unknown and suggestions of mysterious shadows were included, could be justly termed the romantic in landscape. The lecturer showed a number of slides made from well-known pictures by Claude, Richard Wilson, J. T. Hardy, David Roberts, T. Allen, Turner, and Gainsborough, and pointed out their claims to be considered romantic. He compared them and also showed several ordinary photographic snapshots, from which he drew conclusions not altogether favourable to photography when compared with the finished masterpieces of the painters. In reply to members who took part in the discussion that followed, Mr. Tilney said he did not

think the emotions of pictorial art were altogether debarred from photography, and although a photographer might be capable of producing pictures, he did not think that an art training could be obtained at art schools. The germ of the art instinct was born in a man, and the function of the art school was little beyond teaching how to sharpen pencils and the rules of composition, etc. The germ of the art instinct was fructified by contact with artists and others whose opinions were worth following. In conclusion, he impressed upon photographers that romance was not in the photograph, but should be in the photographer to enable him to impress his individuality on his work.

THE BLAYDON AND DISTRICT CAMERA CLUB.—Mr. J. Parker, 7, Evelyn Terrace, Blaydon-on-Tyne, has been appointed Secretary of this Society.

SOUTHAMPTON CAMERA CLUB.—At a meeting of this club at the Philharmonic Hall, Southampton, on Monday of last week, a lecture on the preparation and working of plain salted printing papers was given by Mr. G. T. Vivian, and a demonstration of gum-bichromate printing was given by Mr. W. Miles.

HULL PHOTOGRAPHIC SOCIETY.—The annual picnic of this society took place last week to Burton Bushes, Beverley. The outing was a pronounced success.

SOUTH NORWOOD PHOTOGRAPHIC SOCIETY.—At a meeting of this society, held on Thursday of last week, Mr. H. Clark gave a demonstration on the working of the reflex hand camera.

The club has now taken larger and more convenient premises at 251, Selhurst Road, South Norwood, and are moving into them this week. It is hoped that now they have secured larger rooms there will be a considerable increase of membership from the ranks of amateur photographers in South Norwood and district.

SUTTON PHOTOGRAPHIC CLUB.—The first outing of the season, arranged by the Chairman, Mr. Hector Maclean, took place on Saturday last to Warnham, and an excellent day was spent in the grounds and mansion of Mr. C. S. Lucas, the owner of Warnham Court.

LOUGHBOROUGH PHOTOGRAPHIC SOCIETY.—The members of this society spent a very pleasant half-day in the Matlock district on Saturday last. Matlock Bridge, Darley Dale, the old church of St. Helens, Matlock Bath, and the High Tor were the chief points of interest photographed.

LEEDS PHOTOGRAPHIC SOCIETY.—The members of this society visited York on Saturday last on the occasion of their annual excursion. The Minster, St Mary's Abbey, the Museum, and other places of interest were inspected.

The pleasant feeling existing between the Herefordshire, Gloucestershire, and Shropshire Photographic Societies was shown on Thursday of last week, when the three organisations held a joint field-day in the neighborhood of Ludlow. The outing proved a great success in every way, and the Herefordshire Society will pay a return visit to the Gloucestershire Society on July 20, when the rendezvous will be Evesham and Broadway.

PHOTOGRAPHY in a New Role.—The Normanton Education Sub-Committee have instructed their head teachers not to allow the school work to be interfered with by travellers, photographers, and "all other nuisances."

"Zigo" Demonstration.—A series of special demonstrations of printing on "Zigo" paper has been arranged by Thomas Illingworth and Co., Limited, at Harrods, Limited, Brompton Road, London, S.W. These demonstrations are given free in the photographic department every day from 10 a.m. to 5 p.m.

Commercial & Legal Intelligence

FORGERIES by Photography.—Unusual features characterise the case of Frederick Ellis Blackburn, a clerk, who was committed for trial from the Mansion House last week on a charge of forging a cheque for £200. There are also alleged to have been other forgeries. The prisoner was in the employ of Mr. Rudin, a cigar merchant, of St. Dunstan's Hill, and was left in charge of the office when Mr. Rudin went for a short holiday last July. He stated that "During Mr. Rudin's absence a man named Woolf, of New York, suggested that Mr. Rudin's signature should be photographed and a process block made from the signature, so as to enable him to stamp direct on to a cheque after the block was made. He stamped a few cheques, and filled in the amount. Then we proceeded to Lloyd's Bank, where the money was obtained. The greater part of the money he kept himself, and either proceeded direct to New York or Paris."

A CASE OF COPYRIGHT INFRINGEMENT.—Dunning v. Grimble.—In the Chancery Division, on Thursday, Mr. Justice Joyce had before him an action by which the plaintiff, a photographer, of Usk, sought an injunction to restrain the defendant, the author of a work on the salmon and sea trout rivers of England and Wales, and his publishers from infringing six photographs taken by plaintiff. His Lordship, after the case had been opened, suggested a compromise, and ultimately it was arranged that there should be judgment for the plaintiff for £25 and no order as to costs and the plaintiff gave permission to the defendant to sell the remaining numbers of the work.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

THE NON-RETURN OF SPECIMENS.

To the Editors.

Gentlemen,—I am sorry to trouble you, but this is the second time I have had cause to complain of the non-return of specimens I have sent in answer to advertisements printed in your **BRITISH JOURNAL OF PHOTOGRAPHY**. In both cases particulars had to be sent to your office.

The enclosed advertisement is the second that has failed to return specimens, amongst which was a cabinet photograph of myself—and I did send the necessary stamps for their return.

Can you help me? For the loss of two sets of specimens means a great deal to me. I am trying to get a situation, and, as you know, it is impossible to get one without specimens.

I think such conduct on the part of advertisers is most ungentlemanly. It strikes me that some people advertise under cover of your address for the express purpose of getting other people's specimens for their own use, and in such case as mine (if only in justice to yourselves) you would do quite right in disclosing name and address of offenders.—Yours truly,

R. R.

[The above is one of three letters making the same complaint of different advertisers, and we are sorry to find that it should be necessary for us to refer in strong terms to the matter. Our view of the question is simple enough:—The applicant who, in sending specimens to an advertiser, does not value them sufficiently to en-

se postage for their return, need not be surprised if he or she sees them again. On the other hand, the advertiser who mails specimens when their return is prepaid, lacks the most primitive instincts of a gentleman, and deserves to be treated accordingly. In the cases of our three complainants we have taken steps which we hope has brought about the return of their property, and we must caution those who are found to be holding what does not belong to them that their conduct is a grave abuse of our advertisement columns, and one which we shall spare no pains to prevent. Fortunately, such instances are not frequent, a fact which renders all the easier our task of keeping an eye on those whose past record in such matters is not clean.—Eds., B.J.P.]

BUSINESS ASPECT OF THE COPYRIGHT QUESTION.

To the Editors.

Gentlemen,—Will you allow me to ask one more question on the subject about which I wrote you last week?

If the photographer sells his copyright with the proofs or portraits to his customers, how is it that the artist who paints a portrait for a customer retains the copyright, and is able to sell it either to the customer or to anyone else? The Act deals with paintings, drawings, and photographs, and I fail to see why Jones, R.A., should be paid £500 for painting a portrait and be able to get another £100 for the copyright, while Robinson, photographer, should have content with 1s. 8d. for the proofs supplied, representing many hours' work, when operator, retoucher, and printer are considered, and he no copyright in his work at all.

When the Copyright Act says that the "vendee" (the sitter) is entitled to any copyright unless at or before the time of sale (pay for the proofs or photographs, I take it) the seller signs an agreement giving the vendee the copyright.

I do not see anything in the Copyright Act about the copyright going to his only when he invites the sitter to sit.

The question is not what the custom is, but what power does the Copyright Act give the photographer.

As to the price to be charged for proofs, I doubt if any photographers fix this on their price lists; our prices are for dozens or half-dozens, as the case may be.—Yours obediently,

F. M. SUTCLIFFE.

Whitby, June 24, 1905.

The points raised by our correspondent were covered in our notes last week. Our correspondent asks: "If the photographer sells copyright with the proofs, etc.?" Now how can he sell what does not belong to him. The customer pays (or can be made to pay) for his portrait, and the copyright in it is vested in him. Our correspondent must know that if an artist paints a portrait for a customer the painter has no copyright in it, unless by special agreement in writing with the customer? Evidently our correspondent has not read the Copyright Act carefully, for the very first section of it makes the matter quite clear. In the letter it is contended that there is something in the Act about the copyright being the photographer's when he invites the sitter to sit. But in this case the photographer is not paid a "good and valuable consideration" for taking the portrait, hence the copyright in it is vested in him.—Eds., B.J.P.]

TERRIBLE Accident.—Edmund E. Hill, an Englishman residing in Galway, and trading as a photographer, met with a terrible accident on Sunday while motor-cycling near Galway. Losing control of his machine going down a hill he dashed into a wall and was thrown over fully fifteen feet on the opposite side. He received terrible injuries, his neck being dislocated, and he now lies in a critical condition.

Answers to Correspondents.

- **All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.*
- **Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- **Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- **For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- F. G. Jones, Earlscliff, Oxtou, Cheshire. Photograph entitled, "Evening on Killarney." Photograph entitled, "Watergate and Ferry, Norwich." Photograph entitled, "In the Black Valley, Kerry."
- B. T. Cornforth, 5, Rock Street, Hr. Broughton, Manchester. Photograph of the Canal Bridge, Moncton.
- C. C. Whyte, 4, Ardross Street, Inverness. Photograph, 15 in. by 12 in., Group of Journalists with Dr. Carnegie at Skibo Castle, Sutherlandshire.
- Isaac Perkoff, 186, Commercial Road, London, E. Photograph of Mayor, Mayoress of Stepney, and Members of the Stepney Borough Council. Photograph of Mayor and Aldermen of Stepney.
- J. Webster, 25, The Pavement, Clapham Common, London, S.W. Two Photographs of the Rev. D. McEwan, D.D. Photograph of the Rev. E. S. Wood.
- C. W. Eastoe, Castle Hill House, Caistor, Lincolnshire. Photograph of the Mausoleum at Limber, Brooklands, Lincolnshire. Photograph of the "Stone Sack" at Fonaby, Caistor.
- J. Morgan, 7 and 9, Lammas Street, Carmarthen. Photograph of Schreyer, the American Aerial Cyclist and High Diver, during Performance at Carmarthen.
- J. H. Kinsman, Lawson Villa, Ashley Road, Upper Parkstone, Dorset. Photograph with Schooner in left foreground; the Description in right foreground.
- W. Hollick, 78, Wellington Street, Woolwich. Photograph of Mr. J. Dick.
- Mrs. G. Bainsmith, St. Ia Studio, St. Ives, Cornwall. Photograph of Miss J. Ellis. Photograph of Miss M. Keegan.

BOB WOOD.—J. Epstein and Co., 33, Broad Street, Bristol; O. Sichel and Co., 52, Bunhill Row, London, E.C.; and Gothard and Co., Plumstead Road, Woolwich, S.E.

WM. GORE.—As soon as you register you can prevent further infringement.

SENSITISED FABRIC.—Could you kindly assist me with a recipe for a sensitising fluid for silk, etc.? I believe I have come across one in an old edition of the B. J.—D. S. BAKER.

After scalding the silk, size and salt it with a solution of arrowroot and common salt, enough of the former to make the fabric somewhat stiff when dry, and of the latter to make the mixture taste salt. Sensitise by immersion in silver nitrate 150 gr., water 3oz., made faintly acid with nitric acid. Dry in front of the fire. The fabric is printed very deeply, washed in two or three changes of water, and toned in an ordinary acetate bath, being finally fixed in hypo.

CLEANING DISHES.—Will you kindly advise me the best means for cleaning granite hypo. fixing dishes, which has left a thick black deposit of hypo. on bottom and partly on sides? I have never noticed this in fixing dishes before. What would be the cause, fresh hypo. being made once a week?—C. F. WYNNE.

We presume you mean "granitine" dishes. Spirits of salts mixed with an equal volume of water will cleanse them thoroughly. The only cause we can suggest is that acid has found its way into the fixing bath, say from platinum toning solutions.

HOUSE DUTY.—The premises in which I carry on my business are in the centre of the town; some year or two ago I moved out of

them to the suburbs. At the time I did not know that I need not pay the tax for the house, as no one occupied it at night. In fact, I have only heard this recently, and should be glad to know if I can get back the money I have paid.—UNDERSTOOD.

An exemption from this duty is granted to shops, warehouses, and offices which are used solely in trade or professions, no person sleeping thereon. If the premises should in error be assessed, the occupier should appeal against the assessment and get it discharged. If he fails to do this, and actually pays the duty, his only remedy is to send the receipt to "The Secretary, Inland Revenue, Somerset House, London, W.C.," who will cause inquiry to be made, and if all turns out right they will refund the duty.

A. DUBLANGE (Le Fleux).—If you address Mr. Bellamy, care of Literary and Scientific Society, Reading, the letter will doubtless reach him.

W. H. (Woolwich).—It is not necessary.

G. WOOD.—There is no journal in France of the character of the B. J. The best for your purpose is the "Photo Revue," 118, Rue d'Assas, Paris.

COPYRIGHT.—Will you kindly answer the following question?—One of my photographs, which was not copyright but which I have since registered, was reproduced in the first issue of — without my knowledge or consent. I drew the editor's attention to the same, and asked a small fee for right to reproduce. I received a very courteous reply to the effect that the photograph was supplied by the party who bought the same from me, and that I had no claim against them. Now that my photograph is registered, can I legally stop the sale of further copies until my claim is paid?—J. P. MILNES.

Yes, we should say you can, by taking action against the publishers of the work. Your best way will be to consult a solicitor acquainted with copyright law. Possibly a firm letter to the publishers threatening legal proceedings will bring you your fee.

MASKED BORDERS.—Will you kindly inform me the best way to print "Cosway Borders" in bromides? How do you get perfect register in the double printing?—C. POWELL.

The simplest way is to fix on the mask of the portrait negative, say at the top left-hand corner, a couple of strips of thin cardboard at exact right angles to each other, and similar strips in corresponding positions on the border negative. Then, if the bromide paper be placed close against these strips in each printing, accurate registration will be secured.

COPYRIGHT.—Will you give me your opinion of the following?—I hold the copyright of a postcard which I have published. I supply a wholesale dealer with a quantity of same. He has some of them hand coloured, and offers them for sale. Is he infringing my copyright by so doing, and can I prevent him colouring them?—J. DONALDSON EDWARD.

The dealer is in no way infringing your copyright, as he purchases the pictures from you. We do not see how you can prevent him from colouring them—he has the right to do as he likes with his own.

THE AMATEUR QUESTION.—A. exhibits in a local exhibition; the rules say professionals are not eligible as competitors. A. styles himself an amateur, and, although he does not do it for his livelihood, he often sells his photographic work at a good profit. Can he, under these circumstances, be eligible to compete as an amateur?—OLD SUBSCRIBER.

It is not easy for us to say. We should not take the view

that occasional sales of photographs made a man a professional but if his photographic business forms an appreciable portion of his income he might reasonably be held ineligible.

STUDIO LENS.—I am desirous of acquiring a portrait lens for use in a 16-ft. studio. I have been using a 13 in. focus rectilinear lens, but find it not fast enough for dull weather. Please advise which would be suitable, and say the best size for cabinet work.—R. N. CLIFFORD.

To take a full-length cabinet portrait in so short a studio you will require a lens of about 9 in. focus. That will require from 12 ft. to 13 ft. between the sitter and the camera. We doubt if you will get a cheap Petzval portrait lens of that focus that will cover, well, the cabinet size picture. A lens of longer focus will do for three-quarter lengths and bust pictures, and, of course, will cover the plate better than will one of short focus. The lenses named in your list are all good value for the money.

PUZZLED.—1. In all probability the peculiar markings are due either to contact of the prints with metal—which may frequently happen if an enamelled metal print washer is used and some of the enamel chipped off—or else to an acid mountant. 2. Your trouble arises from the hot weather. Soak your prints after washing in a 5 per cent. solution of formaline for five minutes, then rinse well, cleaning the glass well with methylated spirit and ammonia, and polish clean.

SENSITISING POSTCARDS.—Will you please give me the formula for sensitising postcards for P.O.P., as I cannot get a copy of this year's "Almanac."—J. HARRIS.

The following is a good formula:—Nelson's No. 1 gelatine, 87 grains; ammonium chloride, 18 grains; Coignet's gelatine, 87 grains; Rochelle salts, 50 grains; silver nitrate, 75 grains; alcohol, $\frac{1}{2}$ oz.; water, 5 oz. Heat to 100 deg. F., and allow to remain at this temperature for ten minutes.

THE Photographic Convention.—The final arrangements for the Convention at Dublin, which opens on Monday, July 10, are now in an advanced state, and there is every prospect of the pleasurable week of 1894 being re-experienced. A party will leave London for Dublin on Thursday next, July 6, and those who travel via Holyhead might well form one of the party, if it is still possible to provide additional travelling accommodation. Mr. F. A. Bridge has charge of the arrangements, and a line to him at East Lodge, Dalston Lane, N.E., will bring the information.

R.P.S. ENTRY FORMS.—The secretary of the Royal Photographic Society has sent us a supply of entry forms for the forthcoming exhibition at the New Gallery. We shall be pleased to forward a copy to any of our readers on application.

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EX CATHEDRA.

Comprehensive photographic apparatus.
The "Standard," in its "Parliamentary Notes" one day last week, says an order has been circulated to commanding officers of the Navy forbidding purchases for the Service outside the regulation stores, without official permission. Charge was made in respect of photographic printing machinery ordered by the officer commanding a King's ship. The price paid was £47, the sale value being £6. The discrepancy was discovered through the medium of the Public Accounts Committee, and hence the new order issued. This body has recently been charged with overlooking matters where large sums have been expended. But it is evident that they are pretty vigilant for small amounts. It would be interesting to know of the "photographic printing machinery" consisted the price of which was six pounds.

Exposure Portrait negatives.
We frequently see portraits in which the shadows of the face are nearly, if not quite, as dark as the shadows in the draperies. It is a somewhat common mistake to suppose that if the shadows show detail the plate is sufficiently exposed, quite ignoring the fact that under-exposure part of the curve of the plate has been used, and that the detail, though present, is not sufficiently strong to print. The effect is that the shadows of the face are heavy and black and lacking the luminosity which flesh should always possess. If the plate used has little latitude, it will usually be found that by the time the shadows are fully exposed the tipped high-lights will be lost for printing purposes, and will need to be strengthened by the retoucher. This, however, is more easily done than a general lightening of the shadows. The latter plan, of course, is to use a plate with latitude, so that both shadow detail and good modelling may be

secured without flattening of the extreme high-lights. Even in the strongest effects of lighting, such as Rembrandt portraits, the shadows of flesh should be much more luminous than shadows in dark clothes, and if the blinds or headscreens cannot be manipulated to produce the effect, it may be necessary to use a large grey reflecting screen at some distance from the sitter, taking care to avoid false illumination. The cases where shadows are heavy through under-exposure, necessitated by exigencies of the weather or a restless sitter, are amongst the unavoidable which so often crop up in photographic work.

Use of the Pinhole.

Notwithstanding the tendency to, and the undoubted advantage of, specialisation in professional photography, there are many places where the worker must take anything in the nature of a commission which comes his way. Buildings in narrow thoroughfares, or where the space in front is restricted in proportion to the size of the structure, are often required to be photographed, and in some cases the work could be done had the worker one of the extremely wide-angle lenses now obtainable in his possession. Instances have come under our notice, however, where no lens would serve, and we have known successful photographs made under such conditions by the aid of a pinhole. Probably the simplest way of making a pinhole is to take a bit of thin sheet copper and grind one spot thinner with flour emery and oil and the tip of the finger, finally working a needle of the proper size through the thinned place in the copper. By reversing the camera and looking through the pinhole, or, better, a larger hole in the same position, the exact distance from pinhole to focussing screen may be ascertained, the camera really acting as a direct vision finder. It may then be swung round exactly 180 degrees and the plate inserted and the exposure made. With a slow landscape plate the exposure will be long enough to prevent any sign of moving figures, and if the size of the pinhole is correct, the definition should be almost as good as with any of the non-anastigmatic lenses. Prints, of course, would be made by a matt surface process.

A Tax on Itinerant Photographers.

Certain professional photographers in Montreal, so we read in the "Star" newspaper of that city, are complaining of the competition with the men who go from house to house obtaining orders for photographs. Their protest is a petition to the municipal authorities asking that the itinerant photographer shall be taxed. The regular photographer, they point out, has to pay the taxes on his establishment as well as a business tax, charges which the photographic canvasser escapes. The proposition of a tax was made to the Finance Committee and referred by them to the Law and Licence Departments. It is diffi-

cult to see, however, how the itinerant photographer can be effectually dealt with by legislative methods, because as soon as he is spotted by the authorities he can change his habitat to another district.

Grandmotherly Society Management.

We read in the organ of a photographic society the following tremendous piece of intelligence:—"The dark-room lamp has been overhauled and repaired by Mr. —. The glasses in the sides are ruby only, and in the front, ruby in front of orange. Bromide workers need only slide up and out the front glass to obtain an orange light. It is unnecessary to turn the lamp round to light it, as the small slide at the back can be reached in position without difficulty. It will be found much more comfortable if members, when at work in the dark-room, do not turn the light up to its fullest and it will also allow the lamp glasses to remain clean much longer." Our congratulations are tinged with wonder as to what sort of society-members these must be who need to be told how to light the official dark-room lamp. It is to be hoped for the credit of the society that the paragraph is the work of some fussy individual, and is resented by the members. If this kind of thing is going to be done why not more thoroughly:—The dark-room door can be conveniently opened by a rotary movement of the knob, followed by a perpendicular thrust. It is well to close the door before developing plates.

Mil and Centimil.

The new designations of the thousandth, ten-thousandth, and hundred-thousandth part of a litre proposed some time ago by the General Medical Council and the Pharmaceutical Society have now been approved by the Comité International des Poids et Mesures, for adoption in England for pharmaceutical purposes. The abbreviations are:—

Mil	Millilitre.	Approx. cubic centimetre.
Decimil	$\frac{1}{10}$ "	" 1 c.c.
Centimil	$\frac{1}{100}$ "	" 0.1 c.c.

For practical purposes "mil" may be read as "cubic centimetre," as the difference between the two is extremely small. The new words may, however, be noted, as they are likely to be employed in pharmaceutical literature before very long. It is understood that the next British Pharmacopœia will use them in formulæ for fluid preparations.

Photographers' Grievances.

In a leading article a fortnight ago we referred to a photographer's complaint of his sitters having their portraits taken by him and then getting them reproduced by some cheap copying firm. This week there is a letter in the correspondence column on the same subject. The writer quotes our former article that: "He (the photographer) has not so much to complain of, seeing that he has been paid for what he has done," and adds that it "is but poor comfort." That is perfectly true; it is but small comfort, and we regret that we cannot offer better. But business—whether photographic or other—must be looked at from a business, and not a sentimental, point of view. Facts as they exist have to be faced. Our correspondent, in his letter, says it has been the custom to spread the cost of the first copies over the whole order, or prospective order—say half a dozen or a dozen—and if smaller numbers are taken, it is with the hope that the balance will be adjusted by further orders. As a rule it is, but in exceptional cases it is not. The question is one of risk. Grocers sometimes sell sugar at cost price—even less—in the hope of the purchasers buying tea or other things upon which the grocer would

profit. But often the purchaser goes elsewhere for his tea, and the grocer has no ground for complaint, as he has been paid his price for the sugar. Photographers, we fear, are too apt to look at matters solely from their own point of view, quite ignoring that of their customers. If the latter pay for their portraits they are their own property, to have done with them what they think fit—reproduced or enlarged—and it would be hard upon them if they could not. There is one thing that is often overlooked, which is that the negative, upon which the photographer may have spent much time in taking and retouching, is his property, although the copyright in it is the customer's. Any reproductions of prints from it are inferior to those he would supply. While the photographer possesses the negative he is in a position to supply, not only better copies, but at a less cost for production than the cheap copyist, inasmuch as the latter has first to make a new negative before he can print his productions. This same also applies to enlargements. Artists usually charge from thirty to fifty per cent. extra for finishing enlargements made from paper prints in comparison with those made from the original negative.

Should the Copyright Belong to the Photographer?

Some appear to consider that the copyright in a portrait which the photographer has been paid for taking should be vested in him. Such a thing would be manifestly unfair to the customer, as he would then be precluded from doing what he likes with what he has paid for. If he wanted copies or enlargements he would perforce, have to go to the photographer who took it and pay him any price he chose to charge, or go without altogether. He could not get the work done elsewhere at a price better suited to his means. It is, however, as we said in the former article, exceedingly gallant to the photographer who has spent time and trouble on the production of the negative to know that it has been reproduced and copies supplied at a very much lower price than his own. Our correspondent this week mentions copies as postcards at three shillings a dozen being supplied by the cheap copyist. Does this really injure the photographer? Those who have these cheap things are tempted by the price. If they did not have them at that very much question if they would have them at all. In very few cases, we surmise, would they go to the photographer and pay the price he would want for them; they would simply do without them, and the photographer would be no worse off. The same may be said with regard to cheap enlargements. Some cutting firms are doing cheap enlargements, 15 by 12 or so, for five and sixpence, from any photographs. It is exceedingly annoying to photographers to see enlargements from their photographs, of a size for which they would possibly charge a guinea and a half, or two guineas, or more (of course, of better quality) done at this low price. Here, again, we may ask if the photographer suffers the material loss from this sort of thing that many imagine he does? The people who have these things have them because the price is so low and within their means. It must not be supposed that if they did not have them they would invariably go to the photographer and pay his price for the work.

Is There a Remedy?

Our correspondent at the conclusion of his letter asks, "Where is the remedy?" We regret that, so far as we can see, there is no practical way of combating this cutting competition in the profession. If photographers were a more united body than they are, they might combine and make a much higher charge on the initial order, so that it would carry a fair

profit, regardless of prospective ones. They could then supply duplicates at a lower price than they do. They would also then be in a better position to combat the cheap copyist. There is no question that if people could get duplicates from the original negatives they would prefer them, and pay something more for them than for the cheap copies. But we fear, as things at present exist, this idea is impracticable.

* * *

The Northern Photographic Exhibition. Tuesday evening saw the opening of the third Northern Photographic Exhibition by the Lord Mayor and Lady Mayoress of Leeds (Councillor and Mrs. Robert Armitage) in the City Art Gallery of that city. No effort appears to have been spared, and no stone left unturned by the executive to make the show a notable success, and it should be deserving of all the patronage that a city of 450,000 inhabitants can give it. That the show is likely to be handi-capped as a financial success when compared with last year's Northern Exhibition at Liverpool, will be apparent when it is taken into account that the city on the Mersey is admittedly one of the most picture-loving centres in the kingdom, while Leeds—to say the least—is not. The Liverpoolians felt quite justified in asking one shilling admission to their show, and the inhabitants and visitors came in their thousands and paid their shillings cheerfully. Knowledge of the people of Leeds and of the great falling off in the attendance at the spring exhibition of the Leeds City Art Gallery (when one of the chief reasons assigned for the diminution in art interest was "the abolition of music in the gallery on Wednesday afternoons") has induced the executive of the present exhibition to charge sixpence only for admission, and half-a-crown for a six weeks' season ticket, which admits the holder to the show any and every day, and includes admission to eighteen concerts and sixteen lectures. In view of the fact, therefore, that the Leeds Camera Club will have to bear expenses quite equal to those of the Liverpool Society next year, it must be conceded that they have undertaken their task with commendable pluck, and we hope that the good send-off the exhibition received on Tuesday from the Lord Mayor and Lady Mayoress will ensure for it all the success it merits. A report of the exhibition appears on another page.

PRINTING PROCESSES.—VI.

P.O.P.

PRINTING-OUT paper being in such universal use and the subject of such general knowledge and experience, it may be thought almost a work of supererogation to include it in a series of notes on current printing processes; its widespread adoption might be supposed to have exhausted what there is to say about it. Nevertheless, there are some points of practice which are less commonly known than they appear or deserve to be, and there are also some new formulæ for toning baths which will bear repeating. The following article, therefore, while not professing to treat of P.O.P. from first to last, emphasises certain points in the process which make for its perfect working.

P.O.P. differs from the papers which have been hitherto considered in that the sensitive salts are not formed *in situ*, but applied to the surface of the paper in the form of an emulsion. The raw paper itself is first coated with a hardened emulsion of barium sulphate, which gives a perfectly opaque surface, so that the image lies entirely on the surface. Both gelatine and collodion are used as the vehicle for the silver salts, but the two papers prac-

tically require the same treatment except in minor details to be referred to later.

The manufacture of the emulsions presents no difficulty, and formulæ for the same will be found in the "Almanac" for the last three or four years. But coating is a far more difficult matter, and the idea—entertained, we are sometimes surprised to find, by intelligent photographers—that there is economy in making the paper on a small scale at home is a fallacy to be consigned to the limbo of other impracticable schemes, which are not uncommon in photography.

The sensitive salts used are silver chloride, an organic salt of silver such as the citrate, tartrate, etc., and free silver nitrate. The paper is far more sensitive than albumenised paper, and greater care as regards light must be, therefore, exercised in handling it, or the paper may take a general tint, which may prove troublesome afterwards. The surface is more sensitive also to dirty or greasy fingers.

It is impossible to lay down any specific rule as to how far printing should be carried, for each commercial paper probably has certain peculiarities of its own, and some lose more in the high-lights than others in toning and fixing, whilst others again lose depths in the shadows. For it must not be supposed that all papers, because they are labelled "P.O.P.," are alike. Some will give a greater range of gradation, others more contrast, and yet others differ in the depth between each step of the scale. Still, with all papers it is possible to alter slightly the character of a print by using a strong or a weak light, and the old dodge of using coloured glass or tissue paper over the frame alters the scale of gradation considerably, in that either the silver chloride or the organic salt of silver is principally affected.

Another point which must not be overlooked is that even the same emulsion when coated as "glossy" or "matt" paper produces a slightly different effect even when printed under the same negative; but very little experience is required to learn the idiosyncrasies of each and every kind of paper.

Whilst it is not generally adopted, so far as we know, there is no doubt that the best plan of washing the prints prior to toning is to immerse them at once in a solution of common salt. The first effect of this is to convert all the soluble silver salts into insoluble chloride, so that there cannot be any possible staining due to the free silver. The second effect must be economy—that is, supposing residues are collected—for all the silver that is not used for the image is obtained in the fixing bath. The treatment with salt also entirely obviates the formation of black spots, which are caused by rust or metallic particles from the water supply coming in contact with the free silver nitrate. Hence we recommend the addition of a little carbonate of soda to the salt solution, so as to neutralise the free acid which is generally present in the emulsion as a preservative. If, however, the prints are well washed after the salt bath, so as to free them from the excess of salt, there is no necessity for the soda.

There is one point in connection with the use of collodion papers which possibly we should not omit to mention, although it is hardly so necessary now as in the old days. Frequently this paper when immersed in water rolls up into a tight quill. If a paper is met with which has this peculiarity, the defect can always be prevented by placing the print face up in a dry dish and pouring hot water on to it.

The toning bath most generally used is the sulphocyanide, which, however, is not the easiest to work. The two chief points to be observed are, first, not to use too great an excess of sulphocyanide, and secondly, and the

more important point of the two, to make sure that the bath is "ripe." A ripened bath contains aurous sulphocyanide, whilst a freshly-mixed bath contains the auric salt. This latter salt eats out the details of the print. There is no difficulty in making a ripe bath at once, and, taking the average formula as:—

Chloride of gold	1 gr.
Ammonium or potassium sulphocyanide..	10 gr.
Water	10 oz.

the correct way of mixing this is to use boiling water, or else boil the bath when mixed. The gold should be dissolved in half the water, and the sulphocyanide in the other half, and the gold added to the latter in small quantities at a time, with constant stirring. There should be no red precipitate nor reddish tinge if the bath is mixed in this way. Both these may occur if the sulphocyanide is added to the gold, for sulphocyanide of gold is an insoluble salt, soluble in excess of sulphocyanide, and the aurous sulphocyanide is colourless.

For those who desire to keep a stock sulphocyanide bath, which is convenient when large quantities of prints are to be toned, Buhler's formula may be adopted. It is as follows:—

1. Gold chloride	15 gr.
Strontium chloride	150 gr.
Distilled water	1½ oz.

Heat to nearly boiling point.

2. Potassium sulphocyanide	40 gr.
Distilled water	1½ oz.

Heat to nearly boiling point, and then add No. 1 solution in quantities of two drachms at a time, stirring continuously. When all the gold is added, add sufficient distilled water to make 30 dr. in all. Every 2 dr. of this stock solution will be equal to 1 gr. of chloride of gold. This bath keeps well in the dark, and is ready for use as soon as diluted.

There are three other formulæ, which are, we think, more satisfactory than the sulphocyanide. The first is the phosphate bath:—

Sodium phosphate	24 gr.
Gold chloride	1 gr.
Distilled water	20 oz.

This should be mixed just before use.

The second bath is the formate:—

Sodium formate	15 gr.
Sodium carbonate	2 gr.
Gold chloride	1 gr.
Distilled water	20 oz.

This also can be mixed just before use.

The following bath is to be preferred even to the two foregoing, because it can be kept as a stock solution, and there is absolutely no tendency to double toning:—

1. Thiocarbamide	30 gr.
Distilled water	3½ oz.
2. Gold chloride	15 gr.
Distilled water	4 oz.

When dissolved, add sufficient of No. 1 to redissolve the precipitate first formed; this will be about 2 oz. Then add:—

Citric acid	55 gr.
Common salt	2½ oz.

and enough distilled water to make 7½ fluid ounces in all. Every half-ounce of this solution will contain 1 gr. of chloride of gold.

There are two points in connection with toning which should always be most carefully observed. The first is always to use distilled water, and the second is, to allow a definite quantity of gold to a definite area of paper. With regard to the use of distilled water, we feel sure that more troubles are caused by the use of common tap water than is generally believed. The second point is even more important still if uniformity of tone is required. Light prints will require less gold than others, but a fair average is to allow 1½ gr. of gold to every 480 square inches of paper.

Assuming that the prints have been treated with salt as already advised, and then well-washed, the quantity of toning bath containing the requisite proportion of gold should be measured out, and if necessary distilled water added to give a convenient bulk of solution. It is advisable not to attempt to tone too many prints at once, the number will depend to some extent on their size, but ten or a dozen is ample. They should all be immersed in the bath at once, and careful workers will see that the temperature of the bath is about 65 degrees Fahr. The prints then should be turned over and over till they have assumed the desired colour, which is usually judged by looking through, not at, them.

After toning, the prints may be thrown into a dish of clean water, or a solution of salt and water, and then washed. This is considered quite unnecessary by some printers, but we always advise it, and after the thiocarbamide and formate baths it is absolutely essential.

The fixing bath should always be rendered alkaline, either by the addition of a little ammonia or carbonate of soda, so that a typical formula is:—

Hypo	3 oz.
Strong liquor ammonia	1 dr.
Water	20 oz.

In this bath the prints should be left for fifteen minutes and continually moved about, so as to ensure perfect fixation. As much care should be exercised over fixing as over toning.

The combined toning and fixing bath has fallen into disfavour, not on account of its defects, but because of the careless way in which it was used; but provided the bath is not acid, and the prints are properly fixed, there is no reason why this bath should not be used. It is obviously useless to ensure neutrality or alkalinity of the bath and afterwards immerse acid prints therein; therefore we advise immersion of prints—to be afterwards treated in the combined bath—in the above-mentioned salt bath, to which some carbonate of soda has been added.

A neutral bath can be ensured by using the following formula:—

Gold chloride	2 gr.
Lead nitrate or acetate.....	10 gr.
Hypo	5 oz.
Chalk	¼ oz.
Water to	20 oz.

Another excellent formula without lead is:—

Gold chloride	2 gr.
Sodium tungstate or acetate	60 gr.
Ammonium sulphocyanide	100 gr.
Hypo	5 oz.
Water to	20 oz.

It will be noted that the proportion of hypo in the above baths is large; this is to ensure perfect fixation. If this takes place, and the prints are thoroughly washed afterwards, there is no reason to fear fading.

In our next article we shall consider platinum toning and the production of various tones on F.O.P.

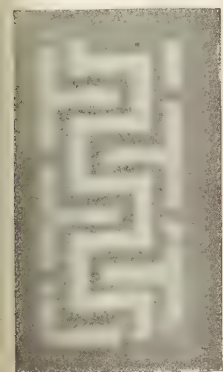
SENDING PHOTOGRAPHS BY TELEGRAPH.

SOME problems there are which, in spite of many difficulties and failures, continue to exert their charm on a host of would-be inventors. Calling, as they do for the highest training and appreciation of the underlying principles, they can only be grappled with successfully by a very few. One of the most tempting but elusive of these problems is the transmission by electrical means of images, either direct from the focussing screen of a camera or from pictures or photographs. In the popular mind this result seems to be as feasible of accomplishment as the transmission of sound by the same ubiquitous agent (electricity); but the technical difficulties of the task are very great indeed.

Numerous are the patents which have been taken out for apparatus of this description, but the very basis which is common to all of them, and which, unfortunately, is the only possible starting-point at present, enforces limitation of the severest description upon its possibilities, and at once rules out, at least, at present, the transmission of direct images, especially of objects in motion.

The Principle of Electrical Transmission of Pictures.

To transmit an image electrically, we have to translate the various gradations of light and colour into gradations of electric energy, and, at the receiving end, these variations in the intensity or pressure of the incoming electric current have to be converted back into variations of light intensity, or colour.



Figs. 1 and 2. Reproductions of transmitted pictures by Dr. Korn in 1902 and 1904 respectively. The portrait is that of Dr. Korn, and was transmitted 2,200 metres.

As may be expected from the close relationship, if not to say, identity, between electricity and light, there are many reversible phenomena of inter-action which might furnish the starting-point of a practical method of light transmission, such as the phenomena of electro-magnetic rotation of the plane of polarisation and the various photo-electric effects, but so far only the modification produced by light on the resistance of selenium and a few other substances has been practically utilised in such apparatus.*

Partial Solution of the Problem.

Of early attempts to transmit line drawings, and even half-tones, which have been more or less successful, we may mention

Bakewell's copying telegraph (1847), the pantelegraph of Caselli (1856), Easton's and Amstutz's bichromate relief methods, Greville Williams's electro-chemical telegraph, and, lastly, Professor Korn's autotelegraph; but, in so far as in all these cases the original was either a hand-prepared line-drawing in special non-conducting ink on a conducting surface, or a reproduction in half-tone of an original negative, and was reproduced (with the exception of Korn's apparatus) by purely electro-chemical means, these attempts do not, strictly speaking, represent photo-electric transmission, and it is therefore incorrect to state (as does a photographic contemporary) that the difference between Bakewell's and Korn's system is a matter of detail only.

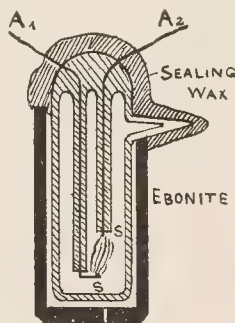


Fig. 3.

Professor Korn's apparatus, though necessarily still imperfect and capable of simplification, certainly marks an important step forward in the evolution of the problem under consideration, and even in its present form may be assigned a distinct commercial value. To reproduce an original film direct as a negative or as a positive transparency at will over a distance of some 500 miles or so within twenty minutes can barely be characterised as a laboratory experiment, and will suggest many important applications, social and technical.

The Korn System.

To turn to Professor Korn's method, we may say that his present apparatus is an elaboration of the method, published by the same worker in February, 1902, and it may not be out of place to shortly recapitulate the essential features of the system. The original film is wrapped round a glass cylinder, which rotates, and at the same time slides along its axis in the manner of a phonograph mandril. A suitable sensitive selenium cell, fixed stationary inside the cylinder, receives its illumination from a source of light placed externally, the rays of which, in a narrow bundle, traverse the film, and therefore impinge upon the selenium cell in greater or smaller intensity according to the opacity of that portion of the positive transparency or film negative just then passing the light. These variations of light affect the resistance of the selenium cell, and so alter the current flowing from a suitable battery through the cell to line and the distant receiver. Broadly speaking, the receiver only constitutes Professor Korn's claim to novelty. He found that the luminous discharge produced in modified Geissler tubes of a certain degree of exhaustion, whilst very highly actinic, shows comparatively

* To those who are more particularly interested in this question we would recommend Liesegang's "Beiträge zum Problem des Elektrischen Fernsehens" (Düsseldorf 1899).

great variations of intensity when slight alterations occur in the current feeding these tubes.

How the Picture is Received.

With this in mind, the Korn receiver is easily understood; the varying current coming from the sending station affects a galvanometer of the "moving coil" type, imparting to its "armature" a slight rotation, and therefore altering the distance between a prolongation point of it and a fixed point. If we now produce by well-known electrical methods a so-called "Tesla," or high-potential, high-frequency, current, and lead this current through a small Geissler tube and the above-mentioned gap between the two points to earth, then the discharge in the tube (and with it the actinic value of the light) becomes the more powerful, the smaller the variable distance between the two points, and vice-versa. The tube being enclosed (save for a small aperture) and suspended close to a cylindrical sensitive film revolving in perfect synchronism with the sending film, it follows that the photographic action upon this film varies exactly with the opacity of the original, and an accurate replica of the original must result on development of film.

I had an opportunity of inspecting the apparatus at this stage in 1902, and a short reference, as well as some criticism, was published in the July issue of the "Photogram" of that year. Since that time Professor Korn has greatly modified the details of his apparatus whilst retaining the guiding principle.

Steps in Advance.

The improvements which Professor Korn has lately introduced are all directed:—

1. To insuring the absolute synchronism of sender and receiver.
2. To increasing the working speed of the receiver, and
3. To diminishing the size of the integral portions, out of which the reproduction is eventually composed.

In the early forms of apparatus these small portions consisted of squares of 4m/m, and the appearance of the reproduction was, of course, of a pronounced mosaic character; now the little squares are but a $\frac{1}{4}$ m/m. in size.

Many of the most essential features of the apparatus are of purely electrical interest, and, however important, cannot be described here; but a short description of some of the leading portions of the machine, as now constructed, will be acceptable.

The synchronism of the two rotating cylinders is secured by the comparatively simple device of stopping the receiver-cylinder once during each revolution, and releasing it again by means of an electric impulse from the sending station. This prevents any difference in speed between the two stations from becoming cumulative, and, since the stoppage takes place at such a period of the revolution, when no portion of the sensitive film passes the Geissler tube, it will not affect the ultimate image. For this purpose the sensitive film is taken somewhat smaller than the circumference of the receiving-cylinder, so that then, when laid round the latter, a certain gap between the two edges of the film is left. Both cylinders are rotated by shunt-wound electro-motors, marked respectively 6 and 1 in Figures 5 and 6*, and the identity of the speeds of both motors is secured by so-called frequency-indicators, shown at 1 in Figure 5.* The motors are geared to the spindles of the two respective cylinders, so that for the transmission of the photographs each cylinder rotates about once in twelve seconds. The sending-cylinder (4), as shown in Figure 5, is made of glass, and, suspended inside it, may be seen the selenium cell (3), which is usually of the well-known flat type, consisting of two fine conducting wires wound in close proximity to each other on a slate or porcelain slab, and bridged over by a fine film of selenium. The light from a 100-candle-power Nernst lamp (5) is concentrated by a lens (2), so that the rays meet in more or less a point on the surface of the glass cylinder, round which the original positive (size 13 by 18 c/m.) is wrapped, the rays afterwards spreading out again inside the cylinder, and impinging upon the selenium cell. Of course this whole arrangement of cylinder and cell is protected from ordinary light by a suitable box. In the latest form of sending-apparatus the transmitting cylinder, however, is arranged vertically, and the selenium cell itself is fixed at the bottom of the cylinder, the light being reflected down upon it by means of a mirror, placed inside the cylinder itself. This selenium cell having a high resistance, even when illuminated, requires a comparatively powerful battery, and since uniformity of current is essential, it is usual to employ a battery of accumulators as the source of current.

A. W. ISENTHAL.

*These figures, with the conclusion of Mr. Isenthal's article, will appear next week.—EdsB. J.P.

THE WEEK IN HISTORY.

The Death of Daguerre.

I IMAGINE that the little town of Bry, on the Marne, presented an aspect, fifty-four years ago, little different to that which it wears to-day. There were no electric cars and no statue in the market-place to "Daguerre, artiste, peintre, chimiste, inventeur de la photographie." But the old château was there, and probably also the curious tangle of courts and alleys which make Bry a profitable haunt for the photographer. Madame sits out in the sunshiny street to-day just as she did, no doubt, on the morning (July 10) Daguerre was suddenly taken by the rupture of a blood vessel of the heart, from which he died within the hour. During his retirement at Bry, the inventor of the "Daguerreotype" received many visitors, chiefly photographers, from all parts of the world. One of the last to thus seek him in his picturesque home was Charles Meade, the daguerreotypist, of New York, by whom the last and most familiar portrait of Daguerre—that in which he holds his

hand to his ear—was taken. I mention this point, because the portrait in question is often attributed to Mayall.

Platinum in the Platinotype Developer.

I have chronicled the first and last patents by which the platinotype process was protected. Between them is another taken out by Mr. Willis on July 12, 1878, almost exactly five years after the first specification was left with the Patent Office. This second step in the process was marked by the employment of a salt of platinum in the developer as well as in the paper. Lead chloride was also a constituent of the coating mixture, but in the last patent of 1880 this ingredient was dispensed with, and the proportion of platinum on the paper increased to such an amount as to dispose of its presence in the developer.

Daguerre's Panorama in England.

I am indebted to Mr. A. F. Mowll, F.R.P.S., of Liverpool, who has forwarded to the Editors a copy of the "Liverpool Mercury"

of April 22, 1825, in which is advertised the Diorama of Daguerre, then being exhibited on the banks of the Mersey. The advertisement is interesting:—

THE PUBLIC are respectfully informed that the DIORAMA in BOLD STREET, is now open, with the View of TRINITY CHAPEL, in CANTERBURY CATHEDRAL.

This splendid Picture, originally exhibited in Paris, and afterwards in the Regent's Park, London, is the first of a series now executing by Messieurs Bouton and Daguerre, and which, after being presented to public view in those two Capitals, will be exhibited successively in this Town.

These two Artists have recently had the honour of being created Members of the Legion of Honour by the King of France, in testimony of his Majesty's admiration of their extraordinary

talents; but their great claim to a high and lasting reputation rests on the surprising merit of these magnificent performances, which they have entitled the Diorama, and of which they are the Inventors.

The Picture to which the attention of the Liverpool Public is now invited, is their first attempt in this new line of painting; but it has been pronounced by the best judges, both in France and England, to be as unrivalled in its execution as a work of art, as it is unprecedented in its character of an ingenious invention.

Admission, Two shillings—Children, under twelve years of age, Half Price.—Perpetual Admission Tickets (not transferable) during the Exhibition of this Picture, 7s. 6d.

Open from Ten till Dusk.

HISTORICS.

THE OPTICAL CONVENTION.

The following is the report of the discussion, following Lord Rayleigh's paper, on the "Polishing of Glass Surfaces," printed in our issue of June 23. Its appearance has been delayed by the necessity of revising the shorthand notes from which the text, printed

below, has been prepared. Our record of the proceedings of the Convention bearing on photography will be complete when we have given the discussion of Mr. W. Rosenhain's paper on "Possible Directions of Progress in Optical Glass;" and this we hope to do in our next issue.

THE POLISHING OF GLASS SURFACES.

Discussion of Lord Rayleigh's Paper read before the Optical Convention.

Mr. Rosenhain had listened with extreme interest to the remarks of Lord Rayleigh. He had already read in abstract Lord Rayleigh's lecture on the subject of polish, and since then, and since reading the work of Mr. Beilby, had been engaged in a number of experiments in the matter. In every way the observations that he had been able to make bore out the views which Lord Rayleigh had put forward, with one exception. He was not at all satisfied that there was no filling up of holes in the case of glass. In the case of metals, even of hard metals such as chilled steel, there was always this filling up, and in the case of glass there was some evidence to show that there was a surface flow under the polishing. He did not believe that particles of glass are removed from one place, transported to another place, and joined on again, but there was transference of the glass, a sort of smear along the surface in the direction of the polishing. A piece of glass that had been polished in what would be, for practical purposes, an unsatisfactory way was adopted for this experiment. It was polished in one direction only by rubbing in one particular direction, and when the polish was as nearly perfect as possible, such a piece of glass was attacked by hydrofluoric acid, using the precautions described by Lord Rayleigh, and there was undoubtedly microscopic symptoms of striation in the direction of polish which could not be traced before the etching. That was evidence of the same character as that found by Beilby, Osmond, and others, that in the case of metals surface-flow does take place. If the analogy were carried further, on the strength of this evidence, it would be fair to believe that the surface layer of glass goes to a depth considerably greater than Lord Rayleigh had suggested. In the case of metals, the depth was very appreciable. Mr. Rosenhain's observations had convinced him that it was greater than Mr. Beilby had supposed. He had been able to show recently that the surface smear was thick enough to be perfectly opaque. He had had occasion to polish sections of metal where there were two metals differing in colour and in hardness adjacent to one another, and one metal was smeared over the surface of the other in polishing. The more soluble was removed by an etching reagent, and patches of the smear of metal—in this case iron—were plainly visible on the surface of the other metal. There was absolutely no difference in the colour of the smeared portion superposed on the differently coloured metal from the colour of the polished and etched surface of the solid metal, from which he concluded there could be no appreciable amount of light coming through and back again. Consequently, he thought that the difference in hardness between iron and glass was not so very great. Hard steel was certainly harder than some of the softer glasses. There was every reason to believe that when the polishing action took place there was a distinct change of structure to finite depth. The polishing effect was not quite the same when you use a polished glass surface and a fire-polished surface, the polarisation effect being more uniform when you use the fire-polished surface than when you use the mechanically-polished surface. After all, it is only a question of the degree of perfection attainable. On the theory of Beilby and Osmond, there was no doubt that a rearrangement of the surface layer of the metal takes place in a very similar manner to what would take place if the surface was a fluid behaving under the

action of surface tension forces. This was a very slight modification of Lord Rayleigh's theory, and perhaps could not be accepted without a great deal of further inquiry. Further inquiry was needed, and the lines of it were fairly evident. Mr. Rosenhain considered, also, that there was some evidence to show that in the case of a polishing agent there was an action in which the polishing agent itself played a considerable part. He considered that there was some dependence between the nature of the surface produced and the chemical nature of the agent used as a polishing medium, though it was possible to modify the keeping qualities, the chemical stability of the surface, by adopting the proper polishing medium for the glass in question. He thought it might be impossible to show analytically that there was some actual layer of chemically different matter on the surface, but there was no doubt that, by modifying the conditions, the polishing medium could be polished at the expense of the glass or metal. He had certainly frequently seen that where the conditions of moisture, pressure, temperature became different from what they normally were, the surface of the glass, instead of becoming further polished, became actually roughened, and instead of a smooth surface being produced on the glass, it is produced on the layer of polish underneath. He believed there was a special trade name for that particular kind of mishap. It merely emphasised the point of view that there was some action, a chemical or atomic action, between the polishing medium and the substance polished, and for that reason it might be possible to alter the chemical behaviour of the surface, after polishing, by the use of a suitable polishing medium. Rouge and the other mediums generally used were not the only polishing media, and, he thought, not always the best that could be used for the purpose. Lechatelier has shown the use of alumina precipitated in a particular manner, and the oxides of various earths will act in an efficient manner as polishing agents. Some of them, however, which appear, apparently, to be every bit as fine and free from grit, have actually negligible polishing qualities, while some act very effectively, although from their appearance they would not seem likely to do so.

With regard to the slide Lord Rayleigh showed of the action of hydrofluoric acid, it was particularly interesting as explaining a process well known in the glass industry—the polishing of cut-flute glass. The glass was ground very finely on the wheel, and the polish was obtained simply by immersing the whole article in an etching solution of hydrofluoric acid and some saline substance; probably the composition of the bath was very much a rule of thumb. The glass went in matt and came out polished. He would certainly examine this glass under the microscope to see if it behaved in the same way.

Mr. Horace Beck had been extremely interested in hearing the paper by Lord Rayleigh, as he had been much interested in the subject of polishing in their optical works. The burnishing of surfaces undoubtedly appeared to occur in some cases. If the surface was not sufficiently smooth, if there were pits left in the glass in the first case, and then it was polished by a workman who put great energy and pressure into the work, you could get an effect in which the surface appears to be practically continuous, but underneath that surface was a comparatively large pit which seemed to fill in at the

top and was polished almost to the centre. The only way he could account for this was that the glass to a certain extent goes over the edge of the hole in the way Mr. Rosenhain had suggested. With regard to the question of how soon we can get a reflection from the gray surface by means of rapid polishing, he had frequently noticed in getting ready a lens that had been extremely finely smoothed, by simply wiping it over with rag it was quite sufficient to show the colours distinctly against another glass. The depth of the glass taken off must be quite of the amount which Lord Rayleigh mentioned, if not more. As to the polishing very slightly, there was a well-known trick which people try in a polishing shop. He had had workmen who had assured him that they had polished work fully, but when they really wanted work to be completely polished they could not keep good figure. That was in the old method of polishing. In modern methods, where one tested continually against the proof glass, the question of polishing the surface right up did not matter, because if there were a departure from figure it could be readily put right, but by the old empirical method, if it once got away it was very difficult to get back again. Messrs. Beck frequently use the method of slightly polishing the lenses when in doubt as to what the results would be. In a telescope object-glass, of which the calculations were doubtful, it was only sufficiently polished to permit of testing. It was astonishing how much light one can get through in this way with extremely little polishing—far less polish than Lord Rayleigh had on those he experimented with.

Mr. Beck had gone into the question of polishing unequal surfaces some time ago with the idea of making glasses to act like the so-called Japanese mirrors; he wanted to get a glass that would throw a pattern, and found that by very little faking one could cover over portions of the glass for a short time during polishing with a very thin material, and polish on and get no difference apparently on the surface of the glass, but the reflection would show the figure plainly.

There was no doubt that a different class of polish could be obtained by using different materials. The workshop men always considered that you got much more of a burnished surface if tripoli were used, than with a material like rouge or putty powder. There was also no doubt that a surface slowly polished seemed to be more perfect than a surface polished much more quickly. With regard to the question of the materials working into the surface of the glass and polishing over, this continually happened, and it was necessary to clean up with acetic acid to get it out. Acetic acid would very largely bring it out, and this was scarcely likely to affect the surface of the glass seriously, so that the amount of glass affected must be very small.

Mr. F. Tywman referred to the strain which occurred when a polished surface was made gray. In the case of a very thin piece of glass-gray on two faces, and polished on two ends, there would be a strain, and if the glass were 2 mm. thick the strain could be seen near each surface. If one surface were polished the strain would disappear and the glass bow up; on polishing the other face the strain entirely disappears, and the plate becomes parallel.

The Chairman (the Earl of Rosse), in proposing a vote of thanks to Lord Rayleigh for his paper, said that as another amateur polisher of glass and metals he had often found it very difficult to make a polished surface, or a surface he considered satisfactory, but which would not be looked at at all if it came out of an optician's shop. The difficulty was to get rid of scratches. He could understand that in a workshop, where one room was devoted to one particular process, and one workman works one thing and does not work another and is not going about amongst emery and sand, there is a much better chance of getting a good surface. His experience coincided with that of Lord Rayleigh, that the surface that does not look good to the eye is far better than one with a perfect polish, but not absolutely correct otherwise. In polishing flats he had found some with a good many scratches, but which when tested at night in the telescope gave very good definition. One of the objections appeared to be not so much loss of light as a sort of diffusion of light. If one wanted to look for a small white object like a star, the more light there was in the field the more difficult it was to see that small object. That might be partly due to the atmosphere and partly due to the defects of the surface. In working with metallic surfaces we were always under the disadvantage that a very good surface after a very short time begins to tarnish, and show a good deal of diffused light. When one worked with a mirror night after night in various kinds of weather, in a short time the surface became bad, and was never the same until it was re-polished.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on the 3rd inst., Sir James Crichton-Browne, M.D., F.R.S., in the chair. The special thanks of the members were returned to Sir Andrew Noble, K.C.B., F.R.S., for his donation of £100 to the fund for the promotion of experimental research at low temperatures; and to Mr. Rollo Appleyard for his gift of a portrait of the late Professor J. D. Everett, F.R.S., M.R.I.

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issott, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge de Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Saint-Esprit, Liège.

August 7.—Andover. Hon. Secretary, W. I. Gradidge, Jubilee House, Andover.

August 24 to September 21.—Berwick-upon-Tweed Arts Club. Hon. Secretary Pictorial Photography Section, H. Hancock, 38, Ravensdowne, Berwick-upon-Tweed.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14. 15. 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern Amateur Photographic Association.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sarjeant, 55, The Drive, Hove.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern Photographic Association, Hon. secretary, William H. Frame, 28, Bank Street, Hillhead, Glasgow.

FORTHCOMING COMPETITIONS.

July 15.—Warwick. Money prizes for members of photographic societies for pictures taken on Warwick Dry Plates. Warwick Dry Plate Company, Warwick.

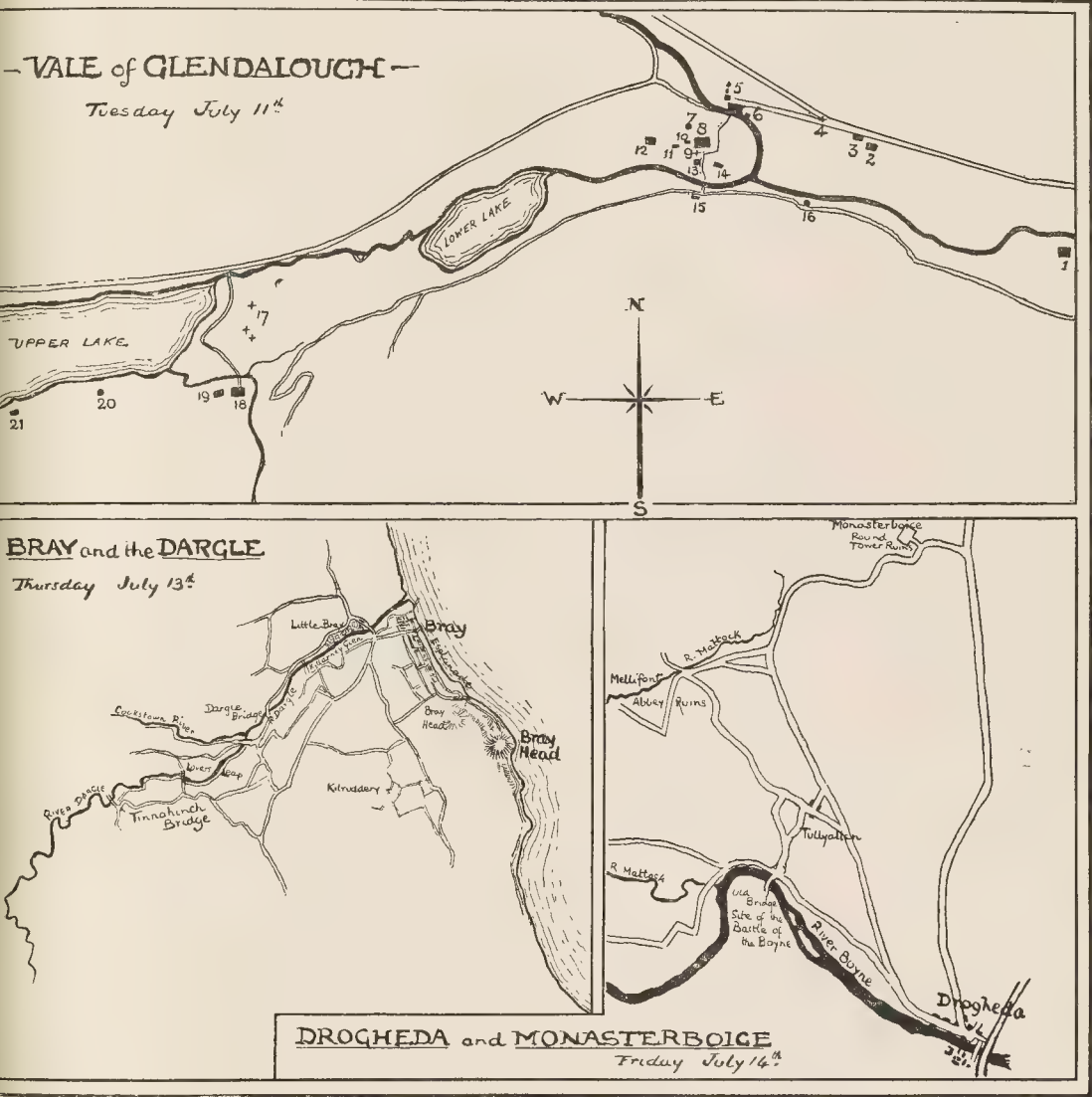
September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

HURMAN, LTD., of 3, Victoria Square, Birmingham, inform us that they have purchased in its entirety the photographic business as carried on by Messrs. Philip Harris and Co., Ltd., Edmund Street, Birmingham, which business they propose transacting at their Birmingham house (Victoria Square) where they hold a complete stock of photographic apparatus and requisites, adopt up-to-date methods, and devote the whole of their attentions to photographic goods.

MANY Norfolk chemists (according to the "Chemist and Druggist") are finding picture postcards a valuable sideline, especially during the summer months, when the visitors flock to the Royal county.



THE PHOTOGRAPHIC CONVENTION.

DUBLIN MEETING, JULY 10 TO 15.

THE above maps are drawn up as an indication of the subjects for the camera to be found on the three chief excursions from Dublin.

Glendalough (Tuesday).—

Priory of St. Saviour.	12 Our Lady's Church.
Trinity Church.	13 St. Kevin's Kitchen
Site of Cloigtheach.	14 Site of St. Kieran's Church.
Stone Cross.	15 The Deer Stone.
Site of Market Cross	16 St. Kevin's Well.
Hotel	17 Stone Crosses
Cloigtheach (Round Tower).	18 Hotel.
Cathedral	19 Reefert Church.
Stone Cross.	20 St. Kevin's Bed.
St. Kevin's Yew Tree	21 Teniplenaskellig, or Dysartkevin.
The Priests' Church.	

Bray and the Dargle (Thursday).—It is impracticable to point out particular subjects. After Kilruddery (the seat of the Earl of Meath), the interest centres in the rocky glen, two and a half miles in length, through which the Dargle rushes, and from which occasional glimpses of mountain and vale are obtained.

Drogheda and Monasterboice (Friday).—

Monasterboice.—Tower, Three Crosses, Tombstones.

Boyne.—Obelisk, Site of Battle, Boats.

Drogheda.—Viaduct with Shipping, Magdalen Steeple, St. Lawrence Gate, St. Mary's Abbey, Maiden Tower.

THE ILFORD £750 COMPETITION.

THE following are the names of the prize-winners in all three classes of the recent Ilford prize competition. They are arranged in alphabetical order, as given by the Ilford Company.

Names of competitors who did not wish their names announced are omitted.

Competitors to whom extra prizes were awarded are included in the list.

We understand many prints were disqualified because the conditions were not complied with.

George Adamson, T. Aitken, Amateur Phot. Int. Soc. Ltd., H. Amon, Charles B. Anderson, R. Anderson, I. Angerhofer, A. W. Andrée, Captain R. Apostoli, S. C. Archer, Mrs. L. A. Armer, F. R. Armytage, W. Arkless, J. C. Asten, F. F. Austin, C. R. Avari, Frank Baker, Miss L. Baker, William Baker, Herbert Bairstow, A. Bakoulina, G. R. Ballance, C. G. Barker, T. S. Barker, Miss Olive Barnard, Mrs. G. A. Barton, Miss E. B. Basset, J. R. Batey, W. L. Beal, J. C. Beisly, F. H. Bell, A. E. Berg, A. M. Beschliaga, T. Best, W. E. Billington, Graystone Bird, Miss M. D. Bird, A. K. Blake, John T. Blackshaw, M. Blagowestschensky, Miss Blearsbach, James Blyth, W. T. Brass, W. Bratherton, J. Briggs, George Brown, Charles Burbury, Mortimer Burgess, R. Burnie, William Cadby, Sparham Camp, A. J. Campbell, C. P. Casstine, D. Cathcart, J. K. Cawsey, James Challiner, Ormond E. Challis, W. Chalmers, A. K. Chatterjee, T. Cheetham, F. G. Chetwynd-Palmer, R. Chika, H. B. Chinta, T. Clampit, H. Clark, Mrs. B. Clarke, Benjamin Clarke, Harry Clarke, Sergeant G. H. Cleaves, F. Cecil Cobb, Miss Constance Collier, Miss B. L. Collins, F. H. Collins, Rowland B. Cooke, A. W. Cooper, F. J. Cripps, Harry Cross, W. J. Culling, junior, P. H. Cundall, W. Cunningham, H. A. Curlton, A. W. Davis, F. Daw, G. Dawson, F. Day, Captain A. D'Azevedo e Silva, Ferdinand De La Bastide, B. Decker, J. A. De Jong, H. Dempster, Miss M. De Sauvayre, Ernest M. Dickens, C. A. W. Duffield, Dan Dunlop, Albert Durn, Miss Daisy Durn, Mrs. M. Preston Durn, F. W. Dyer, F. C. Eagle, David Eastwood, Josef Edelbauer, Miss A. Edmonds-Tozer, J. Goronway Edwards, M. M. Eglad, Oscar Ellquist, A. R. F. Evershed, Miss Ida Fairbairn, J. Fallow, Georges Favre, Miss Winifred Fink, Mrs. J. Finn, T. D. Folkes, R. M. Fortune, Charles Foster, A. Fox, John Fredriksson, Frederick Fry, Fujiwara, H. A. Game, J. P. Gangooley, A. B. Gardiner, Robert Gardner, F. Garland, A. W. Gelston, G. N. Gilbert, V. S. Godfery, Felipe Gonzales, W. Gordon, Ronald Graham, J. Green, J. H. Greenidge, junior, E. Griffiths, C. Grimaldi, W. Gundry, junior, J. F. G. Gunn, Rev. William Gunn, George Hadley, H. C. Hadley, A. H. Hall, W. T. Hall, Oscar Halldin, Miss Janet Hamilton, A. H. Hamm, A. Hands, H. W. Harmsworth, P. Harris, H. A. Biscoe Harrison, Miss Phillis Ivy Harrison, T. J. Hartnett, Miss Laura Harvey, H. A. Hatou, H. Hawkins, Albert Haynes, John Haywood, G. W. Heron, H. Hill, J. Noel Hill, J. G. Hobkirk, S. W. Hodge, Alfred Holding, R. Holliday, junior, Mrs. Frank Holmes, Miss Mabel Holmes, C. A. Hoppé, J. Hummel, J. H. Hummel, H. Hunt, Miss Jean M. Hutchinson, Harry Inkpen, S. Ishizu, B. Leslie Jackson, E. W. Jackson, B. A. Jadhao Bros., and Co., R. Janion, Carl Janson, J. F. Johnson, T. W. Johnson, G. E. Jones, Harold Jones, G. B. Kalelkar, Lewis L. Kellsey, Walter Kilbey, S. G. Kimber, Mrs. R. M. King, R. N. King, J. Knowles, Michael Kourbanoff, Georg Koxoold, Adolph Krch, H. Kuijk, S. Kutajima, Gilbert Laffair, Miss Lambert, W. Lambert, A. E. Lane, George A. Laver, G. C. Laws, H. C. Leat, Auguste Lefranc, W. F. Leicester, Claude Le Vaux, Alfred E. Lewis, W. H. Lindsay, H. Light, A. J. Linford, T. G. Lofting, Louis C. Login, M. N. Lohmann, Miss Elsie Long, Alfred J. Loughton, A. Lundström, T. Lürcher, A. E. Lovell, C. E. Lyon, Miss J. M. McGee, F. E. Mackay, R. P. McKean, D. F. Mackenzie, S. Macpherson, I. Makarius, John Makin, H. T. Malby,

Louis Mallitte, James Malynn, Miss Mansfield, Mrs. Manson, Ernest Marriage, Trevor G. Marsden, Charles Marshall, Robert Marshall, J. O. Mba, Miss L. G. Meachen, W. N. Melville, Alexandre Michailoff, G. J. P. Millar, junior, J. P. Millar, H. Mills, R. T. Mitchell, W. Mitchison, junior, S. C. Mitra, A. P. Monger, P. W. Morris, William Mortimer, F. G. Mudge, S. N. Mukerjee, Miss R. Murgrove, John D. Murray, S. H. Mytton, S. Nagao, Nande and Co. W. V. Nene, F. Niblett, G. B. Nichols, J. P. Nicol, J. M. Nisbett, Norischkine, D. Northall-Laurie, W. Northwood, Mrs. C. O'Connor, Miss Caroline Ofor, Miss G. von Ohlendorff, K. Okuda, Hugh S. Olive, G. Oneto, S. Onishi, J. T. Orloff, Harold Owen, Oscar Owens, W. Page, Cecil Palmer, C. Papé, Vishwanath Parkhe, F. Parkinson, H. S. Parsons, J. Patrick, Miss Clara M. Patterson, E. J. Peacock, B. J. N. Pershad, E. Phillips, Gordon Phillips, Miss H. Phillips, Harold Pickering, J. S. Pigg, O. Pike, Koloman Pinter, Clarence Ponting, C. W. Poulton, M. Y. Prentice, Miss May Preston, F. G. Price, H. S. Prince, A. Propsting, Arthur Prosser, Miss Kate Pulford, E. S. Purkis, H. S. Quekett, O. C. Quekett, R. Quintino, A. Ramsay, S. H. Ravenscroft, W. Reid, H. Rendell, A. Richmond, F. G. Ridge, J. T. Roberts, N. B. Roberts, P. C. Roberts, Miss Katie Robinson, Sydney W. Robinson, Miss Elsie Ross, W. Rouse, A. H. Rudge, Nigel King Salter, J. H. Saunders, C. R. Scanlan, J. Scott, Charles Scull, A. W. Searley, Miss Maud Shelley, F. E. Shipway, A. A'Court Simmonds, A. J. Slovinsky, Arthur Smith, Edwin Smith, junior, E. M. Smith, Stanley Smith, W. Smith, W. J. Smith, T. R. Somersford, C. Spence, H. G. H. Spencer, J. C. Stacey, Mrs. M. R. Staddon, R. W. Stafford, Thomas Steel, C. Stephenson, L. B. Stephens, Miss Hilda Stevenson, Victor Stouffs, T. H. Stoward, J. Ayton Symington, J. A. Talbot, Tamura, T. Tanimoto, Mrs. Tapscott, William Tasker, E. D. Taylor, J. A. Taylor, H. Thompson, W. Thompson, S. H. Tinker, Miss A. Tomlinson, Miss E. Tomlinson, Ishiyama Toyo, C. W. Traish, James Trevor, George H. Tricker, Z. Tsuji, J. G. Turnbull, Charles Turner, H. Tyler, R. F. Tyler, Cyril Ramsey Unger, V. M. Vesselago, Isaac Waddle, Benjamin Walker, C. E. Wallace, R. C. Wallant, Miss A. M. Walters, C. Walton, Rev. J. H. Walton, J. C. Warburg, Arthur W. Ward, C. Weaver, Mrs. J. Welford, A. E. Westead, W. V. Westlake, H. Weston, A. Wertscoff, J. W. Whaley, F. H. Wham, R. Wilkinson, J. Williams, Mr. and Mrs. J. Williams, J. Wilmore, H. Everard Winter, H. Winterton, Colmar Wocke, Miss K. M. Worrall, S. A. Wright, M. Yamamoto, S. Yamamoto, K. Yasaka, B. A. Zdvornitsky.

An exhibition of photographs selected from the work of the prize-winners in the competition will open to-morrow (Saturday), July 8, at The Modern Gallery, 61, New Bond Street, W., and remain open daily (Sunday excepted) from 10 a.m. to 6 p.m. until Friday, July 14, at 6 p.m. Admission free.

THE British Glass Industry.—It is rumoured in the "Pall Mall Gazette" that a five years' arrangement has been negotiated between the glass manufacturers of Belgium and those of Great Britain, whereby it has been agreed that Belgian firms shall not send into this country or the colonies rolled plate glass, rolled cathedral glass, or Muranese tinted and embossed glass, except to the order of British manufacturers, who include Messrs. Pilkington Brothers, Ltd., St. Helens; Messrs. Chance Brothers and Co., Birmingham; and the Glasgow Plate Glass Company. The effect of such an agreement would be that the English glass trade would be practically protected. Apart from any change of fiscal policy, prices would be increased by from a farthing to a penny per foot, keen rivalry between the British and foreign producers of these particular kinds of glass would be avoided, and the home market would be entirely controlled by the firms named. Development is also expected in the sheet glass trade.

Exhibition.

THE NORTHERN PHOTOGRAPHIC EXHIBITION.

THE third of the series of annual exhibitions organised by the Liverpool Amateur Photographic Association, The Leeds Camera Club, and the Manchester Amateur Photographic Society, was inaugurated on Tuesday last at the City Art Gallery, Leeds, with a conversation and reception given by the Right Hon. the Lord Mayor and Lady Mayoress of that city.

The original idea of the scheme to hold a northern photographic exhibition alternating between the three cities of Manchester, Liverpool, and Leeds, appears to have found its inception at Leeds among certain members of the Camera Club, and although steps were taken some years ago for a co-operative show on similar lines, nothing came of it until the matter assumed its present shape in the exhibition at Manchester in 1903.

The Liverpool version of the Northern Photographic Exhibition proved an undoubted success, and the Leeds Camera Club, coming next in order, is, in the present show, doing its best to excel its predecessor, and there seems every reason to expect that such will be the case. If hard work on the part of the executive, perfect organisation, and unity of interest, count for anything, the Manchester Society will find it an exceedingly difficult task next year to go one better than the exhibition now open at Leeds.

It is not quite clear, however, just what measure of support is given to the Society holding one of these exhibitions by the other two.

The entries from members of the other two societies would probably materialise in any case; and beyond the fact that each society in turn is responsible for a "Northern Exhibition" in its respective centre and follows the general rules and regulations laid down for the conduct of the shows by delegates from all three—which rules being very similar in form to those of many other provincial exhibitions—there appears to be at present no material advantage accruing from co-operation.

Each society appears to be entirely responsible for the internal organisation of its own particular exhibition, and all financial matters relating to each show are also entirely local. In other words, each exhibition is a purely local effort—certainly far reaching—but dependent and succeeding on its own merits and by the efforts of its own officers. The principal virtue of the alliance appears to lie in the negative support given by two societies to a third by keeping aloof while that society is in travail with its exhibition, and by not holding other exhibitions at the same time to detract from its strength.

Of course, the fact that the work and risk attached to running these exhibitions on the present ambitious scale happen but once in three years for each society, is a consideration, and there is the additional fact that clashing of dates consequent on an annual exhibition being held by all three is avoided; but it seems to us that the organisation as a whole would be on a sounder basis if the financial interests of the annual show were shared equally by the three societies. There is as much likelihood of a "slump" in photographic exhibitions as in anything else; and the society that "strikes a bad year" under the present conditions will probably find itself in an awkward position, considering the extensive outlay involved before the doors are opened to the public.

The active co-operation of the societies federated to the Yorkshire Photographic Union has, therefore, probably been of more service to the Leeds edition of this Northern Exhibition than the moral support extended by Liverpool and Manchester. Delegates from no less than twenty-three of the federated societies participated in the preliminaries of the show, and many valuable suggestions were forth-

coming, and since acted upon. In addition to this, these societies showed their appreciation of the work undertaken by the Leeds Club in actively advertising the exhibition extensively in their own districts at their own expense. In fact, with support such as this, and a hon. secretary with a gift for hard work and organisation such as Mr. F. G. Issott possesses, it will be no fault of the Leeds Camera Club if the third Northern Exhibition is not an unqualified success.

It remains to be seen, however, how the conditions which now govern the exhibitions will have affected the three participating societies after the first round is completed.

The Leeds Camera Club is in the position of being one of two large photographic associations in the same city, and the other (The Leeds Photographic Society) is probably the oldest organisation of its kind in the world; and although recrimination has been rife in the past, it is satisfactory to note that the hatchet has been buried for the nonce, and the present exhibition will at least have been instrumental in cementing the friendship of these two influential organisations.

The show is undoubtedly a great triumph for the Leeds men, and there is very little to cavil at in any direction. The general effect of the exhibition as a whole is good, and should go far to impress the visitor unused to displays of monochromatic pictures with the strides photography has made in late years.

The galleries are lofty and extremely well lit. The selection of pictures is good, and they are hung with no little effect.

The executive have done their work well in the decoration of the galleries, the original chocolate coloured walls of which have been covered to the height of seven or eight feet with a neutral green-coloured arras cloth and then surmounted by a broad white frieze and moulding. The effect is very cool and restful; and the other decorations are in the same good taste.

In the north room the collection of pictorial photographs exhibited at the St. Louis Exhibition is on view. This collection has been transferred to Leeds intact, with very few exceptions, and is now exhibited in England through the co-operation of the Royal Commission. The frames show considerable signs of wear and tear after their two voyages across the Atlantic, but we understand that they have been hung in as nearly as possible the same manner and disposition as they appeared at St. Louis, and, as the prefatory note in the catalogue states, "The chief idea of the presentation of the St. Louis pictures at Leeds has been to give the public in this country an opportunity of seeing the works by which the photography of Great Britain was represented in the recent World's Fair." The collection certainly embraces a variety of work of different styles, but whether it can be regarded as fully substantiating the claim to be representative of British photography at its best is another matter.

In the competitive section for pictorial photographs, hung in the South Room, there are 321 pictures on view. We learn that the entries numbered nearly one thousand, and although every picture passed before the judges the Selection and Hanging Committee had to make a rigorous excerpction to maintain the high standard set for the show.

A general inspection of the exhibits discloses the fact that many well-known pictures are again on exhibition, and that the amount of new work is not very great. A larger number of pictures in pigment processes appear than is usual at the average provincial exhibition, and landscape and portrait work are in the majority. The judges were Messrs. Reginald Craigie, Douglas English, B.A., A. Horsley Hinton, and Edwin Tindall, R.B.A., and there does not appear to be much amiss with the awards, although it is a poor exhibition, wherein it is not possible to find many other pictures that are equally deserving of the special distinction accorded to the prize winners, yet in the present show the Selection Committee

have done their work well, and the general average of the works hung is of a sufficiently high standard to have given the judges considerable trouble in arriving at their decision. Eight bronze plaques were placed at the disposal of the judges in the pictorial section, and two in the scientific and technical section. As, however, only one award was made in the latter, the pictorial section benefited to the extent of an extra award, and, as will be seen from the award list, two plaques have been awarded to the same exhibitor. We have on a previous occasion discussed the policy of withholding the exhibitors' names from the judges, as appears to have been done in this case, and can only reiterate that if an exhibition committee has not sufficient faith in the integrity and open-mindedness of the judges to place every particular concerning the pictures at their disposal, other judges should be selected. Of course, in the present case it may be that there were no printed lists or catalogues ready in time.

The award that is likely to arouse most comment and form a bone of contention for the critical is No. 295, "Mists of the Morning," by Jas. C. Batkin. This picture, which is a river scene with boats and a steam tug, is ostensibly a multiple tinted gum print. In effect it resembles an extremely weak and poor quality bromide print that has been "helped" by washes of pale tints of blue and pink, picked out with patches of Chinese white. Whatever it is, the handwork is very conspicuous, and although the tinting is not overdone, the result is merely "pretty," and it is very doubtful whether the end achieved in manufacturing this pictorial "photograph" was altogether worth the labour evidently spent upon its production. It is not good photography, and it is very questionable art. Two other pictures by Mr. Batkin are on view, and both are much finer examples of photographic work than the print securing the award. No. 399, "A Dutch Canal," is a very fine little picture indeed, full of light and atmosphere, and, although a gum print, is clean in treatment and with not too much evidence of handwork.

John H. Anderson is the exhibitor previously mentioned to whom two awards have been made. No. 251, "A Harbour, Low Tide," is another gum print of good quality, but somewhat heavy in treatment for its size. It is hung rather high, and is consequently rather difficult to see and appreciate. No. 529, "On the Banks of the Lea," is a decorative little study of rows of straight trees. The foreground is a trifle incomprehensible, but the picture is distinctly pleasing.

It is noteworthy that nearly all the awards have been made to fairly small pictures, and the tendency has been to accept them on their face value without reference to the means of production. No doubt the judges thought—and rightly—that the onus of selection or rejection fell upon the Selection Committee, and their function was simply to judge what was put before them. The influence of the artist-judge (Mr. Tindall) is therefore very apparent in the awards, and although the "pictorial-effect-by-any-means" exhibitor scores heavily in consequence, the effect on the photographic technician must be distinctly discouraging. The award to Daniel M. Filshill will probably be very popular. The picture securing it is entitled "Eventide," and is dramatic in effect. A woodland scene with the setting sun streaming through the naked branches make a very striking study of luminous shadows.

J. M. Whitehead secures an award for his delightful little landscape, "Solitude," which amply demonstrates how a picture can be secured by straightforward photography from extremely simple material. "The Banks of the Somme," by Mr. W. M. Coultas, is a fine open landscape treated in a broad sketchy manner, and is well deserving of its award, and a "Portrait Study," by Dan Dunlop, is also a notable exhibit. It is a fine head study of an old man, but is somewhat marred by the frame being too light, and the figure seems too crowded in the space at disposal.

"The Spate," by A. C. Milne, is another medalled picture that is likely to be popular. It gives a marvellous effect of the rushing river tumbling through the arches of a bridge. The idea of motion is excellent and the composition is noteworthy. No. 530, "The Tiffany Glass," is likely to arouse comment. It is by Enid T. Brailsford, and depicts a little girl seated on the floor and regarding a brilliant glass ornament. The picture is very low in tone, and the only bright spot is the object in the child's hand. Two of the most striking pictures in the show are by the president, Charles B. Howdill, A.R.I.B.A. They are also the largest. One is entitled "Finishing the Plaque," and represents Mr. Caldwell Spence, a well-known Leeds artist, at work putting the finishing touches to the large decorative plaque that forms the award in the exhibition. As a composition it is not so good as Mr. Howdill's other picture, "The Modeller," depicting the same artist at work on a small clay figure.

It is impossible, in the space at our disposal, to give a detailed account of exhibits, although the works of a few can well be named for outstanding merit. Herbert Bairstow, Mrs. G. A. Barton, Arthur Marshall, A. Dawson Berry, Graystone Bird, Robert Bourke, W. Foster Brigham, T. F. Brogden, Thomas Carter, W. A. Clarke, S. L. Coulthurst, W. Crooke, J. H. Gash, W. T. Greatbatch, C. F. Inston, F. G. Issott, F. Judge, Adolph Langflier, Hector E. Murchison, David Murray, Arthur Peck, William Rawlings, Francis Rust, Hilda Stevenson, W. H. Stewart, W. Thomas, and C. E. Walmsley are responsible for noteworthy pictures, and there are many others.

In Section B., technical and scientific photographs, only one award was made. This falls to Arthur C. Banfield for his well-known series of photographs depicting "The Life History of a Splash," and are probably as good as anything of the kind possibly can be. This section includes the only tri-colour print in the exhibition, and, considering a special award was set aside for tri-colour work, and a section reserved, it is somewhat disappointing to find such an insignificant response.

This section contains some excellent photographs of natural-history subjects, and the works of W. Morley Martin, E. Seymour, O. G. Pike, Walter Bagshaw, Jasper Atkinson, and John Moore are conspicuous.

In the West Room is an interesting collection of photographic work by members of the Cape Town (South Africa) Photographic Society. No less than thirty examples of pictorial photography were sent over from the colony, and, although all of it is not up to exhibition standard, it shows that the South African photographers are going ahead and will soon be a power to reckon with.

There is a good number of entries in the Lantern Slide Section, and two plaques are awarded for pictorial slides, and two for scientific and technical work. W. H. Goy takes one of the first for a set of landscape subjects, and H. Wormleighton takes the other for an architectural set of high quality.

P. P. Wilding scores in the scientific section for a set of clever photomicrographs, and Godfrey Bingley for a set of geological slides.

A beautiful set of tri-colour slides by Miss Acland are on view with the other slides, but they arrived too late for cataloguing.

The trade exhibitors in the Staircase Hall include Messrs. Reynolds and Branson, Ltd., 14, Commercial Street, Leeds, who show "Rystos" electric and gas dark-room lamps, "Rystos" stand developing trough, "Rystos" portable developers, etc., etc.; Zeiss, Ross, and Goerz lenses; Sanderson, Dallmeyer, Watson, and other well-known makes of cameras; portable book illustration copying apparatus. Messrs. John J. Griffin and Sons, Ltd., 20 and 26, Sardinia Street, London, W.C., who have a wall display of portrait work made on Griffin's bromide paper (A1 snow-white rough surface). The Autotype Co., 74, New Oxford Street, London, W.C., show some fine "Autotype" enlargements from amateurs' negatives. The Paget Prize Plate Co.,

d., Watford, exhibit prints on "Paget" self-toning glossy; prints "Paget" prize P.O.P.; prints on "Paget" self-toning finished platinum; prints on "Paget" Gravura (gaslight) paper, matt; "Paget" prize post cards, S.T. matt, glossy, Gravura, P.O.P.; "Paget" S.T. matt, washed and fixed only; prints on "Paget" bromide paper; and prints on "Paget" toned bromide paper.

In the West Room, Thomas Illingworth and Co., Ltd., Willesden, London, N.W., have a stand in which they exhibit and demonstrate "Zigo" gelatino-chloride self-toning paper; "Illingworth" bromide paper; examples of different grades, smooth, rough, enamel, etc., etc.; carbon enlargements on "Illingworth" carbon tissue and the Gravure tissue.

Other stands are occupied by Taylor's Drug Co., Ltd., Leeds, London, and Bradford, who exhibit "Klito" cameras of 1905 pattern; and cameras of Sanderson make; roll-film developing tank; Messrs. Taylor's special solutions and chemicals, etc. Messrs. Pearson and Wham, 21, New Station Street, Leeds, who exhibit "The Loidis" hand and hand cameras; the "Kalee" Reflex, with focal-plane shutter; the "Sanderson" hand and stand cameras; and cameras and lenses by all the best-known makers. The Bayer Co., Ltd., Manchester and Bradford, who exhibit special "Edinol" developer for papers; "Edinol-Aristo" developer; acetone-sulphite; Bayer's flash-powder; Bayer's gum (powder); three gaslight papers, viz., St. Luke's, and Pan; Bayer's bromide paper; and "Aristo" paper. W. K. Upwith, 112, Albion Street, Leeds, who exhibit Sanderson Teak and angular cameras, Tudors, Klitos, Holborns, Victors, Busch cameras, and many other novelties.

In this room the wall displays are by the "Manchester Guardian" Printing Works (Taylor, Garnett, Evans, and Co., Ltd.), Blackfriars Street, Manchester, who exhibit specimens of photo retouching for process blocks; specimens of half-tone printing, three-colour block printing, and commercial photography. James Bacon and Sons, 38, Commercial Street, Leeds, who exhibit pastel portraits, miniatures, and gum-bichromate work; and C. R. H. Pickard, 5, Park Lane, Leeds, who exhibit enlargements in bromide and carbon, architectural photographs, technical and commercial photography, designs catalogues, etc.

Some interesting exhibits are shown in cases in the South Room. They include specimens of Daguerreotype apparatus, Hislop's camera taking microphotographs (1852), old waxed paper negatives, calotype negatives, silver prints on plain salted paper and on albumenised paper (1850 to 1853). Examples of early photographic work (1850-1860), by the late G. F. Robinson, of Newcastle-on-Tyne (a worker under one of the original Daguerre licences). Paper negatives by the calotype process, and prints in albumen, including negatives and prints of the great fire in Newcastle (1854).

Special mention must be made of the fine Exhibition Catalogue, which must have been a matter of considerable labour for the secretaries and the chairman, who, we understand, were responsible for its production. It is a bulky book, admirably and artistically printed and embellished with thirty excellent full-page reproductions of the pictures on exhibition, in addition to numerous marginal line sketches. The frontispiece is an admirable photogravure from one of Mr. Thomas Taylor's gum prints, "Rain on the Hills," and an excellent three-colour reproduction of Turner's "Fighting Temeraire," by André and G. Ltd., of Bushey, Herts, is also included.

It is due to the untiring efforts of the executive council, who have worked hard to ensure success, and they are to be congratulated for having secured an hon. secretary of such ability and enthusiasm as Mr. F. G. Issott.

Lectures and lectures will be given at frequent intervals during the weeks the Exhibition is open, and the only thing that remains to be done to make it a complete success is a liberal patronage by the public of

Leeds and district, compelling the council to provide a number of the guinea pictures that are to be given to every 1,000th visitor to the show.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

THE following applications for patents were made between June 19 and 24.

CINEMATOGRAPHY.—No. 12,613. Improvement in cinematograph apparatus. Charles Urban, 48, Rupert Street, London.

EXPOSURE REGISTER.—No. 12,815. A shutter exposure register for cameras. John Berstall, 37, West Nile Street, Glasgow.

PIGMENT PRINTING.—No. 12,867. Pigment printing process. Emil Bühler, 1, Queen Victoria Street, London.

CAMERAS.—No. 12,878. Improvements in photographic cameras. George Andrews, 24, Southampton Buildings, Chancery Lane, London.

DEVELOPING.—No. 12,951. Improvements in photographic developing apparatus. Thomas Gower Bergin, 37, Chancery Lane, London.

PRINTING PROCESS.—No. 13,032. Improvements in printing and developing photographs on silver chloride paper. Herbert John Mallabar, 6, Lord Street, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

WASHING PLATES AND FILMS.—No. 16,851, 1904. The apparatus, to be used both for washing and drying, consists of two frames (a), made up of upright bars (b), hinged together at their upper ends by hinges (d) of any suitable kind, and horizontal or transverse bars (c). When the dryer is in the position of use, the two frames are moved apart about their hinges (d), with their lower ends resting on the table or other surface; and they are kept apart at the required angle by link hooks (e), hinged at (e'), at one end, to one of the frames (a), with their others or hook ends fitting over pins (f), or into eyes or the like, on the other frame. If the hook links (e) be unfastened, the two frames (a) can be folded flat upon one another, and in that condition be put away, packed, or carried, and will occupy little space. With regard to the construction of the supporting part on the upper edges of the cross bars (c), in that shown in figures 2 and 3, it consists of perforated metal bars (h), let into and fixed in the cross bars (c), and splayed out upwardly and outwardly, in opposite directions or inclinations; and the lower edges of the negatives, etc., to be dried, rest on these bars (h) slightly above the bottom of the angle where the two bars (h) come together and touch. The water or moisture, which, when the negatives are placed on the bars (h), flows or creeps down to their lower edges, can, in the first place, drain away through the openwork plates, and secondly, the air can get full and free access to these lower edges, and will absorb the moisture and carry it off, so that these lower edges of the negative will rapidly dry, i.e., in less time than is occupied when drying by apparatus as commonly employed. The dryer is constructed to hold two sets or tiers of negatives, etc., in each frame (a), namely, one on the lower bar (c), and another on the upper bar (c), and they are supported at a point above these bars by the metal or other cross bars (i),

fixed in the bars (b). It will be obvious, however, that the frames may be constructed to hold only single sets, or two or more sets, and these parts can be made of any suitable material or materials. William Lawrence Parkinson, 3A, Imperial Chambers, 62, Dale Street, Liverpool.

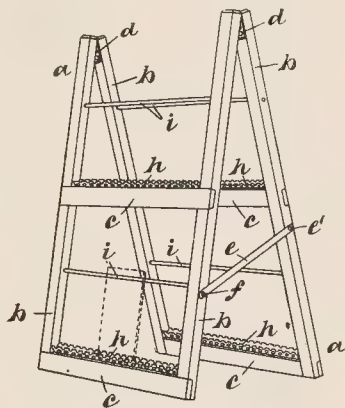
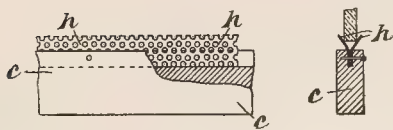


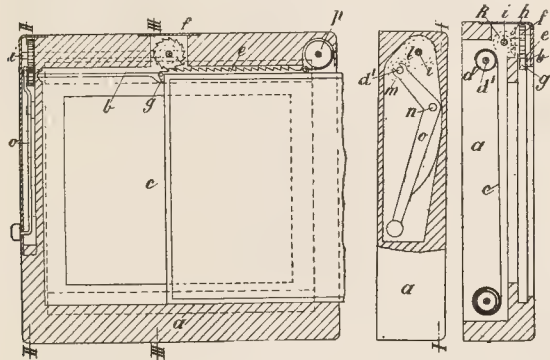
Fig. 1.



Figs. 2 and 3.

AUTOMATIC SETTING OF ROLLER-BLIND SHUTTER.—No. 3,162, 1905.

The shutter is set by the act of inserting the dark slide into the camera back. As the dark slide enters it first lifts a rack (e), thereby bringing the same into gear with a toothed wheel (f). By completely pushing home the dark slide the latter impinges against a lug (g) and carries the toothed rack (e) along with it so that the wheel (f) is rotated, and by means



Figs. 1, 2, and 3.

of the shaft (i) similar motion is imparted to the roller (d) (fig. 3) of the shutter (c) in the required direction for setting the latter. When the dark slide is completely home, the shutter (e) is fully set and ready for the exposure. The operation or release of the shutter to expose the plate is effected by a two-armed lever (o) (fig. 2) pivoted at (n) and arranged to act in such

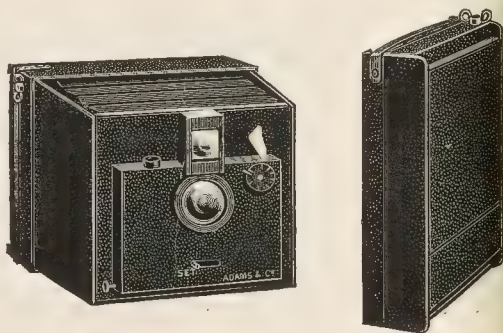
a manner as to disengage the toothed wheel (m) from the toothed wheel (l) when moved by hand in one direction, thereby releasing the shutter. The arm (o) is returned to its initial position by suitable means such as a spring. The rack (e) is returned to its initial position by a spring when the dark slide is withdrawn from the camera. Adolph Richard Lange (of Emil Wünsche Aktiengesellschaft für Photographische Industrie, Reick, Dresden), 50, Dresdner Strasse, Laubegast, Dresden, Germany.

BORDER NEGATIVES.—No. 1,286, 1905. The claim is for an ornamental border negative having an opening which is covered by an exchangeable panel or sheet, on which is a transparent inscription on an opaque ground. When a sensitive paper is exposed to the light through the negative, a photograph will be produced of the ornamental border design and at the same time of the exchangeable printed matter, or of any other subject, that may appear in transparent lines on the exchangeable strip or sheet. Hugo Kuntzen, 92-96, Bishopsgate Street Without, London.

New Apparatus, &c.

The "Idento" Camera. Made by Adams and Co., 26, Charing Cross Road, London, W.C.

The desire of the amateur photographer to possess a hand camera that combines all the movements and adjustments usually associated with the field camera, and yet at the same time sufficiently small and compact to be carried in the coat pocket, is the problem that has for many years been the aim of the camera designer and maker.



to meet. So far the attainment of compactness and portability have been at the sacrifice of some important feature. In the new camera Adams and Co. have now introduced under the name of the "Idento," the acme of portability appears to have been achieved without sacrificing any one essential that goes to make a really high class and reliable instrument, capable of being employed not only as a hand camera, but in a more extensive field of operations. It is claimed, and the claim seems to be fully substantiated, that the "Idento" is the smallest complete folding or pocket quarter-plate camera ever designed.

One of the most striking of the new features introduced in this camera is the new type of finder—the Identoscope. When using the Identoscope finder, the identical view can be seen as it appears upon the plate, at all times, even when the rising fronts are used, either horizontally or vertically. It can thus be seen to what

quired extent the rising front need be used. A satisfactory and viceable rising front upon a hand camera loses its principal value, less the user is able to see what picture he is getting upon his plate. This feature will, therefore, be appreciated by every hand camera worker.

Each camera will take, without any alteration or addition whatever, either a changing box, double dark slides, daylight loading holder, or Premo daylight loading film pack adapter. Thus any number of plates, flat, or rollable films, may be carried and used, and at the same time it may be used as a stand camera, and objects focussed in the ordinary manner upon the ground glass focussing screen, which is fitted with a folding hood, protecting the focussing screen from light all round it. The instrument has vertical and horizontal rise and a level for horizontal and vertical pictures. The camera focusses from various close distances to infinity by a novel rack and pinion arrangement which ensures great exactness. The shutter gives exposures from $\frac{1}{2}$ sec. to 1-100th sec., also time exposures. It opens and closes to the centre, without vibration, and is fitted with a protector. When the camera opens it is as fixed and rigid as a box camera, and can be most conveniently held and manipulated. When closed, the camera is particularly small and neat. The lens is completely protected and does not protrude. The Identoscope holder is also self-contained inside the camera.

A plate can always be carried in position, ready to receive an exposure. The camera can be opened and closed very quickly. It focusses out to its infinity distance, therefore is at once ready for ordinary work, without the trouble of adjusting the focus. It is roughly well made, best workmanship and materials being employed, and is beautifully finished and covered in morocco black leather.

The complete camera body, together with lens, shutter, Identoscope, finder, and carrying handle only measures, when closed, $1\frac{1}{2}$ in. thick, $5\frac{1}{2}$ in. long, and 4 in. wide, and weighs about 20 oz.

The price, including a 5 in. Ross Homocentric Lens, is £15, or if ordered with order £12 12s., which cannot be considered excessive if the workmanship and personal attention that has been bestowed on this camera is considered.

A SERIES of showcards for photographers' establishments is a new one with Messrs. H. and W. Green, Crown Photo Works, Rotherham. The cards are olive green, with the lettering clearly blocked in silver, and cost only 1s. for three, post free. The following mottoes are obtainable:—Deposit to be paid at time of Sitting; Children's Portraits a Speciality; Picture Frames made to order; Enlargements in any Style; Best Style and Finish Guaranteed; Gem Midgets, 6d. per dozen; Victoria Midgets, 1s. per dozen; Any Photograph Copied and Enlarged; Portraits taken Day or Night; Wedding and other Groups Photographed.

RACING with Postcards.—A postcard race round the world has just been organised in Paris, as a practical test of the utmost that can be achieved in the way of speed. The "Globe" states that 100 postcards were put into the post on Saturday last by as many different competitors, and their dispatch was duly registered. They were addressed to as many prearranged correspondents in all parts of America and of the Far East, and are travelling some by Marseilles, some by Cherbourg, and some by Southampton. On reaching their destination, the cards will be readdressed and reposted for Paris. The competitor receiving his card back first wins the prize. M. de Laffitte has organised the competition.

FIRE broke out one day last week at a photographic studio in Mottramley Street, Manchester Road, Bradford, occupied by Mr. J. Brown, soap maker. A portion of the studio was burned down, and a camera was destroyed.

News and Notes.

A SUGGESTION of interest to all Londoners has just been put forward in a pamphlet by F. W. Speaight, photographer, of 157, New Bond Street, London. It is the formation of a semi-circular space, 360 ft. diameter, immediately behind the Marble Arch, on land at present enclosed by the park railings. If this were done, all the traffic to and from Paddington, via Park Lane and the Edgware Road, would be able to take a direct line by passing at the back of the Arch, instead of the front. It would also allow the traffic leaving the park to branch off to the right or left of the crescent without having to come first in front of the Arch, as at present, and the acute congestion of traffic at the Arch would therefore be relieved. In addition to this, the Arch would stand out boldly by itself in the middle of the crescent, occupying a position somewhat similar to that of the Arc de Triomphe in Paris, and certainly not inferior to those occupied by any of the triumphal arches in France, Italy, or Greece. Further, the alteration would make a dignified finish to a grand processional road, which would start with Sir Aston Webb's beautifully designed Trafalgar Square entrance to the Mall, along that splendid thoroughfare to the Victoria Memorial, Constitution Hill, and the Wellington Arch, and then through Hyde Park to its finish at the Marble Arch. Mr. Speaight suggests that the screen which separates the crescent from the park should be given an international character, and should commemorate the efforts made towards international peace by King Edward VII. The circular announces that Mr. Speaight will feel honoured by being allowed to guarantee 500 gs. towards the scheme. The large drawings and plans reproduced in the pamphlet can be seen at the galleries, 157, New Bond Street, London, W.

PHOTOGRAPHY and Gambling.—A camera played an important part in an elaborately planned raid on 400 gamblers which the police carried out on the Humber bank, near Grimsby. For many years the Humber foreshore (according to a "Daily Chronicle" correspondent) has been the resort of large numbers of men and youths, who spend their Sundays in playing games of chance. Determined to check the evil, the borough and dock police forces co-operated on Sunday last, and under Inspector Moore made a great raid. Early in the morning a large force of plain-clothes officers concealed themselves along the railway sidings beneath the river banks, and in a convenient hollow along the shore. There they lay hidden until ten o'clock, by which time quite 400 men and youths were spread in groups along the shore, playing various games. A plain-clothes constable, armed with a camera, walked innocently amongst the players, snapping the different groups, who, unsuspecting his purpose, subjected him to a good deal of chaff. When he had used all his plates, a police whistle sounded, and constables descended upon the astonished gamblers from all quarters. The players ran off in every direction, but over 100 were captured. Many fled to the mud-flats left by the tide, but a group of officers sat upon the bank, and calmly waited until the fugitives, tired of their damp and dirty retreat, limped ashore and surrendered. They will be summoned, and the constable's photographs used in evidence against them.

HOUGHTONS' Annual Outing.—The head office of Houghtons, Ltd., of 88-9, High Holborn, and the optical branch at 95, Hatton Garden, were closed on Saturday, June 24, for their annual athletic sports. The meeting was held at Broxbourne, on the banks of the River Lea, and in the lovely old grounds of the Crown Hotel about 200 of the clerical and warehouse staff spent a really enjoyable day at the firm's invitation. A special train left Liverpool Street at 9.29, and the programme was commenced at eleven o'clock sharp. The events

before lunch included 100 yards sprint in four heats, a thread-needle race, a mile walk, egg-and-spoon race, quarter and half mile races, and a ladies' tug-of-war. Then came the all-important lunch, at which Mr. Edgar W. Houghton presided. The Chairman took an opportunity of making a brief but interesting speech, in which he pointed out to the staff to what a great extent the success of a business like theirs depended on the co-operation of all workers in the company, from the highest to the lowest. Telegrams were read from Mr. George Houghton, senior, who was unavoidably absent, from Mr. Fred. Isaacs, who was away on his honeymoon, from the Vice-Chairman, and from the Glasgow branch of the firm. Mr. W. Edwards replied to the Chairman's speech, and the "Ensign whisper" was given with a heartiness that startled the neighbourhood. After lunch the sports were resumed with a sack race, three-legged race, 200 yards race for married men, ladies' backward race, and tug-of-war between teams selected from the warehouse and the office. This last event resulted in a win for the office. Subsequently the prizes were presented to the winners by Mrs. W. Edwards, groups were taken, and then the company sat down to tea. The long June evening was spent on the river, and the return train to town left at nine o'clock. The weather was perfect, and a more enjoyable staff outing could not have been imagined.

BICHROMATE Poisoning.—An inquest was held at Oldham recently relative to the death of Kate Barton, who died from poisoning by bichromate of potash. A doctor stated the deceased told him she had taken three pieces of the bichromate, some of which she gave him. He added that he had never known an instance where bichromate of potash had been used as poison before. One-fifth of a grain was enough to kill her, and she must have taken about 36 or 40 grains.

BERWICK-UPON-TWEED Arts Club.—The second exhibition of painting, sculpture, architecture, and pictorial photography, under the auspices of the above club, will be held in the Artillery Hall, Berwick-upon-Tweed, from August 24 to September 21. Particulars and entry forms may be obtained from H. Hancocks, 38, Ravensdowne, Berwick-upon-Tweed, hon. secretary to the exhibition committee.

The latest list of the Aldis Anastigmat lenses reaches us from Aldis Bros., Old Grange Road, Sparkhill, Birmingham, and contains, we find, a good deal of useful information which is not an invariable constituent of lens-makers' catalogues. For instance, there is a table of dimensions of the Aldis Anastigmats, in which the outside diameter of flange, the total length of mount and diameter of hood, with also the distance from face of lens-board to screen when camera is set for distant objects are all conveniently set forth, and the data should be of service to those purchasing a lens to fit a particular camera. The list, which is sent post free, contains a number of half-tones from excellent photographs taken with the lenses.

THE "Zigo" competition.—Messrs. Illingworth have asked us to draw attention to rule 4 in the printed regulations, etc., of the forthcoming competition for prints on "Zigo" paper. This rule should now read:—"All unsuccessful prints will be returned, provided the senders enclose stamps for return postage."

The award list of the International Exhibition at Genoa is to hand. The six highest awards (gold medals) have been made to: Guido Rey, Torino; Alfred Orrano, Genoa; Alexander Keighley, Keighley; T. O. Hofmeister, Hamburg; C. Puyo, Paris; and F. J. Mortimer, London.

The Agricultural Show at Armagh, held 28th and 29th ult., was very well attended, and proved a great success. The awards in the photographic section were made to Misses Haslett (Portraits), J. B. Anderson (Landscape), Hugh Cochrane (Any other subject), D. W. Elliott, T. Bryans (Focal plane work).

COPIES of the illustrated booklets published for the town council of Rhyl, Malvern, Bexhill, and Southend, which, in view of the approaching holiday season may interest our readers, will be sent free if a postcard request is sent to the respective town clerks.

SOUTHAMPTON CAMERA CLUB.—The committee of the above has for their summer programme relied this year upon their own members very largely, and with excellent results. At the fortnightly meeting held on Monday, the 3rd inst., Mr. C. C. Cook read a most interesting paper upon "Photographic Dodges."

A FIRE broke out last week on the premises of Mr. Edwards, photographer, of Free Street, Brecon. A large quantity of photographic apparatus, photographs, and household articles were destroyed, the damage being estimated at about £200. Mr. Edwards, who is not insured, unfortunately loses about half of this sum.

Commercial & Legal Intelligence

CHARGE of Fraud.—In Edinburgh Police Court on Friday last evidence was led before Bailie Dobie against Henry Archibald Spencer, photographer, 72, Princes Street, in connection with a charge of fraud. The charge was that on certain dates and at certain places he received from persons sums of money by false and fraudulent representation by pretending that photographs would be supplied for the money, he, it was alleged, not having intended to supply, and not having supplied, the photographs, whereby the persons were defrauded. Bailie Dobie, delivering judgment, said he had thought over the case carefully, and he felt the method of conducting the business had been so peculiar that he was not surprised that suspicion was aroused among those who had paid the money for photographs, and repeated promises of delivery of pictures—not fulfilled until recently, and in some cases not yet—bordered on what was almost direct misrepresentation, but he could not say that it had been proved that there was any intention of not delivering the photographs. He accordingly dismissed the complaint as not proven.

FAILURE of an Aberdare Photographer.—A meeting of the creditors of James Wildsmith Fyfe, photographer, carrying on business at 27, Cardiff Street, Aberdare, and residing at 37, Herbert Street in the same town, was held on Wednesday of last week at Merthyr. The debtor's statement of affairs showed:—Gross liabilities, £61 3s. 2d.; liabilities to rank for dividend, £143 15s. 6d.; net assets available for distribution, £54 4s. 1d.; deficiency, £89 11s. 5d. The following were the causes to which the debtor attributed his failure:—Losses sustained whilst trading as "The Welsh Fine Art Company" in partnership with another; having to leave his premises at Merthyr on the expiration of his lease; and bad trade.

At the Bromley Petty Sessions on Monday, Kenneth Martin and Malcolm Martin, brothers, the former described as a photographer giving an address at 9, Raglan Road, Bromley, were charged on remand with being concerned together in procuring charitable contributions by means of false and fraudulent pretences. Each prisoner was sentenced to one month's hard labour.

IMPROPER Photographs.—Chas. Flook, 27, and Thos. Evans 20, labourers, of South Woolwich, were charged with selling improper photographs at High Street, East Ham. The pictures sold to two detectives were shocking, and the prisoners said they were hard up and wanted to earn a crust. The detectives bought two of them and prisoners then went further down the street and accosted other passers-by. Prisoners now pleaded that they were out of work. Flook adding that his wife was very ill in bed, and he was forced to do this through poverty. One month each.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
.....	Grickwood Photo. Society.....	Outing to Hatfield.
.....	South London Photo. Society.....	Trip to Penshurst for Chiddingstone.
.....	Hull Photographic Society.....	Outing to Hadison Hall
and 1	Everton Camera Club.....	Evening Outing to Kirkby Mill.
.....	Wallasey Amat. Photo. Soc.....	Members' Evening.
.....	Royal Photographic Society.....	Ordinary Meeting. Nomination and Election of Members only.
.....	Manchester Amat. Photo. Soc.	Outing to Llangollen.
.....	Hull Photographic Society.....	Outing to North Cave.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

MEETING of the General Committee was held at 51, Baker Street, W., on Friday, June 30. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, Wm. Grove, H. E. Hull, M. Jacobette, A. Mackie, Prodder, E. Scamell, and R. Fellows Willson. In the absence of the President, Mr. Alfred Ellis, Past President, in the chair. The rools of the assistants' certificates were examined, and passed after modifications.

Skeleton proofs of the "Circular" were passed round, and a discussion took place upon matters connected with its production. Several matters which cannot be reported were brought forward, and in order that the business ordinarily brought before the committee may not be impeded during the summer recess, when no committee meetings are held, the following members were appointed to act in cases requiring the decision of the committee: Messrs. Alfred Ellis, Ernest C. Elliott, William Grove, and Alexander Mackie.

THE Blackburn and District Photographic Society's new rooms at 41, Cross Street, were formally opened this week by Mr. A. Gow, B.A., Sec., Director of Education, and principal of the Blackburn Technical School. There is a well-lighted assembly-room on the first floor and a dark-room on the next floor. The former room was hung with an interesting collection of members' prints, including one or two London and provincial prize photographs.

LEITH AMATEUR PHOTOGRAPHIC ASSOCIATION has presented Mr. Murdoch Campbell with a marble clock on the occasion of his marriage. Mr. Campbell has been connected with the Association in an official capacity since its institution in 1888, and for the last eleven years has acted as hon. treasurer.

DUNEDIN PHOTOGRAPHIC SOCIETY.—The last meeting was the annual meeting of the society, and was held on April 13, when a fair number of members turned up. The president chosen for the year is Mr. W. W. Fenn; vice-presidents, Messrs. E. E. Stark and W. E. Allen; committee, J. Skottowe Webb, R. A. Ewing, E. J. Fenn, G. Crombie, P. Nelson, and A. A. Binnie; secretary and treasurer, J. Stuart White, Exchange Court, 98, Princes Street, Dunedin. It was decided that the Society procure a large size enlarging camera for official light, and Messrs. Fenn, Nelson, and Stark were appointed sub-committee to get a satisfactory article. The membership has increased during the year.

WARWICK Competitions.—The result of the June competition is as follows:—First prize, £10, Clarence Ponting, 12, Alma Square, Loughborough. Donation £5, to the Scarborough Photographic Society. Second prize, £5, A. G. Thistleton, 453, Oldham Road, Winton Heath, Manchester. Donation £2 10s., to the Manchester Amateur Photographic Society. Entries for the next competition must reach the Warwick Dry Plate Company, Warwick, not later than July 15 next.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
* * We do not undertake responsibility for the opinions expressed by our correspondents.

THE FREE ENLARGEMENT AGAIN.

To the Editors.

Gentlemen,—I enclose herewith, as I think it may be of interest to you and the profession in general, an advertisement from the "Daily Mail" of June 9 last, in reply to which I sent a photograph, and have just received the enclosed letter and coupon. The ignorant manner in which the letter is written and its brazen impudence, in such glaring contradiction to their advertisement, should, I think, be sufficient to open the eyes of the public.—Yours faithfully,

THE ELITE PORTRAIT CO., LTD.

E. J. Davis, Managing Director.

The following is the text of the advertisement and of the letter:—

In order to introduce into every family our artistic and beautiful works in crayon, the ATELIER PARISIEN DE PORTRAITS will make to all readers of this newspaper a LIFE-SIZE CRAYON PORTRAIT, splendidly finished, of 14½ by 20 inches, bust, of a perfect resemblance, ABSOLUTELY FREE, provided that the receiver of the portrait shows and recommends our works to relations and friends. Write your name and address plainly on the back of your photo, and send it to us by mail, together with this advertisement. NOTICE.—This offer is available for 20 days from date of this newspaper for the UNITED KINGDOM and for 60 days for the Colonies and foreign countries. WE DO NOT SELL FRAMES.—Address all communications to A. GRANVILLE (Manager).

M.—We have the pleasure to inform you that your life sized Portrait has been finished according to your instructions.

Owing to the skillfulness of our first class artists we are sure to send you an artistic work which will certainly meet with your approval. Its perfect likeness and its delicacy in execution renders it a work of art suitable for the most elegant drawing room.

In order to send it to you without any delay, kindly send us 5s. per postal order to cover our general expenses as well as those which we have to pay for the packing, carriage registration, etc. For the purpose of advertising our Portraits we willingly give our artistic work for nothing but it would be exorbitant to allow us to pay also those expenses considering the great quantities of orders which are sent to us, it would represent an enormous sacrifice.

As soon as we receive the 5s. we will send you the beautiful Portrait without any delay free of all expenses.

As already made known the value of the Portrait which we have done for you is 50s. But for you and your friends who should desire such an enlargement, we are willing for a certain time and always in accordance with the advertisement, to do the work for the limited price of 25s.

If you want to have your portrait mounted with a passport in a very elegant gilt or coloured frame, we can do this for 20s. and you receive the Picture complete free of expenses including postage and packing.

It is of course needless to mention that we will carry out your orders as you desire with or without frame. Trusting to hear from you by return mail,—We are, yours respectfully,

ATELIER PARISIEN DE PORTRAITS.

A. Granville, Manager.

N.B.—Please do not forget when you send us the postal order to

fill out and send us the enclosed coupon with the number corresponding with your Portrait.

Our rules do not permit us to send Portraits payment on delivery because the payments on delivery would only put our clients to more expenses and great formalities for us.

All communications to be addressed to Mr. Granville, Manager, 52, Rue Lafayette, Paris.

A GRIEVANCE.

To the Editors.

Gentlemen,—Would you allow me through your valuable medium to protest against a practice which is now being followed by many firms, viz., employing boys and girls to do work which should only be given to very competent men—I mean such as developing plates and amateur's films, printing same in Velox, etc.? It is not reasonable to expect a boy of 14 or 16, without previous experience, to take up this work and do it with justice to customers who send their developing and printing out. Yet this is what is being done in many firms, and when failures occur through careless handling the shopman is expected to tell some plausible tale to gloss it over.—Yours faithfully,

FAIR PLAY.

[Our correspondent must concede to a firm such as those he complains of the knowledge of how to conduct its business. Obviously, no firm is satisfied with a staff of incompetents, for the waste of materials would more than balance the advantage in wages. Possibly "Fair Play" does not appreciate the conditions which prevail in business of the kind he criticises.—Eds., B.J.P.]

A BUSINESS ASPECT OF THE COPYRIGHT QUESTION.

To the Editors.

Gentlemen,—The letter of Mr. Sutcliffe in your issue of June 23 raises an important question for the professional photographer.

When he finds his photographs reproduced by amateurs, by cheap firms, and as cheap enlargements or postcards at 3s. per dozen, your remark that "he has not much to complain of, seeing that he has been paid for what he has done," is but poor comfort.

Besides, is the idea conveyed in that statement quite correct?

In the past it has been the custom of photographers to spread the cost of producing first copies over the whole of the order, or prospective order. This first cost includes, necessarily, rent of studio, up-keep and interest on cost of cameras, lens, accessories, salary of operator, retoucher, and receptionist (chiefly). To cover this, prices have been fixed for the dozen and half-dozen. If smaller quantities are taken it is with the hope that the balance will be adjusted by further orders. In further proof that this is so I would draw attention to the great difference between the price charged for duplicate copies by the profession and the price charged for the same photographs by the trade printer.

This spreading of the cost did not much matter while the production of duplicate copies was almost entirely in the hands of the holders of the negative, and had the advantage of making the photographs singly appear cheaper to the general public. But the simplification and cheapening of printing processes during the last few years, and the more general knowledge by the public of the cost of producing a print, provides a strong temptation to the customer to get further copies at a much cheaper rate than the professional can supply duplicates for from the original negative. Here is the loophole for others to step in and rob the photographer of his legitimate profits, and here arises the feeling of injustice the photographer has when he finds his work reproduced apart from himself.

The tendency is for the further cheapening of reproduced copies; stationers and drapers are now entering the field, and amateurs have

probably long been copying the professionals' prints. The old-time monopoly of photographers for photographic prints has gone for ever, and a professional photographer's copyright in his own work seems unattainable. More and more the sale of duplicates is being taken out of his hands—the view trade is in the hands of stationers, the sale of prints of local celebrities has all but gone, the ordinary sitter alone is left, and that seems being undermined.

Where is the remedy?—Yours, etc.,

H. F. SMITH.

46, Stamford Hill, London, N., June 30, 1905.

[Comment is made on this subject under "Ex Cathedra."—Eds., B.J.P.]

"SITUATIONS WANTED."

To the Editors.

Gentlemen,—I notice a letter by "Disgusted," an operator retoucher out of a berth, who writes re his non-ability to secure the salary he thinks he is entitled to.

As the owner of two flourishing studios, one of which has to be under management, a few words on my experience may be useful to "Disgusted" and others like him.

I recently required a new operator-retoucher and general manager for a high-class branch in a fashionable town—and wished to obtain the best man that a good salary could command. From about thirty applicants I picked out what appeared to be the best man from his credentials, specimens, and salary asked. He came, he failed—absolutely—he left; and although that man knew, and admitted to me, that his work was "off," he applied for and obtained another berth in a distant town at an increased salary upon that which was paying him. Needless to say, I was horrified, and was also interested to follow his career, and found that, of course, he shortly left that post also, and I still frequently see his name crop up—he is still requiring a situation every few weeks.

After further experience I engaged a younger man of inexperienced but ability, with a wish to learn, at a moderate salary. The branch is flourishing, and so is its manager; but those like "Disgusted," who appear to quarrel with every photographer who does not consider him worth what he asks, are left out in the cold.

Why does not "Disgusted" ask himself this plain question? Is it not strange that every photographer who writes him refuses to pay him his wished-for salary?—Yours faithfully,

DISGUSTED No. 2.

June 28, 1905.

In consequence of special demands on our space this week, the continuation of the notes on retouching prints, together with several reviews of new materials, are held over.

PAINTER and Photographer.—On Sunday evening last, the Carlwright Hall, Bradford, was opened by the Art Committee of the Bradford Corporation for two interesting series of pictures. One is a collection of the paintings of the late William Stott, of Oldham, and the other is some representative examples of the photographic work of Alexander Keighley, of Keighley. The "Yorkshire Daily Observer," speaking appreciatively of Mr. Keighley's work, says: "In comparatively few years Mr. Keighley has sprung into the front rank of pictorial photographers, and he has had, indeed, no little influence in directing and guiding on right lines the efforts towards picture-making of scores of camera-workers in the country. Though keeping almost wholly to landscape work, he displays no little versatility of conception, and a ready appreciation for beauty of line and in tone. His power of securing even with the camera, which is apt to see and record too much, that quality of breadth, also apparent in all his works, especially in those of later date more than one of which is finely impressionistic."

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- H. Morgan, 28, Woodhead Road, Sheffield. *Photograph (Combination) Postcard containing Sheffield University (two views), Sheffield Coat of Arms, and the King and Queen.*
- Robert Plummer, 90, Queen Street (Maidenhead, Berks. *Three Photographs of His Majesty and Royal Party at Monkey Island, Bray, Berks, on June 24, 1905.*
- Augustus Lafosse, 12, Oxford Street, Manchester. *Five Photographs of Mr. F. Lister de Napleton I. No. 1. Empire. No. 2. Victory. No. 3. Moscow. No. 4. Waterloo. No. 5. St. Helena.*
- E. Dowdy, 78, High Street, Dovercourt, Essex. *Photograph (Combination) on Postcard. The word "Dovercourt" in Large Letters, each filled in with Local Views, and entitled: "A Souvenir of Dovercourt."*
- B. Diver, Viewfield Cottage, Victoria Road, Huntly, N.B. *Photograph of United Free Church, Huntly, N.B.*
- E. E. Tickner, 26, Harold Road, Southsea, Portsmouth, Hants. *Photograph of the Old George Inn, Portsmouth Hill, Cosham, Hants. (Copied from Original Painting.)*
- Gore, 31, Winn's Terrace, Forest Road, Walthamstow. *Photograph of Tottenham Lock. Barge passing through Lock. Photograph of First Two Decorated Electric Trams to leave Tramway, Walthamstow, on Opening Service to the Public.*
- Augustus Lafosse, 12, Oxford Street, Manchester. *Photograph of the Brodsky Quartette comprising: S. Spielman, Dr. Brodsky, Carl Fuchs, Mr. Briggs.*
- de Perkoft, 148, Commercial Road, London, E. *Photograph of Mark Hambourg and Brothers.*
- Alfred Horsburgh, 4, W. St. Matilda Street, Edinburgh. *Photograph of the Right Hon. Lord Dundas, President of the Court of Session.*
- W. Rignall, 103, Fitzroy Street, Cambridge. *Three Photographs of the Bishop of Ely.*

URTON.—1. We know of no firm that would undertake to colour your cards. 2. You could certainly have them coloured at home, and you would probably find ordinary water colours as cheap as anything.

McCONCHIE.—We should think that Marion and Co., of Soho Square, W., would be able to supply you with what you want, or some such firm as Reeves, or Newman, the artists' colourman. Would not a Whatman paper suit you? These, we think, you would find free from spots.

OLD LEATHER BOTTLE.—There is an old leather bottle in our museum and a firm has made plaster models of same for sale in shops, etc. Can I copy this model and make similar ones for sale? Or, is it likely that it is registered, or copyrighted, or protected in any way—if such a thing is possible? This is the point on which I am wanting information.—BEAUCHAMP.

It is doubtful if the maker of the plaster models can establish copyright in his copy; the law of copyright in sculpture (which is what the modelling amounts to) is not clear on the point. Why do you not photograph the bottle, or obtain permission to have a second cast made? In either case you would be safe.

JOHN F. LESSELS.—We have forwarded your letter.

TOUCHING.—Your work is very poor and ragged, and entirely lacking in quality; but what can be expected when faces are

rushed over at this rate? One hour, or at least forty-five minutes, might be devoted to the reasonable treatment of such a negative. Its one good point is the preservation of the likeness, and many retouchers can easily lose it in five minutes. Work finer and blend your touching, instead of breaking off so frequently. Aim at solidity and softness of texture, and improve your modelling.

OLD PAINTING.—I have in my possession what seems to me to be a very old oil painting in good preservation; size of canvas, 25 in. by 20 in.; photograph of which I enclose. It is signed "Rubens" in red paint at the right-hand corner. Name is very distinct, the first letter thus (specimen enclosed) as near as possible. Can you give me any information as to its being a genuine Rubens, and an idea of value? I may say that I bought it at a sale in a very dirty condition for a small sum; also that I have been offered £5 for it. Any information about it will greatly oblige.—CANVAS.

It is impossible for us, or any one else, to say, from an indifferent photograph of it whether the picture is a genuine Rubens or not. We would advise you to submit it to some high-class picture-dealers, such as Messrs. Agnew and Sons, Old Bond Street. As to its value, if it be a genuine Rubens, it may possibly be worth some thousands of pounds.

IODISED PAPER.—I shall be glad if you will inform me what process was mostly favoured by the old school of photographers for preparing paper on which to make enlargements by projection before the advent of bromide paper and other such ready-made rapid papers, with quantities and manipulation?—FRED.

Iodised paper was what was used. The following is a good formula:—Iodide of potassium 120 grs., bromide of ammonium 30 grs., water 20 ozs. Sensitising solution: Silver nitrate 30 grs., and glacial acetic acid 30 minims, water 1 oz. After exposure the image was developed with a saturated solution of gallic acid, and fixed in hypo.

A SITTER'S RIGHT.—Can any one compel a photographer to remove photographs or enlargements from his window or show cases? I had a party who ordered an enlargement from a cabinet. She paid a small deposit, but I could not get the balance. I placed same in my window as a specimen, and she had the audacity to demand its removal. I think it would serve her right to attach a ticket, "To be paid for," or similar remark.—B. V. H.

She is perfectly within her rights. You have no right to use the negative, except at the sitter's orders. The fact that she has not paid does not alter the facts. You can sue her for the money.

COPYRIGHT.—I always read your replies re copyright laws with great interest, and, although they embrace a large variety of subjects, here is a point I do not think I have seen referred to. I have a copyright picture of a clergyman who died suddenly and I gave permission to the local paper to reproduce his portrait. I hear that an artist is painting his portrait, to hang in a public hall, from the one in the paper, in spite of its having the word "copyright" under it with my name as photographer. Now comes the question: Who ought to proceed against him—I, as the photographer of the original, or the proprietors of the journal; and ought they not to protect my rights seeing it is done from their paper? If you could find space to reply this week you would greatly oblige.—AN OLD READER FROM THE FIRST.

As the copyright is yours you are the one to take proceedings. The proprietors of the paper are not the owners of the copyright in the portrait, so they can take no action. You are the only one who can.

RESIDUES.—1. I have about three large sacks of gelatine P.O.P. cuttings. Please say if they are of any value, and if it will pay me to burn them to ashes and send residue to an assayer? 2. Is it worth collecting the old fixing baths and taking the silver out of them also?—**INQUIRER.**

1. If the paper has not been fixed we should think, as there is so much of it, it would be worth your while to do as you suggest. You must bear in mind, however, that the silver, when recovered, is only worth about 2s. 3d. per oz.—supposing it is of the standard purity. 2. Yes, if you work on a tolerably large scale.

A DOUBTFUL CLAIM.—Some time ago a photographer, within a few minutes of me, sent for me and asked me if I would hold myself in readiness to go to him to do his operator's work if he sent for me, his operator going away for a week's holiday. I agreed to do so, and remained indoors, at his request, for a week. That was some months ago, and I have not yet received so much as a postcard of thanks. Can I legally claim something in the way of remuneration? Nothing was mentioned to that effect.—**SHADOW CATCHER**

Unless there was some agreement to the effect that you were to receive remuneration for holding yourself in readiness we fear you can recover nothing, as your services were not required after all.

VOLTA.—The Bastian Mercury Vapour Lamp, Limited, Bartholomew Works, Kentish Town, London, N.W.

CLEANING OLD NEGATIVES.—Will you please let me know the best way for cleaning off negative films, principally gelatine. An offer has been made for a lot of 15 by 12 and 12 by 10 for hothouse glazing purposes, but they must be without films. There is an available wash boiler. Would soda or acid help without injury to hands?—**R. K.**

A hot solution of caustic soda will soften the film, so that a stroke of a stiff scrubbing brush will remove the film at once from each. But a better plan is, let the plates soak for some hours in hydrochloric acid (spirits of salts) mixed with about ten times its bulk of water. But the acid must not be used in an iron vessel, and whichever is used the hands should not be kept in the liquid longer than necessary.

BOOKS.—I should esteem it a great favour if you could tell me the best books on the following two subjects: (1) "Studio Lighting and Posing," (2) "Retouching"?—**P. W.**

1. "Lighting in Photographic Studios," by P. C. Duchochois, 1s.; "Artistic Lighting," by James Inglis, 2s. 6d.; and the "Pose in Portraiture" (No. 1 of the "Photo-Miniature"), 6d. 2. "The Art of Retouching Negatives," by Robert Johnson, 2s.; and "Retouching," by Arthur Whiting, 1s.

RETOUCHING ("T.P.").—Your retouching is very indifferent, and not at all up to first-class professional requirements. No. 1 is dirty in the working, and the men have no texture. Your knowledge of modelling is very limited. Try for a better grain; increase your high lights, and get rid of the general raggedness. 2. Your salary, we consider, would be governed more by your abilities as operator and receptionist than by your retouching (in which you require further lessons), and we consider that you might expect from 30s. to 35s. per week.

SALARIES OF ENLARGERS.—I am writing to inquire if you can advise me as to the salary usually paid to enlargers. I have been doing enlarging now for two years, for a leading West End firm, and I am paid 38s. per week. I am doing the very best class work, and I think I am underpaid, as I hear some

enlargers obtain as much as £4 per week. Would you kindly advise me.—**ZENO.**

Of course salaries depend very much on ability. We should say that what you are paid is about the average sum, and no above it. We think that there are very few enlargers paid as much as £4 a week at the present time, that is, if they enlarge only on bromide paper. For making enlarged negatives a larger salary would be paid.

PHOTOGRAPHY IN WEST INDIES.—I should be very much obliged if you could give me some information about photographing in the West Indies. 1. Is it unwise to take an expensive camera on account of the climate, and what precautions can one take to prevent its being damaged by mildew or insects? 2. Are plates or films the most satisfactory to use there? 3. What is about the exposure required compared with what one usually gives during one's summer holiday in England?—**WEST INDIES.**

1. The better the apparatus is the better will it withstand adverse climatic conditions. The only thing to do is to protect it as much as possible from damp and insects. 2. We should ourselves prefer plates. 3. We should imagine about the same or perhaps a little less: in consequence of the dark shadows cast by the brilliant light, the common error is to give insufficient exposure.

AMERICAN SIZES.—I am thinking of settling in the United States of America very soon as a photographer. I possess a good 12 by 10 outfit, also whole plate. I want to know what size camera and plates are in general use over there, and whether the above would be of service to me; or would it be advisable to dispose of same before leaving.—**H. L.**

Twelve by ten is a common size in America, and so, to a lesser extent, is 8½ by 6½. You will have no difficulty in getting plates of these sizes.

CHROMATIC.—The Vanguard Manufacturing Company's "Bertha" colours, or "Revoli's" magic photo tints, sold by Marion, of Soho Square, will be suitable for the purpose you mention.

THE Northern Photographic Exhibition and the Lay Press.—The good people of Leeds will be gratified to learn from the "Yorkshire Evening Post," that "the striking developments which have revolutionised the photographic world since an image on a sensitive plate was obtained by the use of the cigar-box and the spectacle lens are abundantly illustrated at the Northern Photographic Exhibition at the Leeds Municipal Art Gallery"; and also that, in addition to the list of local exhibitors given in the same organ, "there are many others, not local, who have the addresses of such distant places as London, and even Scotland." The Metropolis is getting quite well known, it seems.

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EX CATHEDRA.

Under the presidency of Professor J. Joly, the twentieth meeting of the Photographic Convention of the United Kingdom was inaugurated in Dublin, on Monday last, under climatic conditions which leave no doubt that, photographically, the week in and around the Irish capital has been a profitable one. Numerically the Convention is, perhaps, somewhat less than in previous years; but in its character and universal disposition to contribute to the common enjoyment, it fully sustains the reputation of its recent predecessors. Dr. Joly's address, which we print on another page, touches an aspect of photographic theory which we have recently drawn attention at some length to on these pages; and it, with the paper of Mr. Thorne, is to be read to-day, constitutes the whole literary or scientific *acta* of the Convention. Officially, that is. For it cannot be conceived that three hundred or more photographers attending a week in one another's company will not discuss everything and anything bearing on their own special photographic proclivities. This inherent feature of the convention, occasionally forgotten by certain critics, constitutes, perhaps, its most important *raison d'être*. While we are strongly of the view that the "paper" programme of the Convention cannot be neglected except at the risk of the future prosperity of the body we do not underrate the difficulty of obtaining papers to be read, and people to attend to them. And we also realise—and would here press the facts on every photographer—that the Convention provides conditions in the highest degree propitious to the interchange of ideas and the mutual benefit of its members. The good work which it accomplishes in

this way is none the less actual and valuable because it does not admit of an itemised report; but it is the magnet which draws Conventioners year after year to the venue of the meeting.

* * *

The 1906 Convention. All members of the Photographic Convention will receive with pleasure the announcement that next year's meeting will be on the South Coast of England. An inspection of the list of places visited during the past nineteen years discloses the fact that with the exception of the Plymouth Convention of 1893, no place south of the Thames has been made the centre of this annual gathering. Southampton is the chosen locality for the 1906 Convention and a better centre could not be desired. With the beauties of the Isle of Wight, and the New Forest, Winchester Cathedral, Netley Abbey, and other notable attractions close at hand, to say nothing of the Solent and adjacent Portsmouth, photography of a type quite unlike anything obtainable at previous Conventions will be possible. There is also no doubt that the Southampton Camera Club, from whom the invitation comes, will manage the local arrangements satisfactorily, and, given fine summer weather like the present, the 1906 meeting should be a popular one.

* * *

The Ilford Competition. Ilford, Limited, must have every reason to be satisfied with the result of their recent £750 cash prize competition. The exact number of entries has not been disclosed, but we understand they were very great, and the judges must have found the sum of money at their disposal all too small to apportion amongst so many, notwithstanding that extra prizes were added to the original amount. An interesting exhibition of photographs by the prize winners was opened at the Modern Gallery, 61, New Bond Street, London, W., on Saturday last and remains open until 6.0 p.m. this evening (Friday). Works from all parts of the world are on view, and amply demonstrate the far-reaching extent of the firm's output. The plan adopted in this exhibition, of which a report appears on another page, is somewhat peculiar, but will doubtless have the effect desired by its organisers. The exhibitors' names are not given on the pictures, neither is there a catalogue or other indication of the titles or specific awards published. The pictures are, therefore, shown simply on their own merits, and their face value can be taken as indicative of the application of Ilford materials. In view of the fact that many of the prize winners wished their names withheld, this is probably the wisest course that could have been adopted, and

the bulk of the pictures will, therefore, have greater opportunities of appealing to the visitors as straightforward photographic productions unembarrassed by this or the other well known name being attached.

The Action of Wood on Photographic Plates.

About a year ago Dr. W. J. Russell detailed some experiments as to the action of certain woods on dry plates (B.J., August 19, 1904, p. 726), and suggested that probably this action should be ascribed to hydrogen peroxide. A correspondent to our contemporary "Knowledge" states that, believing that the action was due to radioactivity, he used a very sensitive screen and distinctly observed from a piece of white fretwood the scintillations which were about as bright as from uranium, pitchblende, or radium, the great difference being, however, that, whereas with these substances the emanations are poured forth in such numbers as to cause an almost continuous lighting up of the screen, in the case of wood they only came singly or in twos or threes, with a considerable interval between each. This would naturally account for the somewhat feeble photographic action of wood, as it would be necessary for considerable time to elapse before sufficient effect had accumulated to produce a latent image.

The Camera Club Company, Limited.

The future prospects of the Camera Club do not at present look particularly rosy. As we hinted a short time ago when the directors' report for 1904 was published, the lack of *esprit de corps* and other factors making for the success of an institution of this character were conspicuous by their absence. We now see that an extraordinary general meeting is called for Monday next, July 17, to discuss the unsatisfactory financial condition of the club, and to decide as to the means to be adopted with a view to the continuance of its existence. About £300 will be necessary to carry on the concern to the end of the year, and five courses are suggested for adoption. They are: (1) To make a whip, and invite subscriptions for Preference shares; (2) To make a whip, and increase the amount of subscriptions for the year 1906, and possibly subsequent years; (3) To amalgamate with another club; (4) To give up the present premises and take smaller ones, becoming a small photographic society with suitably reduced subscriptions; (5) To wind up the company and close the club altogether. We look forward to the result of this meeting with great interest. It certainly seems a great pity that an institution with the prestige of the London Camera Club should be in such dire straits. We doubt whether the members will rise to the demands made by suggestion 2, as the present subscription is generally considered quite sufficient for the value offered; while 3, 4, 5, mean the total extinction of the club. The first proposal, therefore, seems the only one that is likely to maintain the present premises in Charing Cross Road, and we trust that with complete reorganisation and better management the past achievements and reputation of the club may be revived, and its present sorry condition made a thing of the past.

Miniatures. The "Daily Mail" recently published a letter in its correspondence column from an artist, denouncing the sale of pictures ostensibly "miniatures," but really "coloured photographs." We should be the last to support photographers in any wrong description, but we may well ask whether artists have any prescriptive right to the use of the word *miniature*. A miniature may be a small photograph or picture of any description, either in monochrome or otherwise. The probability is the customer

who bought the picture in question paid so small a price that good painting and drawing on the ivory alone were out of the question. It is usually those who have beaten down prices who complain most when they find quality has correspondingly fallen. The writer of the letter, too, who signed with a pseudonym, is complaining because the inevitable and universal progression and competition are making it more difficult for him to earn an income on the old lines. Except to the very few at the top of the profession, all artistic work yields a very poor return in £ s. d., and it is only by the severe application of ordinary commercial methods that profitable results accrue. Not only does this apply to photography, but to the many branches of artistic work which photography has attacked.

A Hint for the R.P.S. Affiliation.

The new edition of the "Blue Book" issued by the Scottish Photographic Federation, and analogous to the "Red Book" of the R.P.S. Affiliation, contains two excellent ideas that can be commended to the notice of the executive of the latter in view of the increasing desire to further cement the units of which it is composed. A number of gentlemen prominent in Scottish photographic circles have kindly agreed to advise members of the Federation on various photographic subjects. The list of twenty-five sections given embraces almost every possible subject in photography on which advice can be sought. From "apparatus" and camera construction, optics and chemistry nearly every process and application of photography to "mounting and framing" is considered, and experts appointed. This expert advice is given free, and return postage for specimens is the only condition imposed. That a lot of work is created for these willing helpers is not likely to be the case, as a number of names appear under each section. Thus, for instance, under "Lantern Slides" no less than nine well-known names in Scottish photography appear, and the addresses are in various centres. The gazetteer is likewise worthy of note. The names, addresses, and officers of the federated Societies have been compressed into the smallest possible compass consistent with effective display, and the space thus gained has been devoted to a particularly interesting gazetteer of photographic interest. An up-to-date list of dark rooms is given which may be made free use of on presentation of the "Blue Book"—a most important concession—and, moreover, "local reporters" have been appointed in each of the towns and districts mentioned. These gentlemen will send full information about the districts they represent, on receiving a request, accompanied by a stamped addressed envelope. This breathes the true spirit of practical co-operation, the utility of which cannot fail to be of the utmost value to the federation, and is worthy of imitation by all other similar organisations.

The Portrait Lens.

Twenty years ago the Petzval form of portrait lens was seen in practically every studio. Nowadays it is being practically displaced by rapid rectilinears or the more modern lenses whose freedom from astigmatism enables them to be employed at greater apertures. Nearly ten years ago we knew of a North-country professional who constantly used rapid applanats at $f/6$ even for child-portraiture, and we believe one of the best-known London professionals uses a comparatively cheap French R.R. for almost the whole of his work. Plates are now quick enough to admit of less rapid lenses being used, but in point of fact the anastigmat at $f/5.6$ is practically as rapid as the majority of Petzval lenses marked $f/4$, for in many such instruments if the aperture be accurately measured it will be found to be something less than $f/4$. The necessity for

a portrait lens is one of the traditions of old-fashioned photography which dies hard, but in time, when it is recognised that the modern form of lens may be used both indoors and out-of-doors, and is perfectly efficient for portraiture, it will probably almost completely displace the Petzval form.

* * *

Lenses for landscape. The mention just made of the double use to which $f/5.6$ anastigmats may be put applies principally to group work out-of-doors. The figures are arranged approximately in one plane and marginal definition is as good as that in the centre of the field at full aperture. Thoughtful lens users know by now that the almost perfect corrections for astigmatism and curvature of field do not in any way increase the depth of definition, and that the cheap R.R. needs no more stopping down for this end than the best of the anastigmats. Hence, when on a large plate, say, 15 by 12, both near and distant objects, as in landscape work, are to be focussed sharply, the performance of the R.R. is equal to that of the anastigmats. This point is often lost sight of by inexperienced workers who are purchasing lenses. If the lens is likely to be always employed at such stops as $f/22$ or $f/32$, then the R.R. will give as good results as an anastigmat. On the other hand, if group work and portraiture are required, it will pay to have the flat-field lens. Another branch of work in which a lens giving a flat field and fine marginal definition is of immense value is the copying of maps and pictures on orthochromatic plates and using light filters. Sharpness over the entire field can be secured at open aperture, and, though the difference between one second exposure at $f/6$ and 28 seconds at $f/32$ is not of importance, yet when these times are multiplied by forty for the light filter the saving of time accruing from the use of the better corrected lens is of material importance.

* * *

The Poisons Bill. A deputation from the Pharmaceutical Society visited the President of the Board of Agriculture at the House of Commons last week in reference to the sale of poisons for agricultural and horticultural purposes. Mr. Fellowes's reply to the deputation will be of considerable interest to photographers and others who make use of quantities of certain scheduled poisons. He stated that an enormous number of resolutions had reached his Department from bodies all over the country in favour of a relaxation of the present law. But the question of the public safety was one of immense importance, and neither his Department nor Lord Londonderry, as head of the Privy Council, would ever do anything that would occasion the slightest risk to the general public in connection with the sale of these compounds. Some of the regulations to be made under the proposed Bill would provide:—1. That no poisonous substance shall be kept in any shop or premises where articles of food are stored or kept for sale. 2. All poisons must be kept in a cupboard separate from other goods. 3. All poisons shall be sold in an enclosed vessel labelled with the word "Poison." 4. Liquid poisons shall be sold only in bottles or tins easily distinguishable by touch from ordinary bottles or tins. 5. In granting licences, the local authority shall have regard to the facilities already existing in the neighbourhood for the purchase of poisonous compounds.

* * *

To Cinematographers. It is a commonplace now that it is the new idea that pays. How much money has been made by the application of new ideas to cinematography is perhaps scarcely realised. We have been wondering why the cinematograph is not applied

to many of the changes which are constantly occurring in the metropolis, serving two purposes—an interesting film for exhibition and a permanent record of an historic change. To take as an example, the pulling down of St. James's Hall and the contiguous buildings in Regent-street and Piccadilly, and the erection of the new Piccadilly Hotel which is to be put up on the site. Why should not a series of photographs be taken at suitable intervals showing the periodical demolition of the old and the growth of the news? Certain difficulties would occur, and the exposures would need to be made with care and from a fixed standpoint, and of course the apparatus would be kept on the one piece of work for a long time. It may be that such a film would not be sensational enough or humorous enough for the British public, and that is a matter on which the large film-producing firms are the best judges, but, as a record of modern building methods, this extended series of "progress photographs" would be distinctly interesting.

PRINTING PROCESSES.—VII.

P.O.P.

PLATINUM toning is generally used for matt surface papers, and various tones ranging from cold sepia to brownish black can be obtained by varying the time of toning and also the composition of the bath.

The depth of printing for platinum toning depends to some extent on the bath that is used, but as a rule it should be a little deeper than for gold toning. There are one or two main lines of treatment to which all prints, whether gelatine or collodion, should be submitted, if evenness of tone and purity of the whites are to be obtained.

In the first place the most important point is the conversion of the whole of the silver salts into chloride, for as has already been pointed out, the emulsion usually contains organic salts of silver and free organic acid. If these are left in the film, it is difficult to avoid slight tingeing of the whites, nor can the tone as a rule be carried to the rich deep brownish blacks. To get rid of these salts is a simple matter, as the prints merely require immersing for five minutes in a solution of salt, as recommended prior to gold toning, and whilst it is purely a matter of choice for gold, it is essential before platinum toning. It is advisable also to thoroughly wash the prints after the salt bath.

The platinum salt generally used for toning is the chloroplatinite of potassium, and this only tones satisfactorily in an acid bath. Within reason, it is immaterial with what the bath is acidified—it may be either an organic or mineral acid or an acid salt. If the latter be used, the bath acts slowly; with an organic or phosphoric acid the action is quicker, and most rapid with nitric or hydrochloric acid; though with the latter acids yellowness of the whites is a frequent trouble. The simplest of all baths, and which, so far as we have found, acts satisfactorily with every commercial brand of paper, is that acidified with phosphoric acid. Rapidity of toning is dependent not only on the strength of the chloroplatinite, but also on the temperature of the bath, and this is important. We have frequently found that certain makes of paper which did not tone satisfactorily with platinum gave quite satisfactory results as soon as the temperature of the bath was raised to about 65 deg. to 70 deg. Fahr.

The quantity of platinum salt may vary within wide limits, from 0.2 to 5 grains per ounce of the bath, but a good working bath which works quickly, and which will give any tone from sepia to brownish blacks, is one con-

taining 1 grain of chloroplatinite per ounce. A suitable formula will then be:—

Chloroplatinite of potash	10 grs.
Dilute phosphoric acid	$\frac{1}{2}$ oz.
Distilled water to	10 oz.

Dilute phosphoric acid may be obtained from any chemist or dealer, or if thought more convenient the concentrated acid may be obtained, and then only one-sixth of the above quantity should be used.

It is a little difficult to determine the exact tone obtainable whilst the print is in the bath, as the final colour is only seen when the print is fixed or dry; but a very few trials will determine the necessary duration of toning to obtain any desired colour.

It is important that the print after toning be freed from all traces of the platinum salt and acid; for the latter will decompose the hypo and cause the well known sulphuration which is not conducive to the stability of the print. If the platinum salt is not removed also, it combines with the hypo, and the salt formed is extremely insoluble, and a general tinge may be the result. It is advisable, therefore, to thoroughly wash the prints after the toning bath; this may be facilitated by immersing them in salt and water, and finally passing them into a weak carbonate of soda bath, or the soda may be added to the fixing bath.

With very deep printing, a toning bath rich in platinum and at a temperature of about 65 deg. to 70 deg. Fahr., as recommended, warm blacks are easily obtained; but for pure blacks verging on the cold side, it is advisable to first treat the prints to a gold toning bath, and preferably an acetate or borax bath in which they should be left till they have assumed a reddish violet tinge on the surface; they must be well washed, and then treated to the above-named platinum bath.

For pure black tones on matt surface paper, particu-

larly on collodio-chloride paper, the following bath is very satisfactory:—

Potassium chloroplatinite	5 grs.
Meta-phenyldiamine	5 grs.
Distilled water	10 oz.

The prints must be washed in plain water before using this bath, and also well washed after toning.

The well known red tone, commonly known as Bartolozzi red, can be best obtained on matt surface papers, for which alone it is suitable by treating the prints to a salt bath, then well washing and toning in:—

Uranium nitrate	10 grs.
Thiosinamine	50 grs.
Distilled water	10 oz.

The prints must be well washed after this and before toning.

Carmin red tones are obtainable on some papers only, by the following bath, which was recommended first by the late M. Helain. Why it should fail with some and succeed with other papers we are unable to say; it is also very slow in action, this being increased with the reduction of the iodide:—

Ammonium Sulphocyanide	25 grs.
Potassium iodide	$2\frac{1}{2}$ grs.
Chloride of gold	$1\frac{1}{2}$ grs.
Distilled water	10 oz.

Fixation takes somewhat longer after this bath than usual.

There is not much that is novel to be said about platinum toning, but as with care and reasonable precautions it gives a series of tones, which are quite distinct from those obtained with gold, it affords a welcome change, and is likely to lead to business from a professional point of view. It has been advanced as against the use of platinum that prints are not so stable as with gold toning, but this cannot be substantiated, and if spots and stains occur, it is more likely to be due to the non-observance of the simple precautions we have pointed out.

SENDING PHOTOGRAPHS BY TELEGRAPH.

II.

[Last week the general principles of electric transmission of pictures and the Korn system were described and discussed.—Eps. B.J.P.]

The Receiving Apparatus.

At the receiving station we have again the revolving cylinder, which, however, is only a quarter the size of the transmitting cylinder, and is made of ebonite. It will thus be seen that the reproduction is reduced in the proportion of 1-4. Immediately above this receiving-cylinder, and at a distance of only 1 or 2 m/m. from it, is fixed the little Geissler tube, which is shown in Figure 3 in about actual size. It consists of a glass tube, containing two wires (A1 and A2), between the ends of which (SS) the luminous discharges passes. The tube is encased in a thick ebonite cylinder, and the top is covered with sealing-wax. The only light which can issue from this tube comes from a small aperture (B) measuring $\frac{1}{4}$ m/m. as above-mentioned.

The Mechanism of the Receiver.

Figure 4 shows diagrammatically the actual receiving portion. It consists of a so-called "moving-coil" system, which is a small frame (C) wound with very fine wire, and suspended between the poles (S and N) of a powerful horse-shoe magnet. This frame is kept in a certain neutral position by the two hair-springs (LL), through which the current from the line enters. The axle of the frame is carried in jewelled bearings, and it carries a very

light glass tube of about $\frac{1}{2}$ m/m. diameter, at the ends of which two fine copper wires (P1 and P2) of about $\frac{1}{4}$ m/m. diameter and

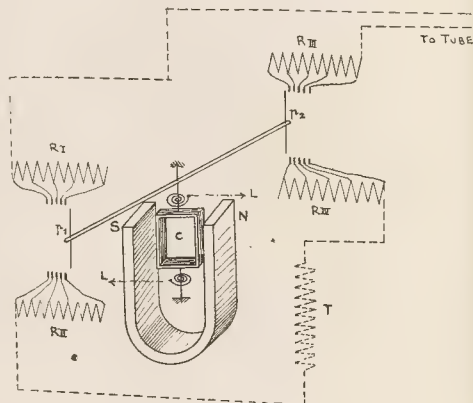


Fig. 4.

20 m/m. length are fixed. Instead of altering the spark-gap as in the old arrangement Professor Korn now uses a number of electric

stances (R I., R II., R III., R IV.), which are connected to collecting points, between which the copper points (P 1 and P 2) play without friction; and a glance at Figure 4 will show that, according to the position of these points, the high-potential current generated in the coil T, and carried to the tube, will be more or

so that we may either weaken or strengthen the current through the tube for a given variation in the original, and so produce at the receiving station either a positive or a negative film, a by no means unimportant feature of Korn's method.

The high-potential, or "Tesla," current which flows through

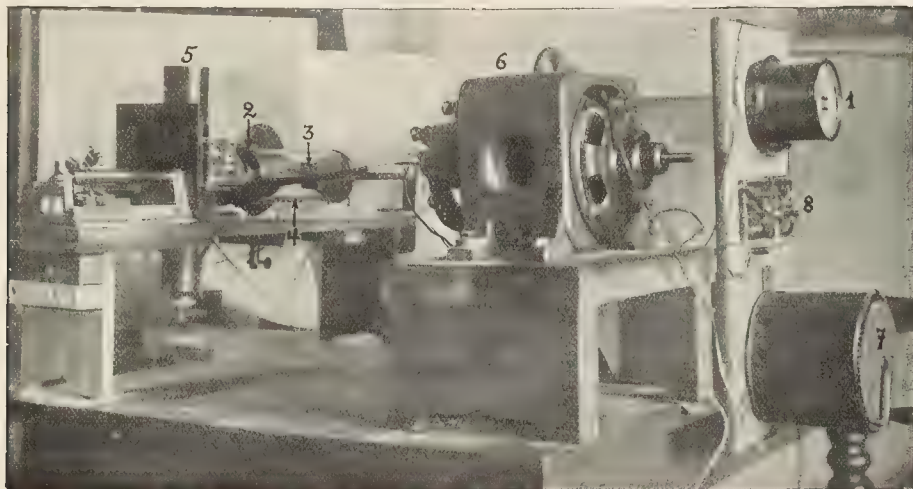


Fig. 5.—The Sending Apparatus by which Drawings and Music were Telegraphed from Paris to Rouen (see p. 526).

For the photograph of this and the receiving apparatus (fig. 6) the Editors are indebted to the "World's Work," which gives a popular account of Professor Korn's invention in its July issue.

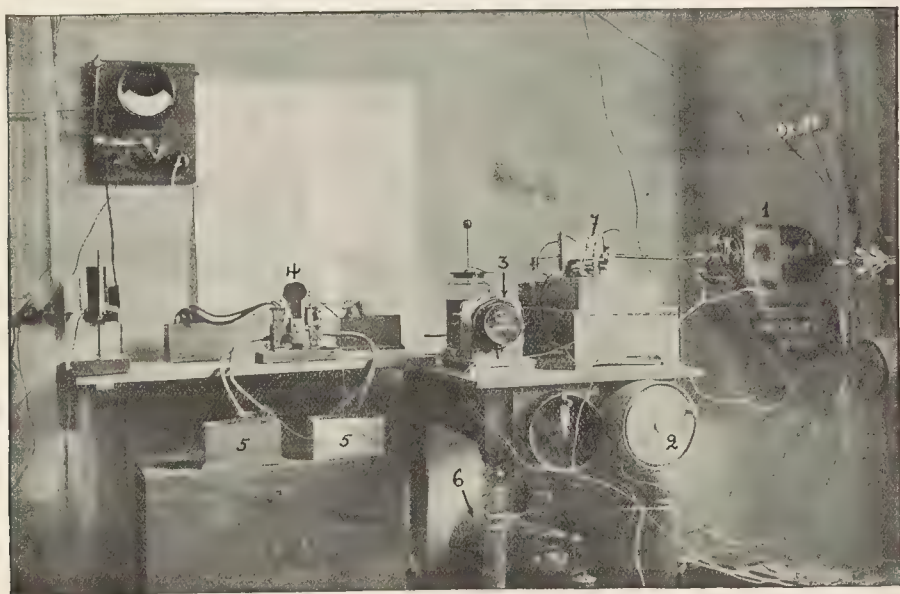


Fig. 6—Professor Korn's Receiving Apparatus (see p. 526).

ss weakened, according as to whether it has to pass through a eater or lesser portion of these four resistances. It will also seen that by simply changing the direction of the incoming rrent (from the transmitting station) the frame C can be made turn either in one or the other direction for a given impulse,

the resistances and the tube, is produced either by means of an induction-coil and a "Tesla" transformer (D), or it may be d. ived from the motor driving the receiving-cylinder after suit- ab. transformation. The advantage of these currents is that, in s. 'te of their high-potential, they are perfectly harmless, when

accidentally taken by the operator, and, being of an oscillating character, they are not likely to impede the movements of the points (P 1 and P 2) as would be the case were one to use static electricity. Of course, this sensitive galvanometer, as well as the receiving-cylinder, are properly boxed and protected against mechanical vibration. In Figure 6 the galvanometer is numbered 4, the receiving-cylinder 7, and the induction-coil 6.

Practical Limitations.

These are, in short, the essential parts of an installation, although, as above-mentioned, many delicate electrical controlling devices are in practice indispensable. The limitations of the method are due to:—

1. The inertia of the selenium cells, which makes it impossible for them to follow accurately very rapid and slight variations in the illumination.

2. The inertia of the moving part of the galvanometer; but so much progress has been made in this direction that it is possible to transmit an original measuring 12 by 18 m/m. within twenty-four minutes, and by a slight mechanical improvement even within twelve minutes.

The distances over which these extremely minute variations in the current can be transmitted is astonishing, and these are only limited by what is electrically termed the capacity of the line. There is no doubt that a good deal remains to be done before the system, as above described, may be pronounced commercially perfect; but the progress made, even within the short interval of three years, and the energy of the inventor, give promise of an early perfection of the method, and of a greater speed in the working of this system.

The realisation of the problem of seeing distant things electrically is, of course, a totally different and vastly more difficult matter; but, as Professor Korn has pointed out, it must be preceded by a reliable system of electrically transmitting pictures and may possibly be evolved from it, when experience has shown us how to reduce the time factor in transmission. To my thinking, however, something more is required—a substitute or vast improvement of the selenium cell, sensitive to all parts of the spectrum, and rapidly recovering. A promising field of research is here open to the investigator, full of practical photographic interest.

A. W. ISENTHAL.

THE BREAKAGE OF NEGATIVES: HOW TO PREVENT IT.

THE cracking or breakage of a valuable negative is an exceedingly mortifying occurrence. Sometimes, with the expenditure of much care and trouble, the film may be stripped and transferred to another glass, but in a large percentage of cases the film also is broken, and perhaps irremediably ruined. In any event, prevention is undoubtedly better than cure, so that some little study of the various ways in which such mishaps take place, and the methods by which they may be anticipated and avoided, recommends itself as good policy.

Dangers Before Exposure.

To begin at the beginning, although, strictly speaking, an unexposed plate is not a negative. It is by no means unusual, through careless handling or dropping of the boxes containing unexposed plates, for one of these to be slightly cracked. The obvious remedy is to examine carefully each plate when filling the slides, and to reject any which show any sign of a crack. Mischievous often happens through particles of grit getting in the dark slide rebates; these should be inspected at intervals and dusted out if necessary. Occasionally, a plate may be a trifle over the usual size, and fit too tightly in the slide, possibly requiring a little force to insert it. On no account should such a plate be used for an important subject, for a crack may be started in some manner or other before the plate comes out of the slide. It should be seen that the dark slide springs are not too powerful, and all unnecessary concussions or shakings should be avoided, especially with large plates. On this account, it is advisable to compel the shutters to work easily, if they do not already do so, by rubbing the grooves with a very small quantity of powdered blacklead.

Two Dark Room Precautions.

Coming in due course to the developing operations, it is wise to use deep dishes, since the negatives clearly cannot so easily slip or be dropped out by any accident. Also, such dishes are heavier and not so liable to mishaps. A lead-lined sink with a wooden grid is decidedly best when a negative perversely slips from the fingers; there is at least a sporting chance it will not be broken, whereas, if the sink is of stone-ware, the result is almost a moral certainty in the other direction. Similarly, a wooden floor is to be preferred to a stone one.

When Washing and Drying the Negative

the grooves of the washing tank should be neither too tight nor too loose, and the flow of water must not be heavy or

violent. A word may be said on the subject of draining racks, viz., that the folding variety have an unpleasant knack of unexpectedly shutting up while being moved with negatives in them, thus frequently causing an alarming spill. The best way to prevent this is to make the rack incapable of folding by driving in a short nail or adopting other suitable means. The rack should be large enough and should have a sufficient extent of grooving in contact with the edges of the negatives, so that it becomes impossible for the latter to shift and fall through any sudden shake or puff of wind. To attempt, for example, to dry a 12 by 10 negative in a quarter-plate rack is simply courting disaster; even in the case of a half-plate one it is at least risky. It seems almost unnecessary to warn the photographer never to stand negatives outside the house in a strong wind.

A Safeguard when Retouching.

The next thing to be considered is the retouching desk. This should be furnished with some satisfactory means of fixing the negative, so that it cannot slip or fall while working, or when the retoucher is temporarily obliged to leave it. The professional photographer knows only too well how many negatives are lost through the omission of this simple precaution. It is not sufficient to have merely a ledge on which the negative rests, or a rebate for it to lie in; there must be some provision for gripping or holding it so that it cannot slip sideways or fall forward. There are various patterns of retouching desks on the market in which this requirement is met, or, if such an arrangement is lacking, a good plan is to glue a thin, flat sheet of cork over the front of the desk, first cutting out a suitable opening, and to fix the negative in any required position with fairly large drawing pins. The cork facing will last some time without renewal. A desk having a rebated opening should be provided with buttons or catches at the sides of the latter, and these should not be allowed to become so loose as to be useless. Care must be taken that the front of the desk is perfectly flat and free from grit or projections.

Printing Frames and Breakages.

The largest number of breakages, however, are apt to occur during the printing operations. A good many may be attributed to uneven rebates in the printing frames, although much more care is now taken by the manufacturers to avoid this defect than at one time. Before any printing frame is used, the rebate should be critically tested by means of a

perfectly flat piece of glass, the size of the negative. This should be laid in the rebate, first one way and then the other, trying also both sides, and pressing with a finger round the edges of the glass to see if there is the slightest shake or departure from a true level. If such is found, the uneven surface may be reduced to its proper depth by means of a pen-knife and glasspaper. It should also be ascertained that the curved back of the frame exerts an even pressure and is level inside. The springs, if too strong, should be bent until the pressure is considered just sufficient. All printing frames should be tested from time to time, since exposure to damp and variations of temperature will often serve to warp them and render them untrue.

When Vignetting.

Occasionally, breakages may be traced to the points of tacks used in fastening vignettes coming through the thinnest part of the frame and projecting inside the rebate, or, even if they do not actually project, causing a bump or prominence. To avoid this, all tacks should be driven in near the edges of the frame. It is distinctly an advantage if the back and springs of the frame do not project when closed, for the following reason: It is customary when the frames are not printing, or during refilling, to stack them in a pile, and a little reflection will show that, if the back or springs project, the whole weight of the uppermost frames is pressing on the negatives contained in those at the bottom, whereas, if there are no projections, the stress is borne by the sides of the frames, and does not

reach the negatives at all. An ingenious and simple method of overcoming the former disadvantage is to fix small circular bosses of rubber at the back of the frames. The backing material used in filling in must be evenly distributed and free from lumps or grit.

Safety in the Post—How to Pack a Negative.

Probably little need be said as regards the storage of negatives, for, if properly grooved boxes are employed, an accident can only be due to carelessness. The transmission of negatives by post need not cause any anxiety if the screw-down boxes now obtainable, with circular felt pads between which the negative is laid, are used. The only safe alternative to these is the employment of a thick and solid wooden box, larger each way than the negative, so as to allow of a liberal amount of loose packing (such as shavings or wads of tissue paper) being evenly and tightly distributed on both sides and round the edges of the latter. Care should be taken that the bottom layer on which the negative is laid, enclosed in a suitable envelope, is level and free from any hard substance. In conclusion, a most useful hint may be given to users of box-form hand cameras in which the plates are caused to fall into a lower chamber when changing—which is, simply to glue a piece of thick red or black felt over the bottom of the receptacle into which the plates drop. It is true that a breakage does not often occur even without this precaution, but with it the chances of mishap are reduced to a minimum.

A. LOCKETT.

THE WEEK IN HISTORY.

The First Gelatine Dry Plate.

IN THE BRITISH JOURNAL OF PHOTOGRAPHY for July 18, 1873, appeared the first advertisement of a gelatine emulsion. I reproduce it herewith. It will be noticed that the preparation

instance of how progress seemed to turn on its natural course, I quote from THE BRITISH JOURNAL OF PHOTOGRAPHY of July 14, 1871, the hopes entertained of emulsion to be applied by the photographer himself. Thomas Sutton, after reviewing the

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THE BRITISH JOURNAL OF PHOTOGRAPHY.

[July 18 1873]

MR. J. BURGESS

Begs to announce that, as the result of innumerable experiments, he has made an

IMPORTANT PHOTOGRAPHIC DISCOVERY,

which enables him to Prepare Dry Plates equal in Sensitiveness, and superior in many respects, to the best Wet Plates, and that simply by pouring an Emulsion (prepared by an entirely new and original method) on the glass and allowing it to dry without any washing or the application of any preservative, thus saving an immense amount of trouble and expense, and what is more important, still securing films of absolute uniformity, of good keeping qualities, and up to the highest standard of excellence.

In order that anyone may test the truth of the above statement a Four-ounce Bottle of the Emulsion, sufficient to coat Four or Five Dozens Quarter-Plates, will be sent, post free, for 3s.; and, when the new method has been thoroughly tested, if 500 Subscribers are willing to pay One Guinea each, a pamphlet will be printed giving an account of the experiments which have been tried, and the formula by which the results above described have been realised.—Address, Mr. J. BURGESS, Artist, 207, Queen's Road, Peckham, S.E.

not described as of gelatine, although the behaviour of the emulsion could not leave this matter long in doubt. The formula employed by Mr. Burgess never became public, and the emulsion itself gradually dropped out of the market.

The Process of the Future—in 1871.

The stream of progress in any art or science is often a curiously crooked one. It doubles on its course, and until long afterwards it is difficult to recognise in these reversed currents the same confluence which flows constantly from one source. Thus have referred to the early efforts to replace wet collodion by dry plates, and have also noted the slowness with which the ready-made emulsion dry-plate came into vogue. As an

state of knowledge at that time, exclaims:—"A tourist . . . would have his bromide of silver emulsion ready made in a semi-solid state resembling blanc-mange; he would melt it by putting the bottle containing it into boiling water; he would then coat his plates at night for the next day, and put them at once into the plate box to get dry. No washing of the plates would be required. The next morning he would hang a yellow curtain before his window and put them into his dark slides, developing at night. He would have no dangerous, explosive, strong-smelling, unhealthy collodion to carry about with him on his travels, and he might pack in a very small space enough chemicals in a dry state to last him

for a tour round the world. What a blessing it would be to be independent of collodion and at the same time not to have to trust to the keeping qualities of dry plates."

The Copyright Union.

The assets of the photographer in the way of reproduction fees assumed important proportions as soon as the half-tone reproduction was perfected and gave the impetus to the modern deluge of "popular" periodicals. That was about the year 1892, and photographers to whom Press work was a strange branch of business stood in danger of neglecting their rights. The first formal establishment of a scale of payment for reproduction in the Press was made on July 19, 1893 by a number of photographers meeting at the Hotel Victoria, London. It was then resolved that the minimum charge for reproduction should be one guinea, and that the name and address of the photographer should be legibly printed under each impression. This meeting and one held three months later were private, and were attended only by a few leading London photographers. In January, 1894, a public appeal emanating from the photographic section of the London Chamber of Commerce, was issued, and this was made the occasion for the establishment of a revised minimum fee for reproduction in the Press. Half a guinea, instead of one guinea, was to be this "Copyright Union

minimum." Though it may have seemed the wisest recommendation at the time, its effect has been to make 10s. 6d. a maximum above which a publisher will not go except for special work. Nevertheless, the Union established the principle that a photographer must be paid a fee for the reproduction of his work, and I suppose the recognition of that right is now universal throughout illustrated journalism. Other countries have followed our lead in the institution of a body for the protection of photographers' copyrights—notably France, which has a society embodied with the "Chambre Syndicale de la Photographie," and America, where the photographic interests in regard to reproduction were watched over until recently by the Photographers' Copyright League of America. This body, I learn, is being reorganised under the auspices of the newly-formed Professional Photographers' Society of New York. I understand that there is a movement towards the formation of bodies in the Colonies to discharge these same duties, a sphere in which such influence is particularly desirable, because the law of photographic copyright in these parts of His Majesty's dominions is more honoured in the breach than in the observance, notwithstanding the facts that the Copyright Act is supposed to apply to these countries, and that the Colonies are subscribers to the Berne Convention of International Copyright.

HISTORICUS.

THE BUSINESS SIDE OF PHOTOGRAPHY.

A paper read before the Photographers' Association of Wisconsin.*

WHAT do we mean by the business side of photography? I mean the money-getting side of it; making all the money that you can, out of your artistic efforts. Most of us are "long" on the artistic and "short" on the business side. It is no crime, when people come in for pictures at four dollars per dozen, and the next day when they call for proofs and you show them what an artistic thing it will make in this style at eight dollars per dozen, or this other style of finish and mounting at twelve dollars per dozen (a style, by the way, that you had in mind when you made the sitting, and that you feel sure they would like, if they could only see them finished in that way), it is no crime if you succeed in getting the order at the higher price. This is what I call the business side of it.

I believe the business side of photography should begin when the patron comes into your office. There they should be met by the highest salaried person in your employ; the reception-room lady, who, if she is tactful and a good saleswoman, will more than pay her salary in advanced prices over what they intended to spend when they came into your place.

A Price that is High Enough.

I have heard a great many discussions as to whether it was best to show your low-priced work first, or whether it was better to begin with the highest-priced work. I believe in and pursue the latter course, showing my higher priced work first; of course, "sizing up" my customer, and if you are a close observer you can judge very closely as to what priced work they will stand for. And when they are sent to the operator make the best there is in you, no matter what the price, but make the price high enough even on your cheapest work so that you can give them good service, and this service will bring you another customer or drive one away, dependent upon the product that you deliver to them. Don't be stingy with your plates, and allow so many for such and such priced work.

Look Out for the Unexpected Pose.

I never know how many plates I am going to expose when I go under the skylight. Don't misconstrue my meaning; I

don't mean to be careless and wasteful; but don't stop just because you have made two or three exposures. For instance, I have frequently come to the point where I was apparently done, and would stop to talk for a few moments with the sitter, when he would fall, unconsciously, into an easier and more natural pose. Then I get busy, and make that and possibly another negative, always having a supply of extra holders on my camera. Nine times out of ten that will be your best seller.

How Business Varies, and Why.

I believe a great many of us are careless about our clerical and book work. I have had photographers tell me they never keep books. How in the world do they know how much business they are doing? I once asked a friend how much business he did in a year. His answer was: "Gee! I don't know." I knew he did a good business, but he did not know in dollars and cents. I know what I have done, the first of January of each year. I want to know if I am solvent or otherwise. If business has not been as good as I think it should have been, I want to find out what months were short; the conditions that made it so; and, if I am at fault, correct it. I keep a "stock-house account" and see that my books correspond with theirs. If you discount your bills, that is more of the business side of photography, and is more money in your pocket.

Last year I put in the "card index system" for all office work that we can use it for, and find it a great time saver. I did not like the stock cards as published by the manufacturers, so I figured out one for myself, and had it made by the Yawman and Erbe people, of New York, and it fills the bill.

The Unpaid Proof Problem.

No doubt all of you have the trouble of sitters not reporting on their proofs. This is where the card system makes itself useful. My cards are all kept in a certain compartment until the proofs are returned and the negatives named. The first of each month I go through these cards, and if there are any over thirty days old I write them a nice note, saying that they had a sitting on such a date, and if they were not pleased I shall be glad to give them another sitting. If they

* We are indebted to our New York contemporary, "The Photographer," for the Report.—Eds. B.J.P.

not reply or make an appointment, the next month I send all for services for so much. If they do not respond, the one I send is qualified, "If not paid by," a certain date, a bill will be placed with my attorney for collection." It brings them. That is more of the "business side of photography."

Another proof trouble is, their not returning all the proofs. It is a thing that we positively enforce. I stamp ALL proofs, "Must be returned to the office, otherwise they will be held for." There is scarcely a family in your city that does not have a jar of toning solution in the house, and it is so easy to get the extra proofs, and you lose the extra money. Of course you will have all kinds of arguments put up for a while; but I used to let us keep the proofs we didn't order from," etc., etc. You can tell them that you have adopted a new system of sending all proofs in order to check mistakes in the order, and mistakes do occur. And it is a good idea to do this, too. I have my proofs for nearly a year, and then destroy them. I sometimes send out children's proofs, when I have several of the same child, mounted in combination on a piece of coarse paper so that it can be folded up. This helps to get a few dollars from this class of work.

Making Business.

One may step on someone's toes when I say, "Don't monkey with the ticket schemes and their canvassers." Now, don't think that. You have all, perhaps, been "up against" this proposition. I have, but, thank goodness, only once; and I swore that it would be the last time, and I stuck to it, and am still in business. No telling where I would be if I had stuck to the ticket. Now, I believe in going after business, but on business principles. Don't you know they are making business advertisements, and some of the highest salaried people of the commercial concerns are their advertising managers? Can't we use some of their methods in our business? We can, by sending out dainty booklets and other advertising matter to our patrons, calling attention to something new. If we haven't something new, get busy, and make something new, and call it new. I have an annual Easter exhibit at the time the milliners get through with their "stunts." I came up and get ready the good things that I have made during the past year, and exhibit them. Send out the "swellest" invitations that your printer can give you with. Get the people into your place; let them see what you can do; make them talk about you and you will get their patronage. That, I say, is the business side of photography.

Sometimes you meet someone socially, or a business friend who says he is coming in some of these days to have some work done. Get busy; he brought up the subject. It's "up to you" to get the business. Make an appointment with him right there, at a time suiting his convenience. If he fails to "show up," you have a right to keep at him till you land the business.

Mix with Business Men.

Don't worry about your competitor. Don't try to get his business, but make business for yourself; then try to hold it by making your work and your word good to your customers. Be a representative man in your community. Let them know that even if you are "only a photographer" you are just as good as "the other fellow." One of the best ways to do this is to keep your credit good. A business man will respect you more for this than for all your other good traits. If you have a business or commercial club in your city, join it, and show the other business men that you want to be identified with the welfare of your community. I am a charter member of our chamber of commerce, and know that I command the respect of my business associates, even if I am only a photographer.

I was talking to a friend the other day, whose daughter had attended school for several years in one of our large cities. She wrote him that she wanted some photographs made, that she might send one home to mamma. She went to a man whom we all know has a national reputation. She ordered a dozen at eighteen dollars. When the proofs were sent to my friend there was also one about eight by ten, and he says the photographer wrote him such a nice letter, saying that "the young miss looked so sweet that he just could not resist taking one larger than those she wanted, and perhaps he would like some of them." He would only charge one hundred dollars per dozen for them, or one copy at fifteen.

My friend said, "He wrote me such a nice smooth letter that I just wrote him a check for the extra fifteen." Now, that is that man's business side of photography. Of course he wrote a nice letter. That man has an efficient corps of business getters in his office. That has been the secret of much of his success. He is not only a good workman, but he does not forget the money side of photography. Now, think it over. See if you are putting enough business methods into your business. Do you buy your stock as the merchant would? Do you watch the leaks as you should? Do you display your work so as to create the demand it should, and do you get the prices that you should?

C. J. VAN DEVENTER.

RETOUCHING AND COLOURING PRINTS.

II.

The following notes on the working up of carbon and bromide prints embody the methods of Herr Schultz-Hencke, as described in his *Leitung zur Photographische Retusche*, reviewed last week. A continuing instalment, dealing with the painting and colouring of prints, will appear in our next issue.

Platinotypes.

The absence of glaze on platinotype, and the colour, would lead to think that pencil and chalk could be used; but the former is too much glaze, and the latter is too coarse in the grain. The successful retouching is obtained by treating the prints as though they were on plain paper.

Platinotypes can frequently be considerably improved by passing through a cold burnisher, then giving them a thin coating of the aforementioned albumen-gum solution, letting them dry, and then passing them through the burnisher.

Before commencing to work up a platinotype, the whole print should be damped by brushing it over with one of the largest brushes wetted with water, and then the Indian ink should be applied. If the shadows are too deep or high-lights want lightening, this should not be done by means of colour, but preferably by erasion. For this purpose we may use either the knife or a fairly hard ink eraser. Both must be used cautiously, and with light pressure, and it is better to repeat the application rather than produce the final effect at one application. This method may raise the surface of the paper, but if a highly-glazed paper be bent round the finger tip, and rubbed over the places erased, the surface will be smoothed down, and then these places may be damped with the albumen-gum and further treated, either with colour, knife, or eraser.

Carbon Prints.

The image in these prints, as is well known, is imbedded in

insoluble gelatine, which has some glaze, therefore we must use more gum in our vehicle, and it is frequently more difficult to match the colours. For this reason, some operators dissolve a little of the unexposed tissue in warm water and use the mixture as a pigment to retouch the prints.

Some carbon tissue makers issue special colours for retouching prints on their tissues, and then the work is, of course, much simplified. In any case, if a high-light is to be lightened, Chinese white cannot be used, but we must employ erasion—knife or eraser—though in either case the work is not easy, and requires considerable practice.

Bromide Prints.

The existing fashion in enlargements is for rough or half-matt surfaces, which present no trouble to the retoucher, for they can be worked up with stump and chalk or crayon without much trouble; still, it is advisable to give the prints a coating of water-colour varnish or shellac dissolved in alcohol, and, if they are to be worked up with pastels, the surface should be roughened with pumice powder. If bromides are also coated with warm gelatine solution they can be painted in oils without much trouble.

For spotting or working up with chalks, Hardtmuth's black chalks Nos. 1, 2, and 3, and Nos. 1, 2, 3, 4, and 5 of the "negro pencils" are the most suitable. Stumping chalk and stumps of various sizes, a plain leather pad, scraper, knife, and ink eraser are also required.

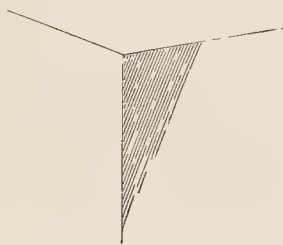


Fig. 1.—The first stroke.

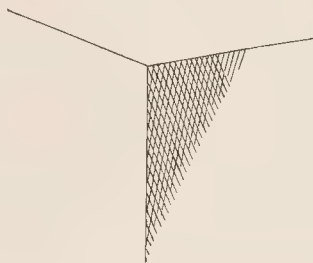


Fig. 2.—The second stroke.

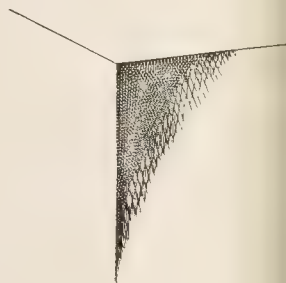


Fig. 3.—The completed tint.

For sharpening the pencils a piece of prepared pumice stone is the best thing.

Retouching of bromide prints is generally and preferably done with the above materials, as it is easier to match the colour and surface of the prints than with water colours, and whites should be put in with the scraper or eraser, and not with Chinese white.

Drawing charcoal should also be provided, and this should be scraped and mixed with the chalk if required, and the best method of doing this is to rub the leather pad with the charcoal and chalk, and then mix the powders with the finger tip or the stump. The use of the finger is very common, but there is no doubt that it is far better to use the stump, as this entirely obviates any chance of greasy marks. The beginner should always adhere to the stump though, whilst, with experience, the finger may be used for putting in extremely delicate work.

The powder having been mixed, the stump should be charged with the same, and any excess of powder wiped off on the leather pad and then the stump applied very lightly to the print with broad, sweeping strokes. Pressure should be avoided as much as possible, otherwise the surface will become glazed, and it makes it more difficult to remove excess of the chalk or to put more on. If the tone is too deep, excess should be removed with a soft leather wrapped round the finger, or in the form of a stump. Both these methods, however,

must be lightly used. It is always easy if one end of the stump kept clean, as it should be, to lighten a spot or equalise the touching, and this can take the place of the leather stumps.

Shading or Cross-Hatching.

For working up backgrounds it is usual to resort to cross-hatching. The work requires practice, and is somewhat tedious when properly done, but the more care taken over it the more effective it is. Practically, it consists in the crossing of numerous parallel lines, and the more lines used the more effective the result and the less it has the appearance of line and the more it gives the effect of grain. The method of working is extremely suitable for large surfaces, and with some artistic skill, it is possible to put in suggestions of form.

In cross-hatching, right angles should be avoided in crossing the lines, and rhomboids or diamonds should, for preference, be the form primarily aimed at in the first two sets of crossing lines; then the third line should divide the diamonds down their length, and in the little white interspaces should now be put a dot. The result is a more or less broken tone, which can, if necessary, in the deeper parts, be converted into closed tones by the use of the stump.

As has already been pointed out, the whites are put in with the knife or eraser, but for clearing up deep tones and large areas the eraser or the softer indiarubber may be successfully used, as may also bread-crumbs.

As a rule, it will be found advantageous to work up the background first, and then turn the attention to the head. The hair may be darkened or worked up, and details put in with the stump or even the pencil. A tint may be put over the whole of the face, and the lights afterwards put in by removal of the chalk with the leather or bread-crumbs. The main thing is to do as much work with the stump and leather, and leave as little as possible for the pencil. For very deep tones, Hardtmuth's chalk in wood "No. soft" (this is the official title) should be used, and lines or "grain" put in, and these broadened with the stump.

When the whole of the work is done the chalk will be entirely removed from the surface, and an accidental touch will remove it. It is necessary, therefore, to fix it, and for this purpose "fixative," which is a commercial preparation, should be used—though white shellac, dissolved by the aid of heat in alcohol and filtered, acts equally well, and, whichever is used, it must be applied by means of a spray diffuser.

In our issue for June 30, p. 506, Mr. Whiting deals with the question of fixative and the best method of applying it.

On the working up of bromides with "mechanical" aids, such as the electric retouching pencil and the aerograph, we do not think necessary to treat; the latter, in particular, being so well known and giving such excellent results as to place it far above any "hand" work.

THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

TWENTIETH MEETING: DUBLIN.

The twentieth meeting of the Photographic Convention opened at Dublin on Monday, July 10. The headquarters of the Convention are the Engineering School of Trinity College, and early on Monday a large number of members had put in an appearance, and had formed into parties for the inspection of the sights of the Irish capital. Monday is a "go-as-you-please" day at the Convention, for the formal opening of the proceedings does not take place until the evening of that day, when the presidential address is delivered and a reception held by the president. Fine weather, relieved by one or two small showers in the early morning, belied the reputation of Dublin for persistent rain, and, as a result, the honorary secretary (Mr. F. A. Bridge) and the local honorary secretary (Mr. Robert Benson) were busy enrolling members and dispensing tickets for the three excursions which are held during the Convention week. The following list may be taken as representing the arrivals up to Monday morning, though, for obvious reasons, it does not claim to be complete:—Mr. W. Taylor (Leicester), Mr. E. J. Humphery (London), Mr. C. H. Bothamley, F.I.C. (Weston-super-Mare), Mr. and Mrs. Alfred Ellis (London), Mr. E. Llewellyn White (London), Mr. F. W. Hindley (London), Mr. T. C. Turner (Hull), Mr. T. K. Grant (London), Mr. Hedley, Mrs. and Miss Smith (London), Messrs. F. W. Sanderson and Goodrich (Cambridge), Mr. George E. Brown, F.I.C. (London), Mr. and Mrs. R. R. Beard (London), Mr. A. E. Atkins (Elstree), Mr. Thorne Baker (London), Mr. A. and Miss Ethel Seaman (Sheffield), Mr. W. H. Smith (London), Mr. W. E. Dunmore (London), Mr. Godfrey Bingley (Leeds), Mr. and Mrs. Spink (Brighton), Mr. and Mrs. De'Ath (Ashford), Miss Ethel Crowther (Derby), Miss R. Goodey (Derby), Mr. Courtney Wells (Gloucester), Mr. and Mrs. J. L. Cox (Macclesfield), Mr. and Mrs. H. Snowden Ward (London), Mr. and Mrs. F. A. Bridge (London), Mr. A. Clout (West Malling), Mr. Walter Potter (Hackney), Mr. and Mrs. Brand (Kinnowel), Mr. and Mrs. Atkinson (Leeds), Mr. and Mrs. Knoblauch, Mr. Temple, Mr., Mrs., and Miss Norton (Oxford), Mr. B. Tompkins (Leeds), Mr. F. B. Catley, Mr. and the Misses Powell (Bath), Mr. and Mrs. Norval (Dunfermline), Mr. White (Dunfermline), Messrs. C. Morgan Smith and S. J. Smith (South Norwood), Mr. and Miss Williamson (Newcastle-on-Tyne), Mr. Errington Cowan (Newcastle-on-Tyne), Mr. A. Bedding (Kilmarnock), Mr. M. S. Bedding (Clapham), Mr. C. A. Blackburn (Leeds), Mr. W. Davies (Sydney, N.S.W.), Mr. J. Taylor (Leeds), Mr. E. J. Walker (Wakefield), Mr. and Mrs. D. E. Benson (Southport), Mr. H. Vivian Yeo (Dublin), Dr. J. Alfred Scott (Dublin), Mr. and Mrs. Cox (Heaton Chapel), Mr. James McGhie (Glasgow), Mr. and Mrs. B. Catley (Harrogate), Mr. and Mrs. Paul Ponge (London). Professor J. Joly, F.R.S., D.Sc., president for the year, arranged

for a visit to portions of Trinity College, and members of the Reception Committee (already published in these columns) kindly placed their services at the disposal of the visitors. A word should not be omitted in appreciation of the tireless efforts of the secretaries of the

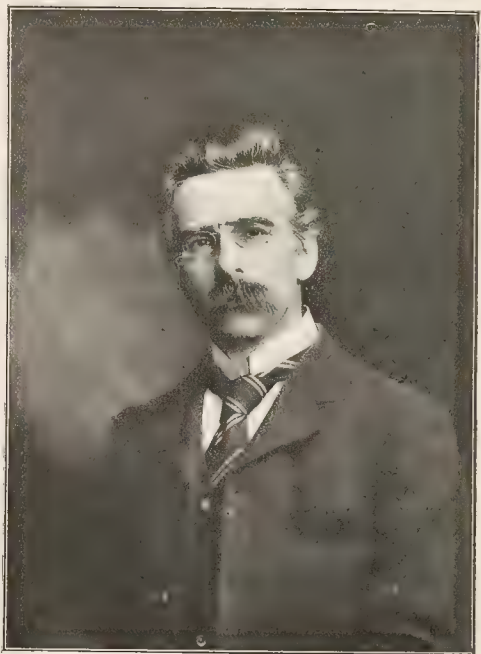


Photo by]

PROFESSOR J. JOLY, F.R.S., D.Sc.,
President of the Dublin Convention, 1905.

[A. Werner.

committees towards ensuring the pleasure and comfort of the guests. Thanks to their well-considered plans, the machinery of the Convention worked with all desirable smoothness.

"THE LATENT IMAGE."

[The following is the full text of Professor J. Joly's address delivered on Monday evening last, July 10.]

My inclination has led me, in spite of a lively dread of incurring a charge of presumption, to address you principally on that profound and most subtle question—the nature and mode of formation of the photographic image. I am impelled to do so not only because the subject is full of fascination and hopefulness, but because the wide topics of photographic methods or photographic applications would be quite unfittingly handled by the President you have chosen. I have already had the honour upon two occasions of bringing ideas on this subject before the Photographic Society of Ireland, and the Photographic Society has, with much patience and fortitude, listened to my views, or my statement of the views of others. I do not propose to try your patience in the same relentless manner. You will notice that the Committee, rendered wise by past experience, has wisely limited the time at my disposal. I will therefore make my remarks brief.

Photo-Sensitiveness at Low Temperatures.

I would first draw your attention to Sir James Dewar's remarkable result that the photographic plate retains considerable power of forming the latent image at temperatures approaching the absolute

zero. A result which, as I submit, compels us to regard the fundamental effects progressing in the film under the stimulus of light undulations as other than those of a purely chemical nature. But few, if any, instances of chemical combination or decomposition are known at so low a temperature. Purely chemical actions cease, indeed, at far higher temperatures; fluorine being among the few bodies which still show chemical activity at the comparatively elevated temperature of 180 deg. C. In short, this result of Sir James Dewar's suggests that we must seek for the foundations of photographic action in some physical or intra-atomic effect, which, as in the case of radio-activity, or fluorescence, is not restricted to intervals of temperature over which active molecular *vis viva* prevails. It compels us to regard with doubt the rôle of oxidation or other chemical action as essential, but rather points to the view that such effects must be secondary or subsidiary. We feel, in a word, that we must turn for guidance to some purely photo-physical effect.

The Strain Feature of the Latent Image.

Here, in the first place, we naturally recall the views of Dr. Bose. This physicist would refer the formation of the image to a strain of

the bromide of silver molecule under the electric force in the light wave, converting it into what might be regarded as an allotropic modification of the normal bromide which subsequently responds specially to the attack of the developer. The function of the sensitiser, according to this view, is to retard the recovery from strain. Bose obtained many suggestive parallels between the strain phenomena he was able to observe in silver and other substances under electro-magnetic radiation, and the behaviour of the photographic plate when subjected to long continued exposure to light.

This theory, whatever it may have to recommend it, can hardly be regarded as offering a fundamental explanation. In the first place, we are left in the dark as to what the strain may be. It may mean many and various things. We know nothing as to the inner mechanism of its effects upon subsequent chemical actions; or, at least, we cannot correlate it with what is known of the physics of chemical activity. Finally, as will be seen later, it is hardly adequate to account for the varying degrees of stability which may apparently characterise the latent image. Still, there is much in Dr. Bose's work deserving of careful consideration. He has by no means exhausted the line of investigation he has originated.

A Photo-Electric Hypothesis.

Another theory has doubtless been in the minds of many. I have said we must seek guidance in some photo-physical phenomenon. There is one such which pre-eminently connects light and chemical phenomena through the intermediary of the effects of the former upon a component part of the atom. I refer to the phenomena of photo-electricity. It was ascertained by Hertz and his immediate successors that light has a remarkable power of discharging negative electrification from the surface of bodies—especially from certain substances. For long no explanation of the cause of this appeared. But the electron—the ubiquitous electron—is now known with considerable certainty to be responsible. The effect of the electric force in the light-wave is to direct or assist the electrons contained in the substance to escape from the surface of the body. Each electron carries away a very small charge of negative electrification. If, then, a body is originally charged negatively, it will be gradually discharged by this convective process. If it is not charged to start with, the electrons will still be liberated at the surface of the body, and this will acquire a positive charge. If the body is positively charged at first, we cannot discharge it by illumination.

Electrons and Ionisation.

It would be superfluous for me to speak here of the nature of electrons, or of the various modes in which their presence may be detected. Suffice it to say, in further connection with the Hertz effect, that when projected among gaseous molecules, the electron soon attaches itself to one of these. In other words, it ionises a molecule of the gas, or confers its electric charge upon it. The gaseous molecule may even be itself disrupted by impact of the electron, if this is moving fast enough, and left bereft of an electron. We must note here that such ionisation must be regarded as conferring potential chemical properties upon the molecules of the gas and upon the substance whence the electrons are derived. Similar ionisation under electric forces enters, as we now believe, into all the chemical effects progressing in the galvanic cell, and, indeed, generally in ionised solutions.

I have here a simple experiment which will at once illustrate the principles I wish to remind you of. A clean aluminium plate carefully insulated by a sulphur support, is faced by a sheet of copper-wire gauze placed a couple of centimetres away from it. The gauze is maintained at a high positive potential by this dry pile. A sensitive gold leaf electroscope is attached to the aluminium plate, and its image thrown upon the screen. I now turn the light from this arc lamp upon the wire gauze, through which it in part passes and shines upon the aluminium plate. The electroscope at once charges up rapidly. There is a liberation of negative electrons at the surface of the aluminium; these, under the attraction of the positive body, are rapidly removed as ions, and the electroscope charges up positively.

Again, if I simply electrify negatively this aluminium plate, so that the leaves of the attached electroscope diverge widely, and now expose it to the rays from the arc lamp, the charge, as you see, is very rapidly dissipated. With positive electrification of the aluminium there is no effect attendant on the illumination.

The Electron in Photographic Action.

Thus from the work of Hertz and his successors we know that light, and more generally what we call actinic light, is an effective means of freeing the electron from certain substances. In short, our photographic agent—light—has the power of evoking from certain substances the electron which is so potent a factor in most, if not all, chemical effects. I have not time here to refer to the work of Elster and Geitel, whereby they have shown that this action is to be traced to the electric force in the light wave, but must turn to the probable bearing of this phenomenon on the familiar facts of photography. I assume that the experiment I have shown you is the most funda-

mental photographic experiment which it is now in our power to make.

We must first ask from what substances can light liberate the electron. There are many; metals, as well as non-metals and liquids. It is a very general phenomenon, and must operate widely throughout Nature. But what chiefly concerns the present consideration is the fact that the haloid salts of silver are vigorously photo-electric, and possess, according to Schmidt, an activity in the descending order bromide, chloride, iodide. This is, in other words, their order of activity as ionisers (under the proper conditions) when exposed to ultra-violet light. Photographers will recognise that this is also the order of their photographic sensitiveness.

Photo Electric Activity and Light Absorption.

Another class of bodies also concerns our subject—the special sensitisers used by the photographer to modify the spectral distribution of sensibility of the haloid salts, e.g., eosine, fuchsin, cyanine. These again are electron-producers under light-stimulus. Now it has been shown by Stoletow, Hallwachs, and Elster and Geitel that there is an intimate connection between photo-electric activity and the absorption of light by the substance; and, indeed, that the particular wave lengths absorbed by the substance are those which are effective in liberating the electrons. Thus we have strong reason for believing that the vigorous photo-electric activity displayed by the special sensitisers must be dependent upon their colour absorption. You will recognise that this is just the connection between their photographic effects and their behaviour towards light.

Photo-Electrics and Temperature.

There is yet another suggestive parallel. I referred to the observation of Sir James Dewar as to the continued sensitiveness of the photographic film at the lowest attained extremes of temperature, and drew the inference that the fundamental photographic action must be of intra-atomic nature and not dependent upon the *vis viva* of the molecule or atom. In then seeking the origin of photographic action in photo-electric phenomena we naturally ask: Are these latter phenomena also traceable down to low temperatures? If they are we are entitled to look upon this fact as a qualifying characteristic, or as another link in the chain of evidence connecting photography with photo-electric activity.

I have quite recently, with the aid of liquid air kindly supplied to me by Mr. Moss, and made in the laboratory of this Society, tested the photo-sensibility of aluminium, and also of silver bromide, down to temperatures approaching that of the liquid air. The mode of observation is essentially that of Schmidt—what he terms his static method. The substance undergoing observation is, however, contained at the bottom of a thin copper tube, which is immersed to a depth of about 10 cm. in liquid air. The tube is closed above by a paraffin stopper which carries a thin quartz window as well as the sulphur tubes through which the connections pass. The air within is very carefully dried by phosphorous pentoxide before the experiment. It was found that a vigorous photo-electric effect continued in the case of the clean aluminium. In the case of the silver bromide a distinct photo-electric effect was still observed. I have not had leisure to make, as yet, any trustworthy estimate of the percentage effect at this temperature in the case of either substance. Nor have I determined the temperature accurately. The latter may be taken roughly as about -150°C . Sir James Dewar's actual measurements afforded 20 per cent. of the normal photographic effect at -180°C . and 10 per cent. at the temperature of -252.5°C .

The Basis of a Physical Theory.

With this much to go upon, and the additional fact that the electronic discharge—as from the X-ray tube or from radium—generates the latent image, I think we are fully entitled to suggest as a legitimate lead to experiment the hypothesis that the beginnings of photographic action involve an electronic discharge from the light-sensitive molecule. In other words, that the latent image is built up of ionised atoms, or molecules, the result of the photo-electric effect upon the illuminated silver haloid, and upon these ionised atoms the chemical effects of the developer are subsequently directed. It may be that the liberated electrons ionise molecules not directly affected, or it may be that in their liberation they disrupt complex molecules built up in the ripening of the emulsion. With the amount we have to go upon we cannot venture to particularise. It will be said that such an action must be in part of the nature of a chemical effect. This must be admitted, and in so far as the rearrangement of molecular fabrics is involved the result will doubtless be controlled by temperature conditions. The facts observed by Sir James Dewar support this. But there is involved a fundamental process—the liberation of the electron by the electric force in the light-wave, which is a physical effect, and which, upon the hypothesis of its reality as a factor in forming the latent image, appears to completely explain the outstanding photographic sensitiveness of the film at temperatures far below those at which chemical actions in general cease.

again, we may assume that the electron-producing power of the special sensitiser or dye for the particular ray it absorbs is responsible, or responsible in part, for the special sensitiveness it confers on the film. Sir Wm. Abney has shown that these sensitisers are active, even if laid on as a varnish on the sensitive surface, are removed before development. It must be remembered that fairly high temperatures these sensitisers lose their influence on film. (See a paper by me read before the Convention in 1894.)*

An Explanation of Recurrent Reversal.

It appears to me that on these views the curious phenomenon of recurrent reversals does not present a problem hopeless of explanation; for the process of photo-ionisation constituting the latent image, where the ion is probably not immediately neutralised by chemical combination, presents features akin to the charging of a capacity—say a Leyden jar. There may be a rising potential between groups of ions till ultimately a point is attained when there is a spontaneous neutralisation. I may observe that the phenomena of reversal appear to indicate that the latent change upon the silver halide molecule, whatever be its nature, is one of gradually increasing intensity, and finally attains a maximum when a return to the original condition occurs. The maximum is the point of most developable image. It is probable that the sensitiser—in the case the gelatine in which the bromide of silver is immersed—takes a part in the conditions of stability which are involved.

Degrees of Stability in Latent Images.

Of great interest in all our considerations and theories is the present work of Professor Woods on photographic reversal. The result of this work is—as I take it—to show that the stability of the latent image may be very various, according to the mode of its formation. Thus it appears that the sort of latent effect which is produced by pressure or friction is the least stable of any. This may be reversed or wiped out by the application of any other known form of photographic stimulus. Thus an exposure to X rays will obliterate or a very brief exposure to light. The latent image arising from X rays is next in order of increasing stability. Light-action will overcome this. Third in order is a very brief light-shock, or sudden

flash. This cannot be reversed by any of the foregoing modes of stimulation, but a long-continued undulatory stimulus, as from a lamp, will reverse it. Last and most stable of all is the gradually built up configuration due to long-continued light-exposure. This can only be reversed by overdoing it, according to the known facts of recurrent reversal. Professor Woods takes occasion to remark that these phenomena are in bad agreement with the strain theory of Dr. Bose. We have, in fact, but the one resource—the allotropic modification of the haloid—whereby to explain all these orders of stability. It appears to me that the elasticity of the electronic theory is greater. The state of the ionised system may be very various according as it arises from continued rhythmic effects or from unorganised shocks. The ionisation due to X rays or to friction will probably be quite unorganised; that due to light more or less stable according to the gradual and gentle nature of the forces at work. I think we are entitled to conclude that on the whole there is nothing in Professor Woods's beautiful experiments opposed to the photo-electric origin of photographic effects, but that they rather fall in with what might be anticipated.

When we look for further support to the views I have laid before you we are confronted with many difficulties. I have not as yet detected any electronic discharge from the film under light stimulus. This may be due to my defective experiments, or to a fact noted by Elster and Geitel concerning the photo-electric properties of gelatine. They obtained a vigorous effect from Balmann's luminous paint, but when this was mixed in gelatine there was no external effect. Schmidt's results as to the continuance of photo-electric activity when bodies in general are dissolved in each other lead us to believe that an actual conservative property of the medium and not an effect of this on the luminous paint is here involved. This conservative effect of the gelatine may be concerned with its efficacy as a sensitiser.

In the views I have laid before you I have endeavoured to show that the recent addition to our knowledge of the electron as an entity taking part in many physical and chemical effects may be availed of, and should be kept in sight in seeking an explanation of the mode of origin of the latent image.

J. JOLY.

CONVERSAZIONE AND EXHIBITION.

On Monday evening the official reception by the president was held at the Royal Dublin Society's Buildings. The address printed was afterwards delivered by Professor Joly, Sir Howard Crosby, F.R.S., president of the Convention on its former visit to Dublin, occupying the chair. At the conclusion of the address, a vote of thanks to Dr. Joly was proposed by Mr. C. H. Bothamley. Conversation followed in the Museum, decorated for the occasion, presenting a brilliant spectacle. The orchestral band of the Royal Irish Constabulary contributed an excellent selection of music till the evening.

On Tuesday a large number availed themselves of the excursion to Malinbegh, and yesterday (Thursday) Bray and the Dargle were visited.

An exhibition of photographs and photographic materials is being held during the week in the Leinster Hall, Molesworth Street, adjoining Trinity College. The largest exhibition is by the Platinotype Company, London, represented by Messrs. W. H. Smith and E. Dunmore, who were responsible for the arrangement of a fine and varied collection of professional portraiture by leading artists, chiefly in the United States, and on the Continent. The motive was made of Platinotype paper in these exhibits was one of the most educative features of the exhibition, and professional members of the Convention—a considerable proportion—had also opportunity of studying the styles and methods of their confrères of the front rank in America and Germany. Among those whose work, in platinotype, was thus shown may be mentioned J. C. Cass, St. Louis; Steffens, Chicago; Benjamin, Cincinnati; Wright Cook, Philadelphia; and Garo, Boston. With these, also, should be named work by Trusberger, Benque and Kindermann, A. Bridgman, H. P. C. Harpur, Goldensky, Frank Moore, and A. Reineke. The portraiture by these professionals is largely of a strong character, to which the British photographer is less accustomed than are the moving spirits of studios in the States, but qualified praise can be given to the great majority of the work, which is good as portraiture, and better still, perhaps, in its variety of that most beautiful and elastic printing process, platinotype. Several prints, in which a light-tinted border had been traced round the picture, and was itself bordered by a margin of the same paper, impressed us as particularly deserving of study. Demonstrations of the process are being given at intervals, and the well-known magnesium lamp of the Platinotype Company is also utilised in a gallery, and a number of portraits taken by it.

* B. J., July 20, 1894, p. 453.

Photolinol, Limited, London (represented by Messrs. Otto Fulton, F.R.P.S. and I. J. Temple), showed a considerable variety of enlargements on their sensitised linen, finished in pastel, sepia, water-colour, or oil. Specimen prints on a new brand (Angelo) of platinum paper were also shown by them, and included sepias made on a cold development paper. A novel series of original background designs with the well-known transparencies, plain and coloured, made up a varied exhibit.

Messrs. Ellis and Walery, 51, Baker Street, London, show half-a-dozen theatrical studies, emphasising the command of strong lighting which characterises this well-known firm's work. One was a fine portrait of Mr. Beerbohm Tree, and another a study of Mr. George Alexander as François Villon, taken on the stage by electric light.

Lafayette, Limited, show a few portraits, commanding in subject and in style of mounting. Several are of beautiful women and children, and the best is a bold piece of portraiture of the Countess of Tankerville and child.

J. Robinson and Sons, Limited, 65, Grafton Street, Dublin, have eight frames, including an oil painting of Lord Roberts, from one of their most popular portraits of the Commander-in-Chief.

Dublin photographers of all men are favoured in their subjects, and in Dublin a photographer's show-case is a portrait gallery of beautiful women. That description applies particularly to the exhibits of Messrs. Chancellor, who make very effective use of oval and circle forms of print. Mr. Bradshaw's work is similar.

Mr. Alfred Werner elected to be represented by one portrait only—that of the president, Professor J. Joly—and reproduced on a preceding page. Mr. D'Arcy showed enlargements in different styles, and a number of coloured miniatures.

Next Year's Meeting.

The annual meeting of the Convention was held on Wednesday morning, at Trinity College, when, on the invitation of the Southampton Camera Club, it was decided to hold the 1906 meeting at Southampton. Officers were elected, and a meeting of the new council held. In the afternoon a garden party was held in the Zoological Gardens by Sir Howard and Lady Grubb, and the annual dinner and smoking concert took place in the evening at the Gresham Hotel, Sackville Street. To-day (Friday), after "To Drogheda," an illustrated paper on "The Use of Extremely Rapid Plates" is to be read by Mr. Thorne Baker, F.C.S.

THE SCOTTISH PHOTOGRAPHIC FEDERATION "BLUE-BOOK" FOR 1905.

This little publication holds the same position in the esteem of the federated Scottish societies that the familiar "Red-Book" does among the affiliated English societies, and its objects and achievements appear to be on similar lines. Particulars of the Federation and competitions, etc., are given, and an admirable gazetteer of places of interest in Scotland for photographers is included.

Two new features are added this year which will be greatly appreciated. One is the appointment of an efficient staff of "experts" in photographic matters. A number of gentlemen have kindly agreed to advise Associates on the various subjects mentioned, and the only condition imposed is that postage must be paid by those requesting advice for return of specimens, etc.

This should prove a very popular addition to the usefulness of the Federation, especially when the extent of the subjects upon which expert advice will be given is seen. They include Apparatus, etc., Optics, Orthochromatic Photography, Stereoscopic Photography, Pin-hole Photography, Composition, Development, Chemistry of Developers, Films, Bromide and Gaslight Papers, Carbon Printing, Gum-Bichromate, Plain Salted Papers, Platinotype Printing, Lantern Slides, Ozotype, Animal Photography, Flower Studies, Geological Photography, Microscopic Photography, Survey Work, Woodland Photography, X-ray Work, and Mounting and Framing, etc. The names and addresses of several gentlemen well known in photography north of the Tyne appear in each sub-section, and we consider that an important step in further binding the societies together has been taken in thus instituting this "expert" department, which should be taken full advantage of by the Associates.

The other new feature is the appointment of local "reporters." In addition to the usual photographic information given respecting each place of interest mentioned in the gazetteer, lists of dark-rooms are supplied, and, in addition, local reporters are appointed for each town. The function of these gentlemen is to supply full information about the districts above their names on receiving a request accompanied by a stamped and addressed envelope.

The following note is also addressed to the Associates:—"Additions to, or correspondence on, the following information (the Gazetteer) will be welcomed from all associates. Associates on tour will be doing a service to the Federation by sending details of places visited, dark-rooms, etc., to the Secretary. The list of dark-rooms given are free for changing, to Associates away from their own districts, on presentation of the "Blue-Book."

The present issue of this useful little book is 2,500, and the advertisements fully demonstrate that advertisers are beginning to note the value of this medium of reaching Scottish photographers.

Congratulations to Secretary MacLachlan on its production.

At the annual "At Home" held at the president's residence, Alston Lodge, Ilford, the members of the South Essex Camera Club presented the president (Mr. Walter D. Welford) with a silver cigarette case and match box, suitably engraved. Mrs. Welford, who is a vice-president, also received silver-mounted toilet requisites. The case was engraved, "To President Welford as a token of esteem."

THE OPTICAL SOCIETY.—At the final meeting in the present session of the Optical Society Lord Kelvin and Sir William Christie, Astronomer Royal, were elected honorary members of the Society.

MR. ROBERT C. MURRAY, photographic and scientific instrument maker, informs us that he has removed his office to No. 13, Garrick Street, on the ground floor (Messrs. Suckling and Co., booksellers), opposite to his old address for the past many years. The new address should be noted by Mr. Murray's many patrons.

Exhibitions.

THE ILFORD COMPETITION PRINTS.

In our last issue we published the list of names of the prize-winners in the Ilford £750 cash prize competition, and on Friday last we were enabled to view the winning prints at The Modern Gallery, 6, New Bond Street, London, W., where they are now on exhibition. This exhibition was opened to the public, admission free, on Saturday, and remains open until 6 p.m. this evening (Friday). Over 400 photographs are on view, and the show is a notable one in many respects than one. It gives a very clear idea of the ubiquity of the famous Ilford firm; photographs from every part of the world are to be seen here. Prints from far Ceylon hobnob with specimens of the photographic industry from Victoria, and striking examples of Russian snapshots hang cheek-by-jowl with work from Java. Of course, the exhibits by English photographers predominate, as might be expected, but the cosmopolitan nature of the entries, and the fact that every picture is produced on Ilford materials, must be extremely gratifying to the organisers. It will be remembered that in the announcement of the competition, made some time ago, £380 was the sum set aside for prizes for professional photographers only; £282 10s. was for amateurs, and £87 10s. for junior amateurs. The actual money prize awarded considerably exceeded these sums. We understand this was necessary owing to the enormous number of entries and their average standard of merit.

No indication of the authors of the pictures is given on the exhibition, but it is not difficult to identify the work of Will Cadby, Mrs. G. A. Barton, and other well-known amateurs, whose names figure with regularity in these prize competitions. As many competitors did not wish their names announced in the prize list, the organisers decided not to affix either the names of the photographers or the amounts of the prizes on the pictures, but this does not detract one iota from the pleasure a contemplation of these photographs must give to every visitor.

The prints have been uniformly framed in neat brown oak frames, but in every case the original mounting of the photographs has been left intact. The walls being covered with a light shade of neutral brown, the entire effect is very pleasing; and the lighting of the Gallery is excellent.

Some very good beginners' work was pointed out to us, and, among the higher pictorial work, landscapes and figures were in the majority. There is very little obviously "professional" photography on view—that is, the usual show-case type of thing, and for this we are thankful, well knowing that a great bulk of the pictures are by professional photographers. The processes employed appear to be fairly evenly distributed between Ilford bromide papers, Ilford P.O.P., and Ilford Platona paper. One or two striking prints, on the last-named particularly, attracted our attention by reason of their fine quality and "juicy shadows," well demonstrating the excellent properties of this product. A large landscape subject by H. S. Parsons is notable in this respect. It is a big print, about 20 by 16, and possesses all the attributes of a fine composition.

J. C. Warburg has a pleasing little study in "And Pulled Out Plum," and an admirable little landscape of a fine colour is shown by George Brown. Another landscape, with some splendid colour forms that possess the quality of a good water-colour drawing, is from Ormonde E. Challis, and proves beyond question the advantages of using the Isochrom plate. A flashlight interior by W. Page is one of the best of its kind we remember having seen, and a male costume model subject entitled "Awaiting Developments" is also noteworthy, as possessing none of the incongruities usually associated with attempts of this sort by photography. It is by J. H. Symington.

A series of five very fine instantaneous photographs of torpedo boat destroyers and battleships under full steam are sure to attract considerable attention.

Not only are they very excellent examples of high-speed work, but they possess striking pictorial qualities. In addition to this, the facts that the craft depicted are Russian and the photographs are by an officer of the Russian Navy will considerably add to their interest. Two delightful figure studies by ladies are among the best things in the show. One is by Mrs. L. A. Armour, of the United States, and all the qualities of a fine etching, and the other is by Mrs. C. Comnor. A dainty child study by Will Cadby is in this worker's best style, and a clever flower study by B. J. Jackson deserves attention.

Mrs. G. A. Barton's contribution is well chosen. A large print on Platina paper, depicting some old Dutch houses and delightful reflections, is an example of very high technical work combined with pictorial merit. It is by F. Jonson. A fine effect of a river streaming between headlands of a valley to the sea, and the setting sun is shown in a picture by E. W. Taylor, and work by A. W. Adreé, of Ceylon, Herbert Bairstow, Graystone Bird, H. Kuijk, of Java, A. K. Chatterjee, Miss Constance Collier, Captain A. d'Azevedo Silva, Dan Dunlop, Albert Durn, C. A. Hoppé, S. Ishizu, Walter Ilbey, S. G. Kimber, Mrs. R. M. King, A. J. Campbell, of South Australia, H. C. Leat, H. T. Malby, Ernest Marriage, J. O. Mba, Pike, Clarence Ponting, Victor Stouffs, Misses A. and E. Tomson, Mrs. J. Welford, and many others helps to swell the display of good things. The Ilford Company are to be congratulated on the result of their efforts, and both the competition and the exhibition could bring them a goodly return.

THE AEROGRAPH EXHIBITION.

An exhibition of the drawings and photographs in which that well-known instrument the aerograph has been used, has just closed in London, and the promoters may be congratulated on having brought together a most interesting collection of work, including not only photographic portraits "finished" by the aerograph, and photographs for process reproduction worked up by the same means, but also jewellery, decorations on pottery and silk, Christmas cards, window tickets, and hand drawings, the means of production in each case being solely partially the aerograph. The sum of 100 guineas in prizes was offered by the Aerograph Company, Limited, and the following awards were made by J. Martin Wood (of the editorial staff of "The Studio"), George E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY), and William Gamble (editor of "The Process Year Book") :—Freehand drawing—1, S. Winney, 34, Stillness Road, Forest Hill, S.E.; 2, David L. Wilson, 121, Cartvale Road, Langside, Glasgow. Photographs—1, H. Gordon Chase, Broadway Studio, Tunbridge Wells; 2, Miss Robinson, Littleton House, High Road, North Tottenham. Finishing for Process—1, Wilson and Hudson, Gravens, Manchester; 2, Percy T. Edwards, Thanet House, 231, and Window Tickets and Show Cards—1, A. Andrews, 78, Narne Avenue, Clapham Common; 2, Dyke Brothers, 583, Mare Street, Hackney, N.E. Christmas Cards—1, W. Harrison, 15, Forest Avenue. Jewellery and Metal Enamelling.—Frederic Crane, Chemical Company, Birmingham. Mural Decorations.—Sanderson and Son, Chiswick, S.W. Commended—Miss Elsie M. Jenkins, 200, Kent Street, W.; and Mr. Evans (Clements and Newling), 28, Russell Street.

The Gateshead Camera Club has secured rooms at the Mechanics' Institute, Gateshead, on good terms, and the annual subscription is reduced to five shillings. The new premises, it is hoped, will afford better comfort and convenience to the members and result in an increase in their numbers.

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issott, 62, Compton Road, Harehills, Leeds.

July 15-25.—Sixth International Salon Association Belge de Photographie, Liège. Secretary, Mr. Servais, 34, Rue du Saint-Esprit, Liège.

August 7.—Andover. Hon. Secretary, W. I. Gradidge, Jubilee House, Andover.

August 24 to September 21.—Berwick-upon-Tweed Arts Club. Hon. Secretary Pictorial Photography Section, H. Hancock, 56, Ravensdowne, Berwick-upon-Tweed.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

September 21-October 23.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 19-21.—Grangemouth Amateur Photographic Association. Hon. Secretary, Robert Marshall, 3, Park Terrace, Grangemouth.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November 3, 4, 5.—Motherwell Young Men's Institute C.C. Hon. Secretaries, James Dunlop, Myrtlebank, Motherwell, and Archibald Matthews, 24, Enfield Place, Ladywell, Motherwell.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern Amateur Photographic Association.

November 25-December 2.—Glasgow Eastern A.Ph.A. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarnock Street, Parkhead, Glasgow.

December.—Muirkirk A.Ph.A. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. MacLachlan, Blairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph.A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern Ph.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blauhill, Coatbridge.

FORTHCOMING COMPETITIONS.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour; (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between June 26 and July 1:—

IMPROVED CLIP.—No. 13,222. An improved clip for suspending photographic prints, films, and the like during the operations of developing, washing, and drying. Walter Taylor, 13, Brunswick Square, Camberwell, London.

APPLIANCE FOR HOLDING PRINTS.—No. 13,302. Appliance for holding photographic prints and the like when their backs are being gummed or pasted. Arthur Findlay Sturrock, 41, Reform Street, Dundee.

IMPROVED ENVELOPES.—No. 13,475. Improvements in covers or envelopes for protecting photographic prints and the like. Jamie Lambert, 24, Southampton Buildings, Chancery Lane, E.C.

TIMING DEVELOPMENT.—No. 13,422. Apparatus for timing the development of photographic plates. Mario Fortini, 18, St. Ann's Terrace, Barnes, London.

CAMERA SUPPORT.—No. 13,582. Improved adaptor standard for supporting cameras. Herbert Edward Hickox and Herbert Dawson, 22, Southampton Buildings, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

REFLECTOR HAND CAMERAS.—The camera has a mirror and ground glass of the usual type, and to the front of the mirror-carrier is attached a hanging curtain or blind. Just below the carrier this blind has an opening of suitable extent, and below the opening there is enough blind to cover the back of the lens when the carrier has risen to the top of the camera. Instead of the usual cord, a sliding bar, working in the side of the camera, is used to pull down the mirror, which is held by a catch and released by pressure on a stud, which raises the blind, the opening in which allows the light to fall on the plate; the continuation of the rising movement causes the blind to cover the aperture of the lens. An auxiliary shutter is provided, which may be in the form of a wing, and lies flat against the board in front of the mirror, and, when the latter is at the top of the camera, this auxiliary shutter covers the lens aperture and keeps it covered till the mirror is set. The claim is for the method of automatically removing the auxiliary shutter from the lens aperture by the use of a shaped lever actuated by a sliding bar. Samuel Dunseith McKellen, 14, Market Place, Manchester.

CAMERA HOLDING DEVICE.—No. 9,124, 1905. The invention consists of two tripod plates, one of which is secured to the tripod, and the other to the camera; the latter is provided with clip pieces, between which the tripod-plate may be inserted so that the two are at right angles; the purpose being to provide a simple device whereby the camera may be quickly and readily reversed without having to unscrew it from the stand, as is now necessary in the case of cameras not provided with reversing backs. Montague Curtis Rock, Sunnyside, Royal Parade, Chislehurst.

WASHING AND DRYING PRINTS.—No. 10,485, 1905. The invention pertains especially to a machine for washing and drying blue prints, the object being to wash and dry them by the same machine, and to obviate handling the prints. It consists of an upright washing tray, with semi-circular, basin-like bottom, and is provided with a spray pipe. The prints are supported on rods which are held by sprocket chains provided with hooks. After the prints are developed they are carried, by means of the sprocket

chain, on the rods, and thus drain, and are automatically deposited with their rods on the drying brackets. Charles Francis Pease, 172, West Locust Street, Columbus, Ohio, U.S.A.

New Materials.

The "Tabloid" Photographic Outfit. Made by Burroughs, Wellcome, and Co., Snow Hill, London, E.C.

The preparations of Messrs. Burroughs and Wellcome have always been characterised by a delightful compactness and neatness, and their "Tabloid" chemicals have a world-wide reputation for accuracy and quality.

Their "Tabloids" prepared especially for photographic use have proved "just the thing wanted" to make possible the development, etc., of holiday exposures whilst on tour. Apart from this, however, the handy form in which these products are presented, and their reliability and convenience, render them always a desirable adjunct to every dark-room. Solutions of any desired strength can be made up as required without waste of time or material, and the purity and proportions of the chemicals can always be depended on.

A convenient travelling case in which to carry a selection of these tabloid developers, etc., has often occurred to us as being very



desirable, and we were aware that Messrs. Burroughs and Wellcome frequently fitted up special cases to order.

They have now placed upon the market a remarkably complete and neat outfit of photographic chemicals in a strong metal box, which sells at the not unreasonable sum of 5s. The contents of this little "tourists' companion" comprises "Tabloid" chemicals for developing and fixing plates, films, bromide or gaslight papers, also for toning and fixing P.O.P. Indeed, for those with limited space at their disposal, it can easily take the place of any extensive dark-room furnishing, in the shape of bottles of solutions.

To the photographer on a walking or cycling tour, the portability of this little outfit must inevitably appeal. It weighs but little, and the outside measurements of the case, which has rounded corners, and is nicely japanned, are but $4\frac{1}{2}$ by $4\frac{1}{2}$ by 2 in.

The contents of the case include "Tabloid" pyro developer to make 40 oz., "Tabloid" metol-quinol developer to make 44 oz., "Tabloid" combined toner and fixer to make 30 oz., "Tabloid" hypo, and "Tabloid" potassium bromide. This is the standard fitting, and all cases are thus issued unless otherwise ordered. The contents, however, can be varied according to the special needs of the photographer.

The "Marion-Iso" Plate. Made by Marion and Co., Ltd., 23, Soho Square, London.

Messrs. Marion have been so long associated with the manufacture of dry plates, and have placed within the reach of all photographers

series of ordinary dry plates, each member of which possesses excellent and distinctive qualities, that when at length they offer a colour-sensitive plate, the step is one of considerable interest to all those who have already had occasion to respect their manufacturing methods. The new "Marion-Iso" is, first, a plate of notable colour-sensitiveness; and, secondly, a very rapid plate. The conjunction of these two qualities in one emulsion is highly favourable to proper use of an isochromatic plate, for it is desirable in almost every case to employ it behind a yellow screen, and when that course is pursued without unduly prolonging the exposure, the gain to the user is manifest in every phase of practical work. We have subjected the plate to a variety of tests to ascertain its behaviour regarding these two essentials, and the results convinced us of its merits as an orthochromatic plate. It possesses the further advantage of developing quickly, and yielding negatives of good gradation and freedom from fog. Our exposures were developed with pyro, and the results, both of snapshots at 1-250th second (without a screen), and of coloured objects photographed through a medium screen, satisfied us as to the makers' claims in the matters of great speed and colour-sensitiveness.

The following figures, obtained by Mr. C. E. Kenneth Mees, B.Sc., data, certain of which will be found convenient by those who develop by calculation, although it must be observed that the value of inertia of an orthochromatic plate depends on the character of standard light to which the plate is exposed, and the figure obtained with screened acetylene light, as used by Mr. Mees, may differ from those resulting from the use of other lights:—

Inertia (H and D, pyro-soda) 320
 $\gamma \propto$ (density—giving power of plate) 1.70
 (velocity constant of development with standard ferrous oxalate 0 deg. C.), .150.

Time necessary to obtain a standard gradation of 1), six minutes.
 (ratio to blue light, and an index to the latitude of the plate),

Colour-sensitiveness ratio $\frac{\text{blue}}{\text{yellow}} = 4.5$.

On the plates, we have only to add, to recommend them to the discriminative photographer; are sold at the popular price of 1s. per quarter-plate, and 2s. 3d. per dozen half-plate.

Value of Photography to Modern Journalism.—Pictures have always exercised a fascination over the minds of human beings, and in remote ages, when the art of pictorial representation was singularly crude, says the "Daily Mirror." With the development of and in a special manner photography, this fascination has grown more powerful, more irresistible than ever, and modern journalism has not been slow to avail itself of the extraordinary advantages which the camera has placed within its reach. Our contemporary has probably as much experience in this sort of thing as any illustrated paper, and the almost startling rapidity with which events of the day are fully reproduced the next morning in its columns speaks for modern "push" in taking advantage of the latest developments in photographic processes.

The latest number of "The Photo Miniature" (No. 69) deals with "Cutting-Out Papers" and "Kallitype to Date."

PHOTOGRAPHY at Fraserburgh.—A meeting of those interested in their photography and favourable to the formation of a club was held in the Dalrymple Cafe, Fraserburgh, last week. Mr. Lees, Rector of the Academy, presided. It was resolved to form a society, and the view of imparting life to it, it was arranged to hold a lantern exhibition of slides made from members' negatives. A provisional committee to make preliminary arrangements was appointed.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
15.....	Birmingham Photo. Society. ...	Garden Party at Pine Crest, Barnet Green.
15.....	North Middlesex Photo. Soc. ...	Outing to Limpsfield Common.
15.....	Bowes Park and Dis. Ph. Soc. ...	Trip to Wheatthampstead.
15.....	Cricklewood Photo. Society. ...	Outing to Ferivale.
15.....	Manchester Amat. Photo. Soc. ...	Trip to Dane Valley.
15.....	Watford Camera Club ...	Outing to St. Albans and Park Street.
17.....	South London Photo. Society...	Jumble Sale.
17.....	Southampton Camera Club	1. "The Carbon Process." Mr. C. D. Kay. 2. "The Platinum Process." Mr. S. G. Kimber. Demonstrated.
17.....	Bowes Pk. and Dis. Ph. Soc. ...	Competition, Prints of President's Day and River Thames Outings.
19.....	Manchester Amat. Photo. Soc. ...	Mounts and Mounting. Mr. T. L. Cooper.
19.....	North Middlesex Photo. Soc....	"The After-treatment of Negatives" (Intensification, Reduction, &c.). Mr. J. McIntosh.
19.....	Everton Camera Club ...	Half-Day Outing to Dibbinsdale.
19.....	Southport Photographic Society	Trip to Dovedale.
23.....	Everton Camera Club ...	Half-Day Outing to Dibbinsdale.

SHEFFIELD PHOTOGRAPHIC SOCIETY.—The annual meeting of this Society was held on Tuesday last week in the Builders' Institute, Sheffield. The report and balance-sheet were presented. The Council regretted to announce a financial loss on the exhibition and social evening. It appealed to the public to support the coming exhibition more strongly. The new officers were elected as follows:—President, Mr. G. E. E. Noble; Vice-Presidents, Messrs. Charlesworth, Muxlow, and Simmonson; Council, Drs. Helm and Paterson, Messrs. Day, Hill, Gilbert, Jackson, De Silva, Nutt, Seed, Wigfull, and Tomlinson; Treasurer, Mr. T. G. Hibbert; Reporter, Mr. G. D. Harrison; Lanternist, Mr. W. H. Stubbs; Secretary, Mr. J. W. Wright. The result of the monthly competition for the whole year was given, the medals being won by Mr. Simmonson and Dr. Helm.

WOOLWICH PHOTOGRAPHIC SOCIETY.—Mr. G. W. Tapp, having resigned the post of Secretary of this Society, Mr. G. A. Saffron has been appointed in his place. All communications should be addressed to him at 18, Winchester Street, Silvertown, E.

TAMWORTH AND DISTRICT PHOTOGRAPHIC SOCIETY.—The members of this Society had very enjoyable outings on Wednesday and Saturday last week, when visits to Maxstoke were made, the parties being conveyed by brakes.

WEYMOUTH PHOTOGRAPHIC SOCIETY.—The third monthly outing of the members and friends of this Society took place on Wednesday of last week, when Bournemouth was visited.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—The syllabus of meetings and outings arranged by this Society, to take place between July and September, is to hand, and a great variety of papers and demonstrations are announced, which speaks well for the vitality of the Society during the "off" season.

WATFORD CAMERA CLUB.—The annual exhibition of this Club will be held on Wednesday and Thursday, December 6 and 7 next. There will be the usual classes for members, and also a class for members of Hertfordshire clubs, and an open class.

A PHOTOGRAPHIC society has been established in Shanklin, Isle of Wight, with Mr. Maxey as secretary.

WALSALL AMATEUR PHOTOGRAPHIC SOCIETY.—On Monday last this society held their annual picnic.

"FIGURE STUDIES, Groups, and Genre" are the subjects dealt with in the current number of "The Practical Photographer" (Library Series). The pictorial work of W. Rawlings forms the editorial contribution.

Commercial & Legal Intelligence

PHOTOGRAM, LTD., London, E.C.—Lien registered June 29, for £100 Five per Cent. debenture, part of £1,000; amount previously issued, £882; no trustees; charged on stock-in-trade and goodwill.

WATER Developing (Photographic) Syndicate, Ltd.—Registered June 28. Capital, £2,000 in £1 shares. Object: To adopt an agreement with D. W. Hart, to manufacture, under a certain patent or process, materials for developing, fixing, intensifying, reducing, and chemically dealing with photographic plates, films, and papers, and to carry on the business of photographers, photographic printers, etc., No initial public issue. The first directors are O. Sichel, E. L. White, C. Fitch, and D. W. Hart.

J. DAVENPORT and Company, Limited.—This company has been registered with a capital of £500 in £1 shares. Object, to take over the business of dealer in photographic materials, etc., carried on by F. J. Hearn, at 20, Eldon Street, E.C., as J. Davenport. Registered office, 20, Eldon Street, E.C.

DOUGLAS and Walls, Limited.—This company has been registered with a capital of £2,000 in £1 shares. Object, to adopt an agreement with W. B. Douglas and T. R. Walls, to acquire the business carried on by the vendors at 19, Old Hall Street, and Irwell Chambers, Fazakerley Street, Liverpool, as Douglas and Walls, and to carry on the business of draughtsmen, engraving, and architectural photographers, printers, drawing-office material and general stationers, bookbinders, etc. Registered office, 19, Old Hall Street, Liverpool.

FORESHORE RIGHTS.—At the Weston-super-Mare Police-court last week a case was heard in which much interest was taken by those who vend goods on the sands. Giles Midsummer Williams was summoned by the Urban District Council for erecting a photographic stand and advertising board on the foreshore without obtaining permission. The offence was committed on Whit-Monday. The defence put forward was that defendant's van could not be termed an erection under the bye-laws. The Bench imposed a fine of £4 and allowed the court fees and solicitors' costs. In a similar case against Francis Harris, defendant pleaded guilty, and was ordered to pay a fine of £1.

A PHOTOGRAPHIC Transaction.—At the Wigan County Court, last week, Alphonsus John Smith and Co., photographers, of Moot Hall Chambers, Wigan, were the plaintiffs in an action against James Wright, publican, of Platt Bridge. The claim was for 14s., balance of account for a portrait of the father of defendant's wife. Mr. H. N. Bryan, who represented the defendant's wife, urged that the plaintiffs had taken two years to perform the contract, and did not then supply six cabinet pictures contracted for, although suing for the same. Defendant's wife was called, and she stated that the eyes in the portrait were not properly coloured, although she had given instructions as to the colour they were to be. The Registrar decided that six suitable cabinet pictures should be supplied and brought into court, the defendant thereupon to pay the balance of 14s., with court fees only. The portrait was exhibited in court, but the defendant refused to take it away at the time.

CHARGE Against a Plymouth Man.—At the Dulverton Police-court last week Frederick William Harding, of Plymouth, lately in the employ of Alfred Joseph Hall, photographer, of 95, Fore Street, Exeter, was charged with embezzling 6s., the money of Mr. Hall. According to the prosecutor's evidence, prisoner was a canvasser of orders for enlargements, and also took photographs, on which he was allowed a commission of 20 per cent., in addition to his wages of 10s. per week. Prisoner had taken several photographs of people in and around Dulverton, but had not accounted for the money.

Prisoner pleaded not guilty, contending that, according to a letter written by his master, he was allowed to deduct his commission soon as he received the deposit money, which he had done in this case, and also in one or two others, because money was due to him from Mr. Hall. The Bench dismissed the case from want of sufficient evidence.

SUNDAY Trading.—George Chaplain, photographer, 83, Station Street, Burton, and Robert Widdle, of the same address, were charged on Friday last with an infringement of the Lord's Day Observance Act on the previous Sunday. Detective Smith on Sunday visited the shop occupied by the defendants. Widdle was outside inviting people to have their photographs taken and Chaplain was at work in the shop. A man named Smith, taken back to the shop, admitted that he had paid defendants 6d. for having his photo taken. Chaplain told the Bench that he was no more violating the law than the Corporation who ran the trams. Men were working in the breweries, and he opened his shop to get a living. Defendants were each fined 10s. including costs.

News and Notes.

IN "The Secretary's Letter," the chatty little monthly pamphlet issued by the Scottish Photographic Federation, we note the following good tale. It was during the recent annual excursion of the Federated Societies to Blairgowrie, and Kinclaven Castle was visited. "This said visit led to a very cruel joke on the part of one of the lady Associates, for which we trust she is now sorrowfully penitent. The lady remarked: 'No wonder you Blair photographers are adepts.' Surprise appeared on the faces of the Blair representatives at thus being pitchforked into such a prominent position, but they were less nervous than the rest stuttered out 'How?' The reply came immediately: 'You have been so long at photography.' Again Blair astonished, but one local Associate ventured to suggest that he had heard that Dundee had held one of the first photographic exhibitions, if not the first, in the country, so he did not see why the antique came in as far as Blair was concerned; but, with a smile the lady retorted: 'Ah! but I noticed at Kinclaven that Walter Scott 'took' the Castle in 1297.' It's a mercy we're a' spared!"

WITH the current issue the "British Advertiser" starts a new feature in journalism. An attempt to classify current advertisements under the different heads is being made so that the man who is interested in photography or cycles can see at a glance what other advertisers are saying about cameras or cycles; the man who is interested in coal is the object in life can see what his fellow traders are saying about coal; the grocer what they are saying about grocery, and so on. Such a section should be of great service to the man who is in business it is to compile advertisements. A catch line here, a word there, may give him the clue to a totally distinct and original advertisement. The publishers advise us that they will be pleased to send a specimen copy showing this new feature to all who apply to them mentioning the BRITISH JOURNAL OF PHOTOGRAPHY. Their address is Queen Anne's Chambers, Westminster, S.W.

"THE HOLIDAYS: Where to Stay and What to See" is the title of a bulky volume published by Walter Hill, of 67-71, Southampton Row, London, W.C., at 1s. The contents comprise the seasons of the year, farmhouse, country lodgings, and hotel guides, published by this firm for the six principal English railways: The Great Western, London and North-Western, Midland, Great Northern, Great Central, and Great Eastern. Full particulars of all places of interest that can be reached by these systems are given, and maps and other useful information tend to make the book an exceedingly valuable one.

one contemplating a holiday. Its value to the photographic artist is obvious. The six guides can be obtained separately, price penny each, or free from the respective railway companies' agents or agencies.

PLEASANT departure from the usual lines was made by the Society of Arts last week in holding their annual conversazione in the gardens of the Royal Botanic Society rather than in a hall or gallery. William Abney, F.R.S., Chairman of the Council, supported by a number of the members, received the numerous guests at the entrance to the conservatory.

PHOTOGRAPHIC Survey of Sussex.—Although comparatively little has been heard of it since its inauguration in April of last year, the work of the organisation which was formed to carry out a photographic survey of Sussex has been proceeding very satisfactorily, ample justification for the movement is certainly to be found in results already obtained. Some thirty-eight of the sections into which the county was divided have been taken up by the supporters of the scheme, and up to the present their efforts with the camera have produced well over 600 photographs of objects of historical interest and other subjects of which it is thought advisable to preserve a permanent record. We learn from the "Sussex Daily Express" that to stimulate interest in the work, exhibitions of a selection of the photographs are being organised. The first will be held at Brighton from July 19 to August 9, and will probably be moved to Hastings shortly afterwards.

The printed report of the annual meeting of the National Photographic Record Association has just reached us. We have already referred to this meeting, and now note the complete list of officers for the ensuing year:—President, Sir J. Benjamin Stone, M.P.; Vice-President, the Right Hon. the Earl of Crawford, K.T.; Sir E. Maund, K.C.B., D.C.L.; Sir H. Trueman Wood, M.A.; F. R. Wythe; G. T. Brown; C. E. Fagan; L. Fletcher; H. W. Fincham; Haslam; A. Horsley Hinton; St. John Hope; B. E. Lawrence, Esq.; A. Mackie; G.A.T. Middleton; Dr. H. R. Mill; N. B. Pugh; H. Snowden Ward, Mrs. C. Weed Ward; H. B. Wheatley, Esq.; hon. treasurer, A. Graham, F.S.A.; hon. secretary, George Pell.

PHOTOGRAPHIC Survey of Essex.—By invitation of Lady Warwick, members of the Essex Field Club held a meeting at Easton Lodge on Saturday last for the purpose of inaugurating a photographic and archival survey and record of Essex. Lady Warwick took the members over her extensive gardens and entertained them at luncheon. The meeting was afterwards held, under the presidency of Mr. David Ward. Mr. Miller Christy explained that the object of the survey was to make a permanent collection of photographs and other records of objects of interest, also maps, plans, and other documents in order to give a comprehensive survey and record of all that was valuable and representative of the county of Essex. These pictures and documents would be filed at the museum of the Essex Field Club at West Ham, where they would be open to the inspection of local antiquarians, pressmen, and all who were interested in the history of the county. He appealed to all the organised photographic societies of Essex, as well as unattached photographers, to assist the Committee in their work. We hope that not only will this attention be well responded to, but that the example set forth will be followed in many other counties. Old country features are being rapidly swept away, particularly near London and the great manufacturing centres of the North, that unless they are now recorded in photographs the memory of them will soon entirely disappear. We have lost so much of the picturesque that we cannot afford to let more of it vanish without making records which shall be accessible to all.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

ADVERTISING AND THE PROFESSIONAL PHOTOGRAPHER.

To the Editors.

Gentlemen,—In your issue for April 7 Mr. W. J. Casey suggested to professional photographers that "The announcements of births in the local newspapers be filed; about two or three months later a letter might be sent suggesting that Mrs. So-and-So may possibly be requiring some photographs, etc." Although only one of your amateur readers, I do not disdain to read what you publish for the benefit of my professional brethren.

I was, therefore, immensely amused when my wife handed me one morning last week the following letter, written, and neither type-written nor printed:—

"Dear Madame,—Your son will be two years of age on Tuesday, the 11th inst., and if you will bring him to our studios we shall have much pleasure in photographing him free of charge.

"Awaiting the favour of an appointment, which is necessitated by the very large number of children that are brought to us, we remain, yours, etc."

I may state that this letter emanates from a studio not 100 miles from Bond Street.

Is this the result of Mr. Casey's good advice, or has he got the idea from this firm? I do not see, on reference, that your contributor suggested the "free-of-charge" dodge, but I venture to bring it to the notice of your readers, as it may be of use to some professional photographer as a hint.—Yours faithfully,

GEO. TERRY, Amateur.

London, E.C.

P.S.—My wife said that she did not see why she should travel thirty miles to get the child photographed for nothing, when I did it every month, and did it, she was quite sure, as well as they or anybody else could do it, for nothing. This, of course, is merely wifely pride.

To the Editors.

Gentlemen,—There can be no doubt that the series of practical articles which appeared recently in the BRITISH JOURNAL on advertising for photographers have been of considerable service to many professionals, including myself, and it was with particular pleasure I perused the admirably produced pamphlet by Mr. F. W. Speaight to which you referred last week. Quite apart from the value of the suggestion made by Mr. Speaight for the improvement of the approach to the Marble Arch, one cannot but admire the splendid subtlety apparent in the absolute suppression of any reference to the author's identity beyond the invitation to inspect the original plans in the galleries at 157, New Bond Street, London, W. This, coupled with the princely offer of 500 guineas towards the scheme, must undoubtedly set tongues a-wagging; and the question that naturally first arises in the minds of the uninformed is "Who is Speaight?"

Very little investigation soon establishes the photographer's identity, and no finer form of discreet advertising could possibly be conceived. I hope, however, I am not giving Mr. Speaight credit for a purpose that he did not contemplate when drafting his admirable scheme for the improvement of this part of one of London's thoroughfares, but in any case the instance can be taken to heart by every photographer as an example of the advertisement de luxe.—Yours faithfully,

PUSHING PRO.

Nottingham, July 8.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

John Weir, Burn Cottage, Moffat, N.B. Two Photographs of "The Smithy," at Wamphray, County of Dumfriess.

Lacy & Clay, South Street, Calster, Lincs. Photograph of Group of "The Committee of the United Friendly Societies of Calster, Lincolnshire."

Charles Arthur Harris, Wesley House, Merthyr Tydfil. Photograph of Reading of Charter of Incorporation at the Town Hall, Merthyr.

BLUE PRINTING.—What are the possibilities of a photo-printing office?

by this I mean where the usual blue prints, etc., are made and where tracings from engineers' and architects' drawings could be combined. I am at present a draughtsman, and quick at tracings, and am also an amateur photographer of some years' experience, having won several prizes in open competition, and have made small blue prints by sunlight for my own amusement. As, however, I see very little prospect beyond being a draughtsman all my life, I feel that I should like to learn the photo-printing business, with a view, after some years' experience, of forming a business of my own, and I shall esteem it a great favour if you could tell me if it is a business that is likely to increase, the best means of obtaining a situation in London, and the salary I could ask? If you are unable to answer these questions I should be very grateful if you could put me in communication with some one on the various points asked.—A. H.

We cannot hold out much prospect. Surely you, as a draughtsman, know the sort of wages paid to blue-printers. Work of this character is now so simplified by the modern papers that a boy can be set to make copies. Possibly in manufacturing centres in the North of England there may be openings for a business of the kind, and such businesses have occasionally been advertised in our columns.

DARK SLIDES—I should be very much obliged if you will put me right regarding my dark slides. I have three double-backs, and I find that the linen where the door of the slide folds back has perished. I must replace the linen, but I am at a loss to know how it is stuck on and what to re-do the slide with to render a dead black?—READER.

Black linen or silesia can be obtained from almost any draper or photographic dealers, and ordinary glue or a ready-made adhesive like secotone would answer to make it adhere. As regards blacking, if black linen is used, this would not be required, but if ordinary unbleached calico were used then a little drop black, rubbed up with ordinary negative varnish and rubbed in with a fairly stiff brush, would be quite efficient. Or some water-soluble nigrosine black mixed with gum would answer the same purpose.

STRIPPING—What is the best method of stripping films as an aid to carbon printing?—CARMOAL.

Coat the negative fairly thickly with ordinary enamel varnish

or celluloid dissolved in amyl acetate and acetone, allow thoroughly dry, and then immerse in

Hydrofluoric acid	60 minims.
Methylated spirit	1 oz.
Water	2 ozs.

for a few minutes, when the film will soon lift at the corner and may be coaxed off and washed in clean water and dry. Another method which obviates the use of liquid hydrofluoric acid is to harden the negative by ten minutes' soaking in 10 per cent. solution of formaline, then immerse in a 5 per cent. solution of sodium fluoride, and rinse and transfer to a 5 per cent. solution of hydrochloric acid, and then wash dry. The films are very thin, and we think it better to strengthen them by giving two coats of the celluloid varnish mentioned above, the strength of celluloid being about 8 grains to the ounce of solvents.

COPYRIGHT QUERY.—I have a negative of the deck of the old Victoria flagship showing Nelson falling in the battle of Trafalgar with his men round him. I took it from an oil painting made some twenty years ago. There is no sign of copyright, or even anybody's name on the painting. I have had the negative in my possession now eight months, and what I want to know can I make prints from it for postcards?—PROFESSIONAL PHOTOGRAPHER.

We cannot say if there is an existing copyright in the picture or not. If the painter is still alive there would be. So there would be if he has not been dead seven years. Copyright endures during the lifetime of the artist and for seven years after his death. Your best way will be to ascertain if the painter is still alive, or, if not, when he died. If you use the negative without ascertaining that you will have to take the risk of an action for infringement of copyright.

* Many Answers to Correspondents, Reviews, and Notices are unavoidably held over.

A MEETING was held last week in one of the Committee Rooms of the House of Commons to consider whether increased State aid might not be secured for and keener interest aroused in the National Physical Laboratory at Teddington. Mr. R. B. Haldane, K.C., M.P., was in the chair, and Dr. Glazebrook and Mr. Chamberlain made speech on the present position of the laboratory and the necessity for State aid. It was finally resolved that a memorial should be presented to the Chancellor of the Exchequer asking for such additional aid.

PRINCE ARISUGAWA, our recent Japanese visitor, is, according to the "Manchester Daily Guardian," an expert photographer. At the launching of the Japanese battleship Katori, at Barrow-in-Furness by the Princess, the Prince advanced to the front of the platform camera in hand, and took some snapshots of the scene with much care and deliberation. If one might judge from the number of cameras carried by the Japanese who accompanied the Imperial couple, amateur photography would appear to be a favourable amusement with this interesting people. Several of the escort of officers of the Japanese Navy, and even some of the Japanese ladies, were provided with cameras, which they used frequently.

* NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

The British Journal of Photography

The Oldest Photographic Journal in the World.

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(UNITED KINGDOM AND THE CHANNEL ISLES).

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Quarter Year ... 2s. 9d.

Places Abroad (One Year) ... 13s. 0d.

It may also be obtained from all Booksellers, Photographic Dealers and Railway Bookstalls.

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FRIDAY, JULY 21, 1905.

PRICE TWOPENCE.

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EX CATHEDRA.

Convention. The twentieth meeting of the Photographic Convention of the United Kingdom has come and gone, and everybody appears to be thoroughly enjoyed themselves and benefited by being new and cementing old friendships. Dublin could have been more hospitable, which is the same thing saying that no place could have made the Convention welcome. Next year's meeting is to be at Southampton—a centre with facilities for landscape photography good as can be desired. At the same time it is to be decided that the Convention Council will take a more serious view of its responsibilities, in inviting scientific technical communications, than it has lately done. We believe we are only re-echoing the views strongly held by a number of those who have the future prosperity of the Convention at heart when we say that the Council should not afford to lose a single opportunity of encouraging communication of original papers. We are told that evening audiences are not attracted by technical and scientific papers, but we reply that the audience reached by such communications are many times larger than that which listens to the spoken paper. It is by such publicity to the photographic community that the Convention must preserve its prestige and keep itself before the photographic world. It is to be hoped that the newly elected Council will keep this fact clearly before it.

Convention up. With this issue we present a reproduction of the photograph of members of the Convention, taken by Mr. Alfred Shorter. The names of those appearing in it were supplied by the sitters themselves, and it was thought in distributing a series of tickets among them to identify each one. This plan, for certain reasons which no doubt

are obvious to those who were present, broke down, but that fact has suggested a method which seems infallible, and may be useful when the name of each person in a large group is required. A ticket with a boldly printed number thereon is given to each person, with the request to write his name on the back. After the usual exposure the members of the group are requested to display the numbered side of the cards and a second plate exposed. From the negative so obtained each person can be identified on reference to the cards, which are collected on the group breaking up.

* * *
Copyright in Portraits. The case of special interest in which Mr. William Crooke, the Edinburgh photographer, has prominently figured is reported in another column, and will be seen to centre mainly on facts and evidence. But there is one part of the judgment of Lord Ardwall that may take some not a little by surprise. He said he "had come without any difficulty to the conclusion that the truth of the matter was the sitting at which the photograph was taken was a sitting for Mr. Shorter, and that he was *prima facie* entitled to all the portraits taken at that sitting, unless it could be shown that Sir Henry Irving and Mr. Shorter agreed to any of the photographs becoming the copyright of the photographer. With regard to the copyright in question, his lordship was of opinion that that had not been proved." The decision in this case has an important bearing, if it is to be taken as a precept, when a sitter—say a celebrity—is brought by a third party to a photographer to have a portrait taken for a special purpose, or if he comes on his own account—say, for example, a clergyman comes to have some portraits taken for private use, and the photographer asks permission, and it is accorded, to take one or two more pictures for himself for publication. According to this ruling, it seems to us, he will have no copyright in them unless an agreement is made at the time, which, according to the Act, must be in writing, that the copyright in these pictures is to be the property of the photographer, otherwise it will belong to the third party, or the sitter, as the case may be. It will be of no use for the photographer in these circumstances to register the copyright in them. Not only must there be a written agreement but it would be advisable that it should also bear a sixpenny stamp when such an agreement is made; the photographer should particularly describe in it the pictures he has taken for himself so that there would be no after dispute as to whom the copyright in them belongs. We call special attention to this case because it is the first, so far as we are aware, of the kind that has come before a court of law in which a similar ruling has been given.

The "Free Sitting."

It is not surprising to find the "Daily Chronicle" considerably elated over the judgment in the Crooke-Irving case, and eager to hold it up as a warning to public men in their relations with photographers. In an interview with a "Chronicle" representative, Mr. Clement Shorter expresses himself very strongly on the point at issue. It is not difficult to understand the desire, on the part of an editor of an illustrated journal, to see copyrights of celebrities' portraits in the hands of the persons themselves, but it is doubtful whether an illustrated journal would be any better off under the desired state of things. It would obtain certain portraits gratuitously, and it would have to pay for others. Others, again, it would not be able to obtain. The photographers supply the demand in the illustrated press for portraits of celebrities, and we can imagine how much more difficult it would be, in many cases, for a paper to get a portrait from the individual himself. Society people do not look on the photographer as a "robber"—the word is Mr. Shorter's—because he undertakes, as more than one West End photographer does, to control the reproduction of their portraits in the papers. They are glad to authorise him to do so and to draw his fees for the purpose, and it may be questioned if the greater difficulties of dealing with principals will compensate art editors for their economy in photographers' reproduction fees. But on the other hand we would not lose sight of the unfavourable light which the "free sitting" sheds on the profession of photography. For practical purposes, the "free sitting" is an admission that the photographer cannot depend on the supply of portraits to make his business remunerative, but must make what he can from the "copyright," which he attaches to himself by the "free sitting." In a different way the practice lowers photography as does the production of cabinets and other prints, turned out half automatically at disgraceful prices. It is our profound conviction that the policy of those who desire the welfare of the photographic profession should be the sale of good portraits at a good price. Only in that way is it possible to take a firm stand towards the public, to prove to the customer that the work is worth the price asked for it, and to build a business on solid foundations. We know that there are businesses to which the "free sitting" is the very breath of life, but that condition has come about from circumstances external to photography, and various things, such as a change in the law of photographic copyright, might be the pricking of the bubble. Perhaps the recent Scottish case will serve to remind photographers of the flimsy nature which business founded on "free sittings" may acquire under circumstances which the photographer is powerless to control.

* * *

The P.P.A. Circular.

The Professional Photographers' Association has established itself by another bond still more firmly in the public and private service which it is rendering to professional photographers. It has now issued the first number of a "Circular" which will be distributed only among its members, and will professedly deal with matters which are more fitly communicated only to members of the Association. To our thinking, No. 1 contains very little that demands such semi-privacy, and we cannot conceive that the Association or any of its members would be worse off if the profession at large read how its president, Mr. T. C. Turner, fought the "Free Portrait" frauds in Hull. Therefore, the opportunity of perusing the official sheet would be an additional inducement for photographers to join the ranks of the Association. The *raison d'être* of the circular is, of course, to keep the members, who are spread all over the country, and who naturally cannot

be gathered together, to have by word of mouth what the Association and the committee on their behalf are doing in touch with the proceedings, and naturally the bulk of the matter concerns the domestic affairs of the Association. The "Copyright Notes," however, touch upon matters of such general interest, and are full of so much practical information, and written in such a commendably broad-minded spirit, that the circular would attract fresh members to the Association, if it was generally disseminated amongst the profession.

* * *

Courtesy.

We cannot, in fairness to the Association, quote much from a publication that is issued as a confidential communication to its members, but the following paragraph seems of such general applicability that we hope that beyond being instructive to many of our correspondents in the professional ranks who consult us upon matters to which the hint applies, it will lead to the desire to join an association which so carefully looks after the interests of professional photographers in copyright and other matters: "It is a great mistake to jump at the conclusion that the infringement of a copyright is necessarily a work of malice or an attempt to deprive the owner of something he is entitled to. Every one, of course, is presumed to be acquainted with our laws, and no one is absolved from the consequence of his ignorance; but, infringements very often occur merely through inadvertence, misunderstanding, or ignorance. When an infringement is discovered, the most business-like and the most dignified way to treat it is to assume that it occurred from one of those causes, and that when it is pointed out, the complaint will be met in a reasonable way. Regard it as merely a business matter that requires adjustment, and as it is a delicate matter of diplomacy use the most courteous language, and do not make any demand, but ask what the other side is prepared to offer you in compensation for your injury."

* * *

"Tabloids" and Science.

The reproach that has on occasion been levelled at British scientific research when compared with the methods of our Teutonic neighbours and other nations, must surely be removed so far as one English firm is concerned. We refer to the splendid work undertaken quietly and without ostentation, but nevertheless far-reaching in effect, by Messrs. Burroughs Wellcome and Co. Their place in the world of pharmacy and medicine, to say nothing of photography, was well indicated by the remarks made by speakers at the firm's quarter-century commemoration at Dartford, on Saturday last. The members of the Society of Chemical Industry were the special guests on that occasion, and as the society includes in its ranks most of the leading research chemists and business men engaged in chemical industries and in industries requiring the aid of expert technical chemists throughout the British Empire and America, the voice of the president (W. H. Nicholls, M.S. LL.D., D.Sc.) can be regarded as authoritative. He praised not only the commercial work of this great firm and the philanthropic endeavours of Mr. Wellcome in making his vast army of employees a remarkable and ideal happy family, but he more particularly referred in terms of admiration to the other branches of the firm's work, notably the Wellcome Physiological Research Laboratories at Brockwell Hall, Herne Hill (under the direction of Dr. Walter Dowson), and the Wellcome Chemical Research Laboratories at King Street, E.C. (under the direction of Dr. Frederick B. Power). These laboratories are quite distinct and separate institutions to the "Tabloid" manufacturing business, and judging from the sentiments also voiced by such eminent men as Professor H. E. Armstrong, Ph.D., L.C.D., F.R.S., Sir James Dick, K.C.B., M.R.C.P.

on. Surgeon to the King), the president of the Pharmaceutical Society of Great Britain (R. A. Robinson, J.P., F.C.), and A. Gordon Salamon, A.R.S.M., F.I.C., F.C.S., labours of Mr Wellcome in scientific research is being everdly appreciated by pharmacists and medical men world over.

PRINTING PROCESSES.—VIII.

ALBUMEN PAPER.

The fifth article (see page 462 ante) the method was dealt of printing on albumenised paper, in which the albumen was largely diluted with water, as it was when less say prints than those now in vogue were the rule. At present time the albumen is used undiluted, and even concentrated in order to supply the demand for a highly albumenised paper. We surmise that the reader is not desirous of albumenising his own paper, but will prefer to purchase the commercial article as now on the market. However, should he desire to do so, we may tell him that the albumen is to be purchased by the gallon at the whole-egg merchants, who break the eggs and sell the whites and yolks separately. The latter are, to an extent, sold as strychnine, but we are informed that the greater bulk of the glove-making districts, where they are in large demand for dressing kid leather. Albumen papers are like P.O.P.s, with different tints, or white, and it is a matter of taste which is used.

Some samples of paper have a very fetid and offensive odour, owing to decomposed albumen being employed in its preparation. This is done because this fermented, decomposed, albumen yields a higher gloss and is easier to apply than fresh albumen. It would occur to some that prints made on a paper of this kind would be of a stable character. The supposition, however, is borne out by facts. We happen to have by us some prints that were made on a most fetid paper, more than thirty years ago, and they are now as good as some that were made on paper with fresh albumen at about the same time. Albumen paper is now supplied both sensitised and unsensitised, and we shall deal with the former first, as there are many photographers who still prefer to sensitise their own paper—notwithstanding the fact that it involves extra trouble—because they aver that they get better results upon it than they can upon the unsensitised.

The makers of albumenised papers do not tell us the quantity they use, or the proportion of it they employ, and the user does not, from this source, learn the proper strength of silver bath to employ. It is generally understood that the silver bath should contain, in grains per ounce, six to eight times that of the chloride in the solution, supposing this be the chloride of ammonium, which is the one most generally employed. Thus, if the strength of chloride be eight grains to the ounce the strength of silver bath would be, say, sixty grains to the ounce of water. But some papers contain less silver than that, consequently a weaker bath will suffice. With the papers now on the market the makers usually issue a formula for the sensitising bath and the user will do well to work according to that whatever the strength given may be. In times past different additions to the silver bath were suggested—nitrate of potash was one, and it was said that with them the proportion of silver could be materially reduced, but the suggestions did not meet with much favour with professional photographers. A plain solution of nitrate of silver is what is most universally used, and the strength generally employed is sixty grains to the ounce, or whatever the makers specially recommend.

We shall here assume that the sixty grain bath is to be

used. It is well to make up a good quantity of the solution at a time. In a Winchester quart bottle put ten and a half ounces of nitrate of silver and add two quarts of distilled water, and dissolve. This will give us a bath of the desired strength. Three or four drops of nitric acid are then added, as that confers greater keeping qualities on the paper. The solution is then filtered through paper into a dish, and the paper floated upon it for from two to three minutes, according to temperature. There are different ways of placing the paper on the bath, but here is one of the best: Take the paper by two diagonal corners and bend it to a bow. One corner is then placed on the solution and the rest of the sheet gently lowered upon it so as to avoid air bells. After resting a few seconds a corner is raised to see if any air is imprisoned, and the paper allowed to remain the requisite time. It is then removed and pinned, with a black pin, by a corner to a line to dry. After hanging a few minutes to drain the drying may be completed before a fire, that is, if the paper is wanted in a hurry. In removing the paper from the bath it should be taken off slowly and with a somewhat dragging motion, as then there will be very little superfluous solution left to drain off. Sometimes, when the paper is first put on the bath, it will have a tendency to curl away from it, particularly if it be very dry. This may be remedied by gently breathing on the back, when it will at once lie flat.

On the silver bath two changes take place in the paper. The one is that the chloride—say that of ammonium—is converted by double decomposition into the sensitive chloride of silver, and the albumen, which was previously soluble in water, is rendered insoluble. When dry the paper is ready for printing. In America it is very customary, after the paper is dry, to fume it with ammonia. The paper is suspended in a cupboard, or box, at the bottom of which is a dish containing liquor ammonia, where it is allowed to remain ten or fifteen minutes before it is printed. This practice, however, has not found much favour in this country. By use the bath becomes weaker as the paper appropriates to itself a larger proportion of the nitrate of silver than it does of the water. Therefore it has to be strengthened from time to time, either by the addition of a stronger solution or of crystals of nitrate of silver. After half-a-dozen or so sheets have been floated the upper portion of the solution will have become weakened, therefore it should be stirred up by passing a glass plate backward and forward through it two or three times, or by rocking the dish. If the solution is allowed to stand for an hour or two in the dish, after paper has been floated, a scum will have formed upon the surface. This must be skimmed off with a strip of blotting paper, otherwise the next sheet floated will have a stained or marbled appearance and be useless.

At the photographic dealers small hydrometers called "argentometers" are sold, which indicate the strength of the silver in grains per ounce. Theoretically they do not do that accurately by reason of the nitrate of ammonia—formed by the double decomposition—dissolving out in the bath, but they are good enough for all practical purposes. By use the solution becomes discoloured, and if used in that state it would tint the paper. It can, however, be decolorised in different ways. The most general is to add to the stock bottle a little kaolin. The solution is then well shaken up and allowed to stand till the next day, when the clear and colourless liquid is decanted and filtered through paper. The same filter may be used many times if the first lot that passes through is returned for a second filtration; thus there will be a saving of filter papers as well as silver. The next article will deal with the printing and toning of albumen paper.

INDIVIDUALISM.

THESE are days of competition, when the position of the very foremost professionals is assailed. Men who ten or twenty years ago considered themselves above competition are now compelled to compete in the race for position. This competition has been the making of some photographers; others, alas, have fallen by the way.

The Bane of Cheapness.

Workers who a decade ago were considered clever, can to-day only rank as good ordinary photographers; they can turn out good ordinary work, but so can thousands of others, with the difference that the others who have not heavy expenses and large establishments to keep up can do their work at cheaper rates. In these days of cheapness, if a patron can get work of an equal quality at a lower rate, he will not pay a bigger price for the pleasure of seeing some well-known photographer's name at the foot of his print, and thus these same workers who ten years ago did good ordinary work and made it pay, are badly off to-day, whilst those who go in for a specialty and do work out of the common are sure of retaining their old patrons and adding considerably to them as the years roll on.

The Difference in Photographs.

The "middle" class photographer has improved his work by leaps and bounds, and there is no longer the wide chasm between their work and that of the front-rank man. They can both take and finish photographs with skill, but the one stamps his work with individualism, and the other turns out good ordinary work. The labour is nearly the same in each case—the one is little more costly to work than the other—but the difference in the payment is a wider difference than of old. Take the work of the front-rank man (to name one or two when so many are worthy of mention would be unfair); you can tell at a glance who the artist is. "Oh, that is So-and-so's style," you exclaim; but do you stop to think why you recognise it as such? You did not require to look at the name at the foot to trace the artist; his work tells you. It is, in fact, individualistic. The same mannerisms run through the whole of his work; a certain pose, lighting, style of background or of mounting, colour of print, or perhaps a bit of each. No matter what it is, it is something out of the ordinary, and that is the whole secret.

There was never a time in the history of photography when good work was more in demand, for the public have been educated up to a higher standard than would have satisfied them ten years ago. They don't want the common or garden photograph, but an artistic effort. The old album, with its places for C.D.V. and cabinets has been carefully stored in the lumber-room for the benefit of future generations, who will no doubt derive considerable amusement from it. There is no royal road to individualism, though it can be attained by anyone possessing artistic feeling if they are willing to study, and it is a study that will repay the professional photographer a hundredfold. In fact, I go so far as to say that no professional photographer can get on without giving this matter considerable thought.

The Study of Great Portraits.

It would be foolish to point out the defect without giving the means of remedy. This will not be a difficult task. My advice is to go to the nearest art gallery and study the old masters; take one of these for your model, and see as many of his works as possible. They will all vary in some particular, but the same individualism will run through all. I go so far as to recommend you to have your backgrounds painted in a similar style to those used by the artist. You may only have everyday sitters to photograph, but that need not deter

you from the work, for you must remember that these subjects were everyday people when the portraits were painted. Follow your artist closely for a little while, and you then get the style of work, after which you will be able to put your own individualism into your work, thus making your work after the school of Gainsborough, Vandyke, Reynolds etc., but from a photographic standpoint of your own.

A high-class photographer who has made a moderate fortune out of the work gave me the following information in reply to my request as to how he had made his business so successful in so few years, in face of the bad times and great competition. "I made up my mind," said he, "that there was no room for a photographer who could only turn out ordinary work at ordinary prices, so I decided to do something out of the common, and charge my own price. But what should I do and how should I do it? Happy thought! why not go to London and see how the old masters worked? I spent a week in the National Portrait Gallery, the National Art Gallery, the Academy, Tate, etc. This was my first step upwards, and since that week I have spent many happy hours in the same places, and have always returned home with new ideas and higher aspirations. Considering I worked my business from midgets at 4s. 6d. per dozen to its present position, I consider my holidays in the London art galleries my cheapest outings and greatest help."

I can only recommend my readers to give this advice a trial, and then I feel sure we shall hear less of bad times and of that very useful and necessary competition that is so much to the front at present. What is wanted is better work. There is plenty of room on top, but a man will never get there if he keeps in that same old rut of ten years ago. That particular rut leads down hill, and it is time to get out of it.

I will summarise my remarks with a few hints of what to do and what not to do.

Backgrounds.

The ordinary interior and exterior are dead. They have done their duty; let them rest in peace. Go in for a special background painted to your own ideas, and use as few stage accessories as possible. Change the whole of your background as often as means will allow. Your clients do not want photographs of balustrades, steps, or pedestals, but of themselves. On the other hand, graduated backgrounds may be good for vignettes, but do not use them for everything. If your position will not run to a specially painted background, try a plain white or black one with a continuous foreground; but have something out of the ordinary.

Lighting must follow the background. If you are having your background painted after Gainsborough, follow his lighting also. I have seen work by front-rank men with the sitters beautifully lighted, but in absolute contradiction to the background, thus spoiling the whole effect.

The Printing Process.

Do not use the easiest because it is the easiest, but use one that shows off your work to the best advantage. Every good photographer should be able to make a first-class print in sepia and black platinotype and in carbon. Do not let yourself too much in the hands of your printer. Not only should you be able to tell when a print is well done, but you should be able to show your printer how to do it. The printing room is just as important as the studio, but how many photographers give it the attention it should have? There is as much money made in the printing-room as in the studio, but through want of attention many a photographer is ruined by the printer's bad work.

Mounting.

carry your individualism to your mount. Again try to get something out of the ordinary. Your mount maker will only too pleased to carry out any idea you may have. If you do not wish to go to the expense of a special mount, make a print on thick paper, mask out a margin, and put in a date mark by means of a piece of zinc and a letter press. You have then a high-class mount ready made. Do not expect that by following my advice you will jump to the forefront of the photographic profession and increase

your business by leaps and bounds. But by showing better work than the ordinary man your showcases will attract more attention, and business will follow. It may come slowly, but it will come; of that I am certain—and with better prices. Do not grumble about competition, but advance the quality of your work, and, once more, remember there is plenty of room on top for the man who can do something out of the ordinary, or, in other words, for the man who can stamp his work with individualism.

W. WALLINGTON.

THE WEEK IN HISTORY.

The Reflex Camera in 1861.

is forty-three years ago to-day since Thomas Sutton patented the pattern of camera which we recognise to-day as the last word in camera construction. His "improved camera" was for taking photographic portraits of instantaneous pictures, and he used the reflector as a shutter—raising and lowering it to make the exposure as well as to give him an erect image of the object on the ground glass, which he let into the top of the camera. He dwells on the advantageous fact that "the operator is enabled to focus the lens, and afterwards expose the sensitive plate at the proper instant," and he points out that for the clarity of the image on plate and focussing screen it is necessary that the respective planes of the focussing screen, the sensitive plate, and the reflecting surface of the reflector should be on one common centre of convergence, and that the plane of the reflecting surface should bisect the angle formed by the sensitive plate and the focussing screen. His "instantaneous" of course, meant a very different thing from that of the modern reflex camera, with its focal-plane shutter, for his patent (No. 2,073, 1861) provided for no shutter, and his test exposure must therefore have been as much as a quarter or an eighth of a second.

The Burgess Gelatine Emulsion.

Last week I reproduced the first advertisement of a gelatine emulsion, and I may find space here for the comments of THE BRITISH JOURNAL OF PHOTOGRAPHY upon it the following week. In the issue of July 25, 1873, an editorial reports:—"We may say there is no collodion in the matter at all. Instead of collodion, a colloidal substance, without doubt, is used, with probably some admixture of albumen, is used, and

the sensitive material, which we assume to be bromide of silver, is introduced in such a way as to necessitate no washing. The method of preparing the plate is extremely simple. The emulsion, after being slightly warmed, is merely poured upon the glass, is allowed to dry, and—that is all. The plate is then ready either for immediate exposure, or for storing away. . . . On application of the developer (alkaline pyro) the picture rapidly made its appearance, every detail being visible. These details were afterwards brought to a great degree of intensity by the application of the usual acid pyro and silver. . . . We congratulate Mr. Burgess, who is an artist rather than a photographer, upon the bold and highly successful step he has taken to escape altogether from the trammels of collodion."

Bromide Paper.

Sir J. W. Swan's association with the carbon process ("The Week in History," February 24) is liable to overshadow his early appreciation of gelatino-bromide emulsion as a substance for positive printing. His patent for this purpose dates back some twenty-six years, and claimed protection for an emulsion of silver bromide, not only in gelatine, but in albumen—in each case for purposes of printing from negatives. The process set forth in his specification (No. 2,968, 1879) is that widely adopted by bromide printers, viz., development with ferrous oxalate, and mention is even made of ". . . printing at a uniform and rapid rate; the sensitive paper may be used in long bands, and by means of automatic mechanism may be moved on step by step periodically through a space equal to the width or length of the print, the negative being screened from light during the movement." HISTORICUS.

CURRENT METHODS OF PHOTO-ENGRAVING.

On the occasion of the visit of Mr. William Gamble, editor of "Process Work" and "Penrose's Pictorial Annual," to New York, S. H. Horgan, editor of the Process Engraving Department of the "Inland Printer" and manager of the art department of the New York "Tribune," with characteristic enterprise, arranged for Gamble to deliver an address at the Beethoven Hall before the engravers of New York. A representative gathering (including Mr. F. E. Ives and other well-known men in photographic and engraving circles) was present to hear Mr. Gamble, and by courtesy of Mr. Horgan we give a portion of his address, as it conveniently presents the present practice of process work in this country in contrast with that in America. After discussing some points of status and accessories, Mr. Gamble comes to technique.

Reversal by Prism or Stripping.

At the point where we differ from you is in the use of a prism or instead of stripping the negatives. We consider, rightly or wrongly, that stripping does not really save much time. By revers-

ing the negatives with the prism they are passed on as fast as they are made to the metal printer, and he in turn can keep the etchers going, instead of having to wait for a 'flat' of stripped negatives to be prepared. We are, however, beginning to use stripping more extensively for line zinc etching, and we also use it for combination printing—that is, combined line and half-tone—of which we do a great deal. Sometimes, however, we do this work by making two prints on the metal, sensitising it again after the half-tone print has had its first biting. Mirrors are sometimes used instead of prisms for cheapness sake, and when in best condition do not cut off so much light, but they soon deteriorate, and are really dearer in the end, as they have to be frequently resilvered.

Wet v. Dry Plate.

"Of course, we use wet collodion almost entirely, pretty much in the same way as you do, except that we mostly buy the collodion ready made. We intensify line negatives with lead instead of copper and silver. Several firms are now doing all their best half-tone work,

especially wash drawings and difficult photographic originals, with collodion emulsion, and find it gives a better result—softer, fuller in detail, and with better gradation. It is probable that in time collodion emulsion will largely displace wet collodion for the best black-and-white work.

"Attempts have been made to use gelatine dry plates and some firms make it a boast that they use nothing else. But it is generally believed that the metal printer and etcher have to make good the deficiencies of the negatives.

The Enamel Process.

"The fish-glue or enamel process which we imported from America is now in universal use in England for half-tone work on copper and also to some extent on hard zinc. For coarse newspaper half-tones we use the albumen bichromate sensitiser, which we also use for line-work. We print pretty much as you do, but we do not use much the four-way powdering method. Our etchers seem to prefer a combination of the old and the new processes. They ink up with a lithographic roller and soft etching-ink and use the red powder as a top, melting the ink down the sides of the lines. A few, however, are following strictly the American method, and I think the tendency is to use it more and more.

"Cold" and "Dry" Enamel.

"We have had a process exploited in Europe under the name of 'Cold Enamel' process, so called because it was claimed that it did not require burning-in. The print was made with fish glue and washed out as usual. It was also slightly heated to a light yellow colour, just sufficient to discharge the dye. Then it was etched in a bath of alcohol and nitric acid. The alcohol prevented the film becoming soft.

"You have all heard also, no doubt, of the 'Dry Enamel' process. A few firms are using it in Europe and it is generally understood that the print is made with a solution consisting of sugar candy and white of eggs, with water and bichromate, and perhaps a little chromic acid. The addition of the sugar candy causes the film to become hygroscopic—that is to say, it takes up moisture from the air. While in this tacky state a powder is brushed over it and adheres in proportion to the action of the light. Various things have been used for this powder, but I think the most likely chemical is anhydrous carbonate of soda, which is a dry white powder.

The "Blue" Process.

"We used to hear a good deal of what was called the 'Blue' process. This consisted in printing the image with albumen bichromate the same as for line etching, but instead of inking it, the plate was flowed over with a bituminous varnish, the solvents of which were ether and chloroform, so proportioned that a slightly porous film was yielded, and this could be developed with water the same as the inked print. When developed, the plate was heated and the porous structure was closed up. The plate would stand a first bite without further treatment and could afterwards be rolled up.

Etching Methods.

"In the matter of etching there is not much to say. Copper etching we usually do with perchloride of iron, but we have lately found a much purer and better variety of this salt than the commercial kind, and it is sold under the name of 'Persal.' Some firms are using nitrous acid for deep etching linework on copper, but the fumes are not very pleasant, and the etching is generally done out of doors. For zinc etching there has been used a mordant compounded with pyroligneous acid and sal ammoniac with, I believe, a little nitric acid. This acid was placed outdoors in trays or tubs, to mature, and when ready it could be used on plates without rocking the bath, hence originating the name 'still etching.'

"We do a good deal of fine etching, which I think you call 'staging,' and of late the tendency has been to employ girls to do this work, in one shop as many as thirty being employed, and, of course, displacing expensive male labour. It must be said that the girls do the work very well. They are especially good on the colour plates.

Three-colour Matters.

"This brings us to the three-colour process, and I may divide it into two methods, the indirect and the direct. The first consists in making the negatives on dry plates, taking positives from the same, and in turn making half-tone negatives. This process has been almost entirely superseded, and only survives in a few cases where first bathes ordinary dry plates with dyes. A number of the dyes lately introduced are suitable for this purpose. For instance, there is ethyl red, a panchromatic sensitiser with a gap in the blue green; orthochrome, similar but more sensitive in the blue green; a homocool, which is very like orthochrome in its action. These two latter are probably the best sensitisers for dry plates. The dry plates are made up with alcohol, and the plates have to be washed for five or ten minutes after being sensitised and dried very quickly by means of an oven or stove. They will keep a few weeks.

Collodion Emulsion.

"The much more extensively used process in Europe is collodion emulsion, which is invariably used direct, the colour-filter and the Levy screen being in position at the same time. The great advantage of collodion emulsion is that you can use much more transparent screens and consequently reduce exposures, because the emulsion can be treated so that it is practically 'blind' or insensitive to the colours not wanted, and there is therefore no object in stopping the light out by the filter. We use liquid filters in many shops, but, on the whole, we prefer dry filters. The exposures are comparatively short, especially when using the 'enclosed' arc and putting in red flash carbons when using the red filter. To give you an idea, the majority of the exposures run to about ten minutes for the three negatives altogether. The ratio of the filters is about 1:2:1, the 2 representing the green filter.

"The only case where collodion emulsion seems to fail direct is in copying dark oil paintings, such as 'old masters,' owing to the long exposure required. In that case, however, the emulsion can be used for making the negatives the indirect way. Probably, we may eventually have collodion emulsion orthochromatic dry plates, and then all difficulties will be solved.

Etching and Printing Colour Plates.

"There is nothing much to say about the etching of the colour plates, except that a good deal of 'fine etching,' or, as you call it, 'staging,' is done on them. So expensive is the labour on this part of the work that, as I have already said, several firms have been tempted to use girls' labour on it.

"In the printing of the plates no attempt is made to vary the intensity. If the result is not right, one or other of the plates is re-etched. Most of the large firms in Europe who are making a name for their three-colour work have laid down machinery to do the printing themselves. The order of printing is invariably yellow, red, blue, except in case of the four-colour cliche process of Dr. Albert, in which the black or gray is printed first. This four-colour process is understood to be worked in a peculiar way, the half-tone print being made direct from the original screenless negatives by placing them in a printing-frame with a screen in conjunction with them, and sending through a parallel beam of light from an electric searchlight. Dr. Albert has also a process of stopping-out the parts that are to be print solid by putting in contact with the negative a positive which contains the heavier shades of the picture. It is an obscure process.

revealed by the patent, and I am afraid I cannot make it clearer than, except by a much longer explanation.

The Metzograph screen is being found useful for colour-work, for one or two of the colours or for all. It is a screen with irregular granulation embossed on a glass plate by etching, and, properly handled, gives some very fine results. It has to be used as close as possible to the plate, and with a long-focus lens and small aperture. You must also flash with white paper to bring up the shadows. Several processes which work without screen, using a dust grain deposited on the plate, or using a bituminous varnish which crinkles into a grain when developed, are being used, but chiefly for lithography, for which they have given fine results. We are doing a lot of photo-lithographic work on zinc and aluminium. Colour-work is beginning to be applied to photogravure, and fine results obtained.

"We have had a machine recently brought out for printing four colours at one run. It looks like four flat-bed machines built into one, and the white sheet is fed in at one end and comes out at the other with the finished coloured impressions on it, at the rate of about nine hundred per hour.

"On the whole, I think we have made good progress in process-work, and especially in colour-work, but I believe there is much more to be done, and we shall see far greater developments. Three-colour work, especially, is destined to be one of the great possibilities of the future."

Mr. Gamble was also given a farewell dinner at the Hotel Astor on the evening before his departure, Mr. F. E. Ives, Mr. John A. Tennant, Mr. S. H. Horgan, Mr. Vernon Royle, Mr. Henry L. Bullen, and other well-known men in photography, process work, printing, and electrotyping being among the guests.

CHEERFULNESS IN THE STUDIO.

It is an undeniable fact that the human mind is largely influenced by its conditions and surroundings. The atmosphere itself effects many things, a dull day depressing, or a bright cheery day raising the spirits materially. It is a further fact that the expression of the human countenance varies with the conditions of the mind. Expression responds to every fluctuation of health and spirit. If, therefore, the business of a photographic studio depends upon perpetual expressions that shall be not only likenesses of the people photographed, but pleasing representations of them to their friends and relatives, it must follow that every possible effort be made to bring the conditions in the studio that shall be cheery, bright and attractive.

Monotonous Expressions.

Mr. I. Scandlin, in the current number of "Wilsons," draws attention to an article in the "Monthly Review" of the P. A. of California which hits the nail on the head. In this article, it is pointed out that the majority of photographic portraits are weighted down with an expression of seriousness and gravity, which, though sufficiently pleasing in many cases, taken individually, become monotonous as to our sitters. The reasonableness of this statement can hardly be questioned, and when we view in conventions or at photographic exhibitions large numbers of photographic portraits, the impression is forcibly forced upon the observer that photography is at best a very serious matter. That it is not advisable to photograph our sitters with a smile that won't come off is at once granted, but there is a medium between that expression and the one which suggests recent bereavement. It is this medium expression that will in many cases represent the sitter at his or her best and produce a likeness satisfactory to the sitter and pleasing to those who view it.

The Gloom of the Studio.

Seeking a reason for the uniform sombreness in the majority of photographic portraits, we cannot but be reminded of the time when the photographic studio was in reality an operating-room in which the sitter resigned himself to his fate in much the same way that the surgeon's patient does to-day for an operation under the knife. It is true that some of the relics of this bygone time have disappeared, but there are still to be found, all over the country, traces of their influence in the craft to-day.

It is not a fact that the average person, on entering a photographic studio or gallery steps from the elevator or upper landing into an atmosphere of solemn hush and stillness? Does not every surrounding oppress the visitor with a sense of gloom and oppression? In nine out of ten studios that I know, the very light itself seems darkened to a degree that is far from cheerful. If the reception-attendant appears, it is usually only after a sufficient time has

elapsed for the visitor to become somewhat familiar with the light and quiet colours of the room, when he or she may be discovered somewhere in a far corner, effectually covered in by desk, retouching stand, or what-not. When finally unearthed, it almost seems as if she would impress you with the gravity of the situation by her every manner tone and gesture. Is it because so much of the gallery work is done on Sundays that the religious atmosphere that it produces lasts through the balance of the week and spreads itself out over all the patrons who may venture within the precincts during the interim; or is it perhaps because the average studio help, having no opportunity for Sunday leisure and the reasonable enjoyment of religious service, take this opportunity to even up by spreading the religious atmosphere about them throughout the week? This is not a conundrum, but simply a query that suggests itself in seeking for a reason.

A Cheerful Studio.

I know of one studio in a western city in which these conditions are totally reversed. The visitor on entering the outer doorway goes at once into the reception-room, which is as bright and cheerful as a full flood of unsifted sunlight can make it. There is nothing dark or sombre in its entire appointment. The reception-room assistant seems to be charged with this same spirit of sunlight and cheerfulness. There is nothing in her appearance to indicate that she had taken this sunlight as a medicine like radium, but everything to denote that it was a part of her, and that she gloried in it. Never have I seen a person enter the room and wait to look for her. Always to the front, she is quick to meet her visitors, to welcome them graciously and sweetly, and from the moment of their entering the room to make them feel at home. There is no waiting for them to ask her questions. She seems to know that their presence in the reception-room is an evidence of their interest in its output. There is no unusual hush of voice nor anything to cast a shadow or to dampen the spirits of the most sensitive mind or imagination.

Putting the Sitter at Ease.

The spirit which pervades the reception-room is the spirit which governs the entire studio, and on entering the studio, which is nothing more nor less than a large reception-room or parlour, lighted from above, the same home-like atmosphere is to be found. Tables covered with books and magazines, easy chairs, and a concert grand piano, with its music-cabinet and open sheets of music upon the instrument, emphasise this feeling of at-homeness. The proprietor of the studio has that easy, taking grace of manner, unhappily not too frequently found in the photographic ranks. A few words with a patron very quickly serves to give him the key with which he at once proceeds to unlock the reserve that ordinarily surrounds a person

sitting for a portrait under a new light. A word or two upon some topic of local or more general interest, some reference to a new novel or a recent dramatic or musical presentation will almost always find a responsive chord, and once that chord is struck a feeling of interest and of confidence begins to assert itself. There is no question in the photographer's mind when this chord is found. The whole expression of the subject responds to it, and he knows, if he is a man of average perception, that he is on the right track.

The "Human" Element.

Does all this pay? is often asked. It does if the photographer is in the business for anything but his health, for the time and effort invested in becoming acquainted with things that interest sitters repay the photographer a hundred times in the characteristic likenesses he produces of them. The man above referred to tells me of more than one case in which his sitters, failing almost wholly to respond to ordinary topics, have almost instantly dropped their reserve and become their own natural selves when the subject of music was brought up. His experience is only that of many others throughout the country, and if we will go carefully over the list of our own photographic acquaintances, I think we shall find almost without exception that the most successful of them are those who live amid cheerful, bright, and sunny surroundings.

We are often told that the successful photographer must draw

out of his sitter that easy, natural expression which most become him, but we do not for a moment believe that the process of drawing out this expression is to be performed with a monkey-wrench or dentist's forceps. It is only when we use some such instrument, either of these that the expression will be forced and painful. The process of drawing out must be one of spontaneous response to the bright and cheery spirit of the photographer himself. It must be reflection. The cultivation of the spirit of cheerfulness by the photographic worker has been the one theme of almost every message that has come so eloquently from the lips of Professor Griffith. It is the basic principle in the lives of many of our successful men to-day, and a further increase of this same genial spirit will go far to improve the quality of our work in the future. Like begets like, and a cheery man meets cheery men and women because, on meeting them they are unconsciously influenced by his own cheery spirit.

The concert grand is not a necessity for every studio, but sooner something can be found to take the place of the dim, religious stillness that pervades so many studios, the quicker will business revive.

That the world loves a cheerful photographer has been demonstrated many times. If any doubt exists on this point, view the successes of Strauss, Hollinger, Core, MacDonald, Benjamin, and a score of others, or better still, try it for yourself.

ON THE PROPERTIES OF HOMOCOL AS A SENSITISER.

(A Communication to the Royal Photographic Society.)

INASMUCH as homocol, recently introduced by the Bayer Company, appeared to be one of the most efficient of the new isocyanine group of sensitizers, it seemed to be desirable to make a somewhat extensive investigation into the sensitiveness conferred by bathing a plate in this dye, especially since many contradictory accounts of its sensitising power have been current.

As to general working the following points may be noted. Homocol appears to work with greater cleanliness than most of these isocyanine dyes, at the same time it has a very distinct tendency to cause fogging, and it is consequently necessary to take precautions to obtain rapid and even drying of the plates bathed and also to choose for bathing only plates which work without fog.

The absorption of homocol solution has been measured and is as follows, the two figures being (a) the extinction coefficient (density) in the absence of ammonia, and (b) the extinction coefficient in the presence of ammonia. The alteration in absorption caused by ammonia is not produced by other alkalis such as potash or soda.

TABLE I.

Wave-length (tenths-metres).	Homocol solution.		Wave-length (tenths-metres).	Homocol solution.	
	1 in 20,000. 1 cm. thickness.			1 in 20,000. 1 cm. thickness.	
	E_a .	E_b .		E_a .	E_b .
7000-6200	.148	.148	5200	1.330	3.340
6100	.148	.180	5100	1.200	3.460
6000	.148	.326	5000	1.120	3.360
5900	.173	.455	4900	.996	2.760
5800	.226	.748	4800	.872	2.192
5700	.422	1.258	4700	.639	1.350
5600	.574	1.758	4600	.574	.984
5500	.806	1.948	4500	.312	.710
5400	1.084	2.192	4400	.202	.432
5300	1.245	2.606	4300	.085	.238

An Ilford half-tone plate was bathed in homocol and exposed in a Tallent spectroscop to a standard acetylene burner with a blue

screen to reduce its spectral composition approximately to that of daylight.* The light, thus obtained, however, is deficient in the extreme violet and ultra-violet, and the resulting densities are consequently somewhat too low below 4,300. The densities measured, but it must be remembered that the steepness of the curve depends upon the factor to which it had been developed. The exposure given was chosen as being one which did not produce a considerable over-exposure in the blue, and generally the curve may be taken as a fair representation of the "practical" sensitiveness to daylight. A far more satisfactory method of giving the color sensitiveness would be to plot the inertia of the plate against wave length, the inertia being expressed in absolute energy units (ergs), but hitherto we have been unable to do this, owing to the experimental difficulties. The results obtained were:—

TABLE II.

Wave-length.	D.	Wave-length.	D.
6000	.078	4800	1.446
5900	.138	4700	1.724
5800	.278	4600	1.980
5700	.424	4500	2.120
5600	.483	4400	2.034
5500	.550	4300	1.702
5400	.600	4200	1.570
5300	.782	4100	1.356
5200	.932	4000	1.099
5100	1.174	3900	1.011
5000	1.303	3800	.689
4900	1.408	3700	.457

The next series of measurements was made by the method suggested by Dr. Eder, viz.: two plates were exposed behind screen made to divide the spectrum at the wave length 4,900, so that the screen transmits all the yellow and green rays, while the other transmits the rays from 4,900 downwards. Dr. Eder then measures the Scheiner number behind these two screens and expresses

* The "Photographic Journal," November, 1904.

our sensitiveness as the ratio of the numbers obtained. This appears to us to be the best method of obtaining a numerical extension of colour sensitiveness. We have used the screens recommended by Dr. Eder; for the blue 1 cm. thickness of a 2 per cent. solution of copper ammonium sulphate, for the yellow 1 cm. thickness of a 4 per cent. solution of potassium chromate.

We have used the screened acetylene light in order to get as near daylight results as possible. Colour-sensitiveness tests made by artificial lights are liable to give most misleading results, owing to great deficiency of blue and violet in almost all artificial light-sources.

Instead of measuring the Scheiner numbers we have preferred to measure the inertias and take the ratio

$$\frac{\text{yellow inertia}}{\text{blue inertia}} = \frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

for the colour correction of the plate; the smaller this ratio is the more the plate is corrected in sensitiveness.

For most erythrosin plates the ratio

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

which we may call χ (chrōma, a colour)

$$\chi = 12 \text{ to } 20$$

for good panchromatic plates

$$\chi = 5 \text{ to } 10$$

for plates with subdued blue sensitiveness (generally slow)

$$\chi = 2 \text{ to } 5.$$

Using Ilford half-tone plates in homocol solution we obtained

$$\chi = 1.1 \text{ to } 1.4$$

and the value was not affected if the plates were dried with spirit or by bathing.

As a comparison the same plates were also bathed in pinachrome and in pinaverdol.

$$\chi \text{ pinachrome} = 1.1.$$

$$\chi \text{ homocol} = 1.1.$$

$$\chi \text{ pinaverdol} = 2.1.$$

The homocol plates were notably freer from fog than the others in this case.

A great cause of fog with these dyes appears to be found in the ammonia which is usually added. Though necessary with some plates, it may be omitted with advantage.

Other plates bathed in homocol gave

$$\text{Ilford Zenith } \chi = 1.52$$

$$\text{Wratten Speed } \chi = 2.32 \text{ and another lot } \chi = 2.0.$$

The effect of homocol upon the general sensitiveness of plates to daylight appeared to be of interest, and the inertia of plates before and after bathing were therefore determined in the usual way.

Results:—

Plate.	Inertia.		Ratio Unbathed Inertia Bathed.
	Bathed.	Unbathed.	
Ilford Half-tone	2.40	2.35	.98
Wratten Speed ... ..	.112	.174	1.55
Eastman Extra Rapid ...	.192	.099	.518

The great differences in these results are probably due to the fact that the sensitiveness will depend upon the extent to which the dye is washed out.

A. J. NEWTON, C. E. K. MEES, AND S. E. SHEPPARD.

RETOUCHING AND COLOURING PRINTS.

III.

Painting Prints.

The first thing to recognise in the painting of prints is that all elements have not the same stability to light. The researches of Sir A. Abney and General Festing on this subject are now classical, the practical result is that the following may be considered as permanent (Winsor and Newton's moist colours are recommended):—these white, pale cadmium yellow, gamboge, Indian yellow, Naples yellow, yellow ochre, raw sienna, burnt sienna, brown pink, vandyck brown, light red, vermilion, Indian red, rose madder, carmine, brown madder, cobalt blue, ultramarine, Prussian blue, indigo, and terre o.*

For colouring plain or platinotype prints the dry powder colours made by the same firm are preferable to the moist cake colours, as the latter have a slight glaze.

The print should be first brushed all over with a soft brush well charged with water, till it is uniformly wet. As soon as the print becomes surface dry the colour may be applied, but it is important that the print should be in the correct state of humidity, otherwise (if it is too wet) the colours will run, and if too dry it is not easy to put one colour wash over the other.

The palette is, of course, necessary, and opal glass, china, or one of enamelled metal ones should be used; dark wood ones should not be used, as it is difficult to tell the delicate tints on them. A brush should be well charged with the colour, but not so much as to

allow it to drop from the point, another brush should be about half full of plain water. The work is easier if the print is supported at an angle, and the colour should be applied in horizontal strokes so that each succeeding stroke combines easily with the first without any line showing. If any excess of colour collects at the lower edge, it can be removed by the brush damped with water. If a large area looks patchy it may be evened down by a brush wetted with water.

Deep shadows can be put in with the moist cake colours. It is impossible to give precise directions, but it is advisable to put in the local tones first, such as the flesh and hair, etc., and then the dress, accessories, and background. Every print requires different treatment, and careful observation of people and experience can alone teach one what to do; still, some fairly general rules may be formulated.

How to Mix the Colours.

Flesh tones for the first wash.—For children and women use saturn red strongly diluted, or yellow ochre, and rose madder; for very delicate tints, yellow ochre, rose madder, and gamboge. For stronger colouring and men, yellow ochre, burnt sienna, rose madder; for full-coloured men, yellow ochre and light red. A stronger mixture still is raw sienna and rose madder. Other combinations for sunburnt or darker complexioned men would be yellow ochre and Indian red; or, darker still, yellow ochre or Mars yellow with vermilion; or, for the darkest, yellow ochre plus brown madder.

Hair colours for the first wash.—For light blonde hair, Naples yellow, cobalt blue, and rose madder; for blonde and grey, yellow ochre, cobalt blue, and rose madder; for reddish hair, burnt sienna,

*English colourists should make a note of the Velvotint colours of Barnard and of the "Photo-tints" recently mentioned in these pages. Eds. B.J.P.

cobalt blue, and rose madder; for light brown, raw sienna, French blue, and rose madder; for chestnut, brown pink, French blue, and brown madder; for dark brown and black, brown pink, indigo, and brown madder.

For warm shadow tones—the colours must be very dilute—use raw sienna and rose madder; for deep rich shadows, Indian yellow and vermilion, or burnt sienna and vermilion, or Indian yellow *plus* vermilion and burnt sienna. Fine greys, which are extremely useful, may be made with yellow ochre, cobalt blue, and rose madder; greenish half-tones with cobalt blue and yellow ochre; whilst half shadows for faces can be made with cobalt blue and rose madder.

Albumen and Collodion Papers.

There is little difference in the treatment of these papers from that of those previously mentioned; the chief point is that they do not take the water colours rapidly. For albumen, one of the best things is to sift fine pumice stone or cuttlefish powder over the surface of the print, and then rub gently with the ball of the hand till the surface is slightly abraded. Care must, of course, be taken not to remove any detail, which may occur with a little too much pressure, and, naturally, it must be carefully removed. Coating the print with a 4 per cent. raw collodion also facilitates the taking of the colour.*

For collodion papers one of the best vehicles is an infusion of quillaia bark, which is made as follows:—

Quillaia bark (coarsely powdered)	48 grains	10 gms.
Cold water	1 oz.	100 ccs.
Soak for twelve hours, with occasional stirring, and add—		
Alcohol	1 oz.	100 ccs.
Salicylic acid	5 grains	1 gm.

Filter and preserve in well-corked bottles. This solution should be painted over the print and allowed to dry.

It is important to remember that the colours must be a little more brilliant for all these prints than for plain or platinotype prints.

Jahne's Method of Working-up.

This special method of working-up prints may be said to be a combination of pencil and brush, and gives very effective results. First of all the background, say, of an enlargement is abraded with fine pumice powder,† and any powder carefully removed by brushing. To work up the background, finely powdered graphite is applied by means of a soft pad, and it can be evened out with a brush or large stumps.

To deepen shadows, Hardtmuth's chalk in wood "No. soft" should be used, and the pencil cut to the shape shown in the figure, which enables extremely fine or broad, coarse lines to be put in, according

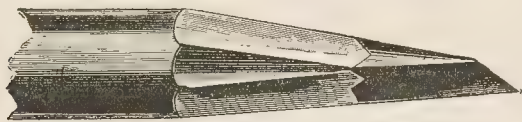


Fig. 4.—The Correct Pencil Point.

to which part of the pencil is used. The pencil strokes are now worked over with a stump. When the whole of the print has been worked up with this chalk, water colours are applied, first in very thin washes—Indian ink and neutral tint being first used, and then

local colours. For the eyes, nostrils, and lips negro pencil No. 1 may be used, and then stronger colours may be applied, using the gum and albumen medium already suggested, the result being extremely effective, and the subsequent use of the colours does away with any necessity for the use of a fixative.

Oil Painting.

Although practically the same colours may be used as suggested for the water colours, yet the following may be particularly distinguished as suitable for oil painting:—Zinc white; yellow—Indian and Naples, light, gold, dark, Roman, and stone ochres, terra de sienna; reds—light and dark caput mortuum English and Indian reds, lake robert, burnt light ochre, Vandyck red, red and Chinese cinnabar; browns—asphalt, Cassele brown, Cologne and burnt green earth, mummy, burnt dark ochre, burnt gold ochre, and burnt sienna; blues—light and dark cobalt blues and light and dark ultramarine; greens—cobalt green, green earth and green cinnabar, light and dark; blacks—bone, blue, and ivory blacks.

One of the most important points in oil painting is the washing of the brushes, which is best done by means of any good soap and warm water. The soap should be softened with the warm water, the brush charged with the same, and then rubbed over the palm of the hand till the lather is quite white. Frequent squeezing of the brush between the finger tips is advantageous.

Sable brushes may be used for small prints, but hog-hair are the best for large work. A palette knife is absolutely essential for drying oil, and oil of turpentine must also be provided, as well as a couple of dippers. All colours do not dry at the same rate. Alakes, ivory, black, and ultramarine, dry more slowly than the other colours, and for these equal parts of colour and siccativ should be used. Colours must be mixed on the palette and not on the print, and too much colour must not be taken up by the brush, otherwise it will show in ridges or run. If the brush marks show too strongly—which may happen with hog-hair brushes—they should be evened out with a distributor or soft brush.

Bromide paper should, as a rule, be given a coating of gelatin solution, so as to prevent the oil striking through into the paper; the average paper really having too little gelatine in the emulsion to prevent this. Albumen prints should be coated with collodion for the same purpose, or a thin solution of gelatine may be flowed or painted over the surface.

There are two methods of painting in oils, the one in which the photographic image is completely obliterated by the colours, and the other in which the oil colours are merely glazed on, more like water colours, and the photograph itself forms the drawing. For the former the print is frequently mounted first on wood or canvas.

MR. REDMOND BARRETT ON RETOUCHING.—Mr. Barrett has offered to give instructions in retouching at the Royal Photographic Society's House, if a sufficient number of the members arrange to attend regularly. Members who are interested in the matter should write to the Secretary, 66, Russell Square, London, W.C. A sufficient number of applications have not yet been received to warrant the formation of the class.

THE NORTHERN PHOTOGRAPHIC EXHIBITION.—The result of the ballot declared on Saturday last showed that Messrs. Reynolds and Branson, of Leeds, had won the bronze plaque offered by the Council of the Northern Photographic Exhibition for the most attractive display of trade exhibits in the show. The promoters of the exhibition had also the pleasure of giving away one of the photographic views (value one guinea), which they undertook to present to every thousandth visitor. The first of these lucky individuals proved to be Mr. A. Beal, of 25, Brudenell Road, Leeds.

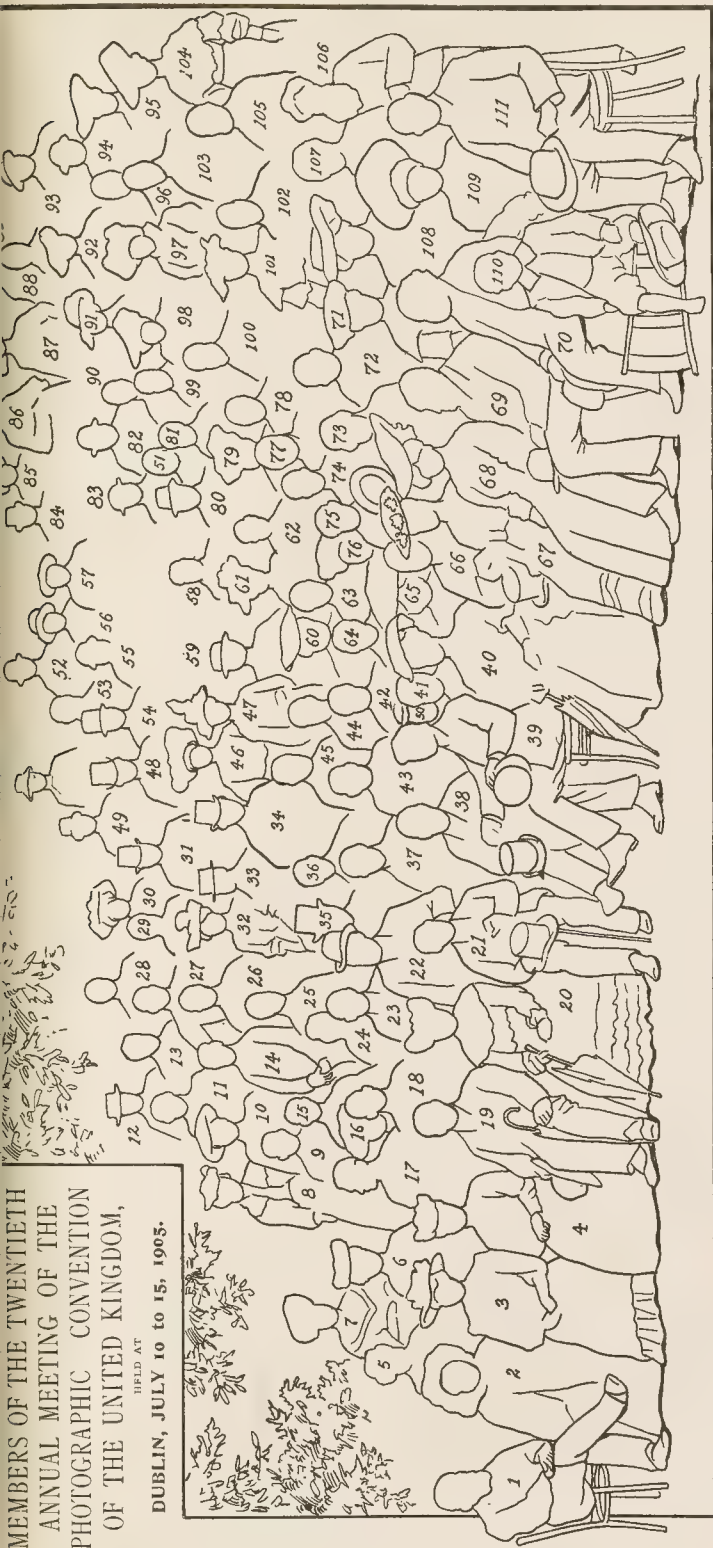
* The author does not seem to be aware of the well-known solution of purified oxgall, which is the best of all media for making water colours take on albumen and gelatin-chloride prints.—Eds. B.J.P.

† It is always necessary to sift pumice or cuttlefish powder, and the easiest method of doing this is to procure from a chemist what are known as "willow chip boxes," 2 or 4 oz.; knock the lid out, taking care not to break the rim, then half fill the box with the powder, stretch a piece of fine muslin over the top of the box and jam the lid rim down over the muslin. The lid is thus held firmly in position and by inverting the box and gently tapping it, nothing but the finest particles of powder pass through the muslin. Naturally it is necessary to throw out the coarse particles occasionally and refill with fresh powder.—Eds. B.J.P.

MEMBERS OF THE TWENTIETH
ANNUAL MEETING OF THE
PHOTOGRAPHIC CONVENTION
OF THE UNITED KINGDOM,

DUBLIN, JULY 10 TO 15, 1905.

FIELD AT



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3. Miss Capes.
4. Mrs. Benson.
5. Mr. H. Snowden Ward, F.R.P.S.
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11. Mr. F. J. Lloyd.
12. Mr. T. A. Knoblach.
13. Mr. E. J. Humphrey.
14. Mr. John Brand.
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17. Mr. Edmondson Benson.
18. Mr. R. Benson (Local Hon. Sec.).
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35. Mr. E. J. Alexander.
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37. Mr. Alfred Werner, F.R.P.S.
38. Sir Charles A. Cameron, K.C.B., M.D., F.R.C.P.
39. Professor J. Joly, D.Sc., F.R.S. (President).
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65. Miss Crowther.

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67. Mrs. Alfred Ellis.
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95. Mr. George F. Powell.
96. Mrs. Alfred Werner.
97. Miss Woodworth.
98. Mr. C. Phipps Lucas.
99. Mr. T. Thorne Baker, F.C.S.
100. Mr. C. Phipps Lucas.
101. Mrs. Atkinson.
102. Mrs. Atkinson.
103. Miss E. M. Powell.
104. Mr. W. Errington Cowan.
105. Mr. W. Errington Cowan.
106. Mr. W. Errington Cowan.
107. Mr. Edwin J. Walker.
108. Mrs. C. R. Dunbar.
109. Mrs. C. R. Dunbar.
110. Mrs. C. R. Dunbar.
111. Mr. C. R. Dunbar.



MEMBERS OF THE TWENTIETH ANNUAL PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

HELD AT DUBLIN, JULY 10 TO 15, 1905.

NEGATIVE BY ALFRED WERNER,
DUBLIN STREET, DUBLIN.

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THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

TWENTIETH MEETING.—DUBLIN.

II.

The annual meeting of the Convention was held in the Engineering School, Trinity College, the President, Professor J. Joly, in the chair. An invitation from the Southampton Camera Club or the Convention to meet in Southampton in 1906 was presented and accepted.

Election of Council then took place, with the following result:—
 Bainbridge, G. B., Morpeth.
 Baker, Harold, Birmingham.
 Bingley, Godfrey, Leeds.
 Brown, George E., London.
 Coates, Henry, Perth.
 Croall, W. J., Edinburgh.
 Jallmeyer, T. R., London.
 Draper, H. C., F.C.S., Dublin.
 Dunmore, W. E., London.
 Ellis, Alfred, London.
 Goodwillie, H., Dublin.
 Grant, T. K., London.
 Green, Dr. E. Collier, Derby.
 Humphrey, E. J., London.
 Keene, C. B., Derby.
 Keith, Sydney, Hounslow.
 Lewis, Furlley, London.
 Lucas, C. Phipps, London.
 Marchant, J. W., London.
 Howl, A. F., Liverpool.
 Torton, G. W., Oxford.
 Perkins, Rev. T., M.A., Blanford.
 Robinson, Ralph, Redhill.
 Ruthven, J. A. C., Dublin.
 Salmon, P. R., London.
 Sanderson, F. H., Cambridge.
 Scott, J. A., M.D., F.R.C.S.I. Dublin.
 Scotton, T., Derby.
 Seanran, A., Chesterfield.
 Smith, E. Webb, Dublin.
 Smith, H. M., London.
 Spink, Henry, Brighton.
 Taylor, W., Leicester.
 Walker, J. H., Leeds.
 Wall, E. J., London.
 Ward, H. Snowden, London.
 Waterhouse, Major-General J. I.S.C., London.
 Webber, S. B., London.
 Wellington, J. B. B., Elstree.
 Werner, A., Dublin.

A cordial vote of thanks was passed to Mr. F. A. Bridge (London), General Secretary and Treasurer, for his labours in connection with the Convention.

Mr. Bridge suitably acknowledged the compliment.
 A meeting of the newly elected Council was then held.
 Sir Howard and Lady Grubb gave a garden party on Wednesday afternoon in the Zoological Gardens in connection with the Photographic Convention. The function was favoured with fine weather, and light refreshments were served in a number of tents erected on the grounds. During the afternoon a charming programme of music was performed by the band of the Dublin Metropolitan Police. The group of members of the Convention was afterwards photographed by Mr. Alfred Werner, and is reproduced as a supplement to this issue.

The annual dinner of the Convention was held in the Gresham Hotel in the evening. Dr. Joly presided, and to his right were Sir Howard Grubb, Mr. W. E. Wilson, Colonel Plunkett, Mr. Moss, and Mr. Bothamley. To his left were the President of the Royal College of Physicians (Dr. Wm. Smyly), Sir Charles Cameron, Colonel Plunkett, and Dr. Robert Browne. The company was large.

The usual loyal toasts having been honoured,
 Sir Charles Cameron proposed the toast of "The Photographic Convention of the United Kingdom." He said that the art was widely diffused, and had numerous applications. In no profession was the value of photography more valuable than in the medical and surgical profession, where, in the form of the Röntgen Rays, it had worked wonders.

Mr. Bridge responded, and in conclusion he gave the toast of "The Photographic Society of Ireland."

Dr. Scott responded.
 Mr. C. H. Bothamley gave the toast of "The President, Professor Joly," and eulogised the work done by Dr. Joly in the world of science.

Count Plunkett gave the toast of "The Press," which was responded to by Mr. George E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY).

Colonel Plunkett gave the toast of "The Ladies," which was responded to by Mrs. Catherine Weed Ward.

During the evening many excellent musical contributions were given. Mr. Clarke Barry's band supplied a programme of music during the dinner, and after dinner Mr. Gerald Ewing and Mr. Fred Jeffs contributed notably to the enjoyment of the company by some excellent songs. The latter also amused his hearers very much as a *raconteur*. The remarkable sleight-of-hand performances of Mr. W. E. Cooper ("Presto") further diversified the entertainment very agreeably, and formed a distinct feature of a thoroughly enjoyable evening.

On Thursday an excursion was made to Bray and the Dargle, and in the evening an illustrated lecture was delivered in Trinity College by Dr. E. MacDonald Cosgrave on "Old Dublin." Friday's excursion was to Drogheda and Monasterboice, and on the evening of that day a paper was read by Mr. T. Thorne Baker. Saturday is always a miscellaneous day at the Convention, and was spent in brief excursions in and around Dublin. A number of conventioners prolonged their visit to Ireland for some time, and on Saturday betook themselves to Killarney and other parts of the country.

THE USE OF EXTREMELY RAPID PLATES.

(A Paper read before the Photographic Convention on July 15.)

The attainment of any given object is invariably attended by some counterbalancing disadvantage, and this is perhaps truer of no case than that of dry plates, in which certain qualities must be sacrificed in order to endow the plates with excessive speed. Every so-called photographic season has its pet "rage," and the nature of each new rage is made evident to the manufacturer by the special requests of his clients. Thus three years ago gaslight development papers were very much in vogue, two years ago everyone was deeply interested in orthochromatic photography, and nowadays every photographer requires the very fastest plate he or she can possibly get hold of.

The use of plates possessing very great speed is only advisable when the object in view justifies it. Thus the photography of children in the studio is an example; the photographing of such subjects as sports on a dull day; and in focal-plane shutter work it is obvious that a high-speed plate is practically essential. The indiscriminate use of very rapid plates is certainly inadvisable, as it is very difficult to get with them the variety of classes of negatives one can obtain with slow plates. This will be clear from the following points of difference which exist between slow and rapid plates.

The Properties of Slow and Fast Plates.

A slow plate, i.e., one of from 50 to 75 H. and D. (ferrous oxalate), has very little tendency to fog in development. It has a fine grain, and is therefore capable of giving considerable density in a short time, as with small granules of silver bromide the developer can readily reduce to metallic silver the entire granule. The slow plate further has a steep gradation curve—that is to say, contrasts come very readily, whilst details in the shadows only appear with full exposure, and, what is more important yet, reversal takes place only after very considerable over-exposure.

With plates in which no effort has been spared to obtain a speed of from 150 to 300 H. and D. (ferrous oxalate) almost all these condi-

tions are reversed. Thus the plates have distinct—i.e., easily measurable—tendencies to fog in development. They have a comparatively coarse grain, and hence density is only obtained on prolonged development, as, the grains being large, the developer can with difficulty reduce to metallic silver the entire granule. The rapid plate has a long scale of gradation in its characteristic curve, and consequently tends to give soft results, with a wide range of tone, rather than contrasty pictures; and finally, reversal takes place fairly soon after the maximum normal exposure has been received.

The latitude of a plate being directly proportional to its opacity, a very rapid plate should, theoretically, possess very little. In practice, however, as I hope to show later on, an extraordinary amount of latitude is possessed by many makes of very fast plates, although of course we have a wider margin with slow varieties.

Gelatine as a Factor in Speed.

The chemistry of the very fast plate, so far as it is known, is of great interest, and is briefly as follows:—

The emulsion consists of granules of silver bromide and silver iodide imbedded in gelatine, the bromide being in the greater proportion. It is questionable whether any interaction takes place between the iodide and the gelatine, but a recognised compound of silver-gelatino-bromide is formed. A certain quantity of ammonia is employed in the emulsification, and silver bromide is soluble in this, so that the gelatine surrounding the granules of silver haloids is partially saturated with an ammoniacal solution of silver bromide. Hence the gelatine itself becomes sensitised, and owing to the sensitiveness thus acquired it at once becomes a factor in the production of fog during development.

The faster the plate, the more readily is bromide absorbed by the gelatine. This may be taken as a general axiom. And until some fresh methods of manufacture are devised the rapid plate will always

have greater tendencies than the slow plate to (i.) large grain, (ii.) fogging of the gelatine surrounding the granules, (iii.) steady gradation, and (iv.) lack of density in the deep shadows.

Speed and Colour-Sensitiveness.

It is well known that a slow plate is only sensitive to violet and blue rays of light; thus, very slow emulsions, such as those containing silver chloride and bromide, are chiefly affected by the region of the spectrum lying between the H. and F. Fraunhofer lines. As, however, the emulsion becomes treated with iodide, and receives more and more digestion, or assimilation of pseudo-digestion I had perhaps better say, the sensitiveness extends further and further through the bluish-green, green and yellow, and finally on through the orange and red even into the invisible infra-red. I would like it to be understood now that I am speaking only of what may be termed the *normal* exposures; with ridiculously long over-exposure even a slow plate can be made to appear sensitive to green and orange rays of light, but the portion of it exposed to the blue region will by this time have suffered reversal.

It will be clear from this that a very fast plate must, in order to give it its full chance, so to speak, be treated with all the reverence due to an orthochromatic plate. I have endeavoured to show this sensitiveness to the whole spectrum graphically by means of photographic negatives taken on a slow plate (150 H. and D.), and a fast plate (400 H. and D.), of the spectrum of the arc light, coloured spectrograph first. You will see by the slide shown on the screen two negatives of the spectrum as already stated; the upper one is on the slow plate, the lower one on the rapid plate. In the latter you will observe that the O on the scale is visible, and the O position is practically at the end of the visible red. The top spectrograph is one showing a few lines; thus the D line is situated at 4 on the scale, and it is just visible even in the rapid plate. Although compared with its sensitiveness to violet and ultra-violet light the rapid plate is very slightly affected by red, it is obvious that continued exposure to direct rays from a dark-room lamp is quite sufficient to fog the plate, and we shall therefore return to this subject again a little later on.

Meantime, I think it will be interesting to see the effect of sunlight during varying conditions of weather on a plate sensitive to the whole spectrum, as by estimating the density of successive portions of the negative curves can be plotted out showing the varying quantities of red and green light in fine weather, rain, direct sunshine, etc. These variations, although slight, have nevertheless to be sometimes considered in making an exposure with a plate influenced by them.

Having now in the view the chief characteristics, good and bad, of a rapid emulsion, we are in a position to consider the methods of treatment which will lead to the best results.

Darkroom Illumination.

The red-sensitiveness of rapid plates being borne in mind, it is always a wise precaution to employ a red lamp in the dark-room instead of a yellow or orange illumination, and if red glass be used it should be examined carefully by means of a pocket spectro-scope to see that no green light is transmitted, as is so often the case with so-called ruby glass. The man who works hard, and therefore spends a good deal of time in the dark-room, will require an illumination as brilliant as can be obtained consistent with safety, and for that purpose I can confidently recommend the following mixture for use in tank-lamps—the ideal lamps for lighting the dark-room:—

Tartrazine	3 parts.
Titan scarlet	2 parts.

This mixture is dissolved in water varying in quantity according to the thickness of the cell. The colour should be such that a little pure yellow and orange passes through the solution, but the maximum luminosity is in the pure red beyond C.

Another very good dye for tank lamps, which passes more orange and yellow, and therefore gives a more pleasant illumination, as far as the eye is concerned, is mandarin orange, and I think Messrs. Chas. Zimmerman supply this for the purpose. Care has to be taken with this dye that it is used in sufficient quantity, as too weak a solution is quite useless.

If the dark-slides are not loaded in the dark, it is a safeguard to turn one's back on the red light and thus shield the plates from the direct rays. It will always be found that the greatest danger of fogging a plate by light is in the manipulations which precede development, and not those which follow it.

A Black Backing for a Rapid Plate.

The question of backing is of considerable importance with rapid plates, as halation is readily produced with them. It is obvious that a plate which lacks opacity owing to the size of the granules of silver bromide will give halation more readily than an opaque plate; but even when a fast plate appears just as opaque to the eye as a medium-speed one, there is still the possibility of its being slightly more translucent. The backing applied must not be of the sienna type, as in a long exposure, especially on a coloured subject, the reflected red rays, which of course should not exist theoretically, will affect

the plate; an Indian Ink backing, or any of the forms of dead-black media, is preferable, or similarly a deep red. The backing should be allowed to dry thoroughly before the plates are either put into the dark-slides or wrapped up for storage, as damp is one of the most formidable antagonists to the keeping qualities (in stock) of a quick emulsion.

Speed Numbers of Rapid Plates.

A good deal might be said with regard to exposure. Exposure depends upon speed, and speed is usually ascertained by the manufacturer, and the manufacturer is not always believed. It is supposed by a great many that a manufacturer claims a high speed for a plate because it brings him business, but this is entirely a fallacy. Putting a wrong speed number on a box of plates conveys a wrong idea of their speed to the user, who merely makes an error in the exposure, and is consequently dissatisfied with the results.

What I should more particularly like to draw attention to is the method in which plate speeds should be obtained by the manufacturer, and the way in which the numbers given should be interpreted by the user. The most reliable means of determining the speed of a plate is that devised by Messrs. Hürter and Driffield, but they chose as the standard developer ferrous oxalate—a reducer which is only used very rarely by the present-day photographer, as it is entirely unsuited to modern rapid plates. The use, therefore, of ferrous oxalate, whilst being almost necessary in the case of accurate research or laboratory work, is not advisable when determining the speed for the photographer, as the speed, so-called, of a plate is almost double with pyrogallol or metol that it is with ferrous oxalate. Pyrogallol, with ammonia and with sodium carbonate and metol-hydroquinone, are the developers chiefly used by photographers for the majority of their work, and therefore the speed number referring to such developers, which is approximately 9.5ths the ferrous oxalate number, should unquestionably be given.

Bromide and Speed Numbers.

Another point is the use of bromide. Potassium bromide in the developer slightly destroys the latent image, but it does so quite impartially, hence the shadows suffer, comparatively, more than the high-lights, as the same amount of sub-bromide is reconverted in each. But bromide is used in practically all developers, and it should therefore be used in the solution employed to determine the speed number of a plate. I am again referring to the "practical" speed number, and not to the number obtained only for scientific guidance.

The best guide for the practical man is to give him a speed number which can be taken as applied to the developer he is likely to use in his work; and if speed numbers were obtained by the Hürter and Driffield methods, using a pyro-soda or metol-hydroquinone developer with an average quantity of bromide, and some simple tables or actinometer arranged to calculate the exposure from such numbers, the most accurate practical results would, I feel sure, be obtained.

Gradation Rendering.

The use of extremely rapid plates for purposes where a very wide range of tone is required is perfectly legitimate, and soft negatives—the blacks of which are not opaque to block the detail—are readily obtainable; not only because the gradation obtainable is steady and even, but also because the extra speed enables the half-tones to receive longer comparative exposure, as one can afford the time, even in the studio.

In the slides I will ask the lanternist to put on the screen, we see H. and D. strips, the characteristic curves of three plates, slow, ideal, and rapid, and if we take any ordinate P, P, P., and compare on this line the amount of density obtainable for the same exposure, we find the slow gives the greater and the rapid the less density. This is, however, true only after a good exposure has been received, and in the next slide we see the practical comparisons. The slow plate gives the less density, the rapid plate the more, up to a certain point in the exposure, and after this point the rapid plate develops up soft and not too opaque, while the slow plate gives great density and consequent harshness.

Pyro The Developer for Rapid Plates.

The Development of Rapid Plates.

In considering the development of very rapid plates, it is necessary to bear in mind the tendency to fog, the coarseness of the grain, the difficulty (comparative) with which density is obtained in the high-lights owing to premature reversal (the word "premature" is again used comparatively). The development of a plate is worked by means of three levers, if we may call them such. The density giver or developing reducer, the accelerator or gradation producer, and the restrainer, which at the same time ensures cleanliness. The restrainer, which is of course usually bromide, is a lever which is apt to be wrongly worked, for the reason that unless added at the commencement of development it does not partially cut out the latent image, i.e., practically reduce the effect of the exposure—when added after the image has once become visible it merely slows development, thus enabling the ingredients of the latter to be modified before too much danger is done.

The best negatives on rapid plates are therefore obtained by considering what substances best fulfil the conditions imposed upon them. Such developers as metol or metol-hydroquinone are hardly divisible; amidol similarly is not worthy of consideration; aikonon, if used carefully, will give good results; but after a considerable amount of experimenting, pyrogallol has proved the most valuable all-round reducing agent. The pyro-ammonia developer is good, because so much bromide may be employed with it; the pyro-soda developer is good because, besides its clean-working properties, it enables one to control the development so easily, and to produce any class of negative whatever at will.

Restrainers for Developers of Rapid Plates.

The photographer who aims at artistic results finds it necessary to modify a normal developer in order to produce a sufficiently soft result with plates of medium rapidity; but when using rapid plates the gradation comes of itself, and our aim is more especially to produce sufficient vigour in the high-lights. Moreover, an extremely fast plate is, or should be, used on occasions when the circumstances of the exposure render it likely that every available bit of speed will be required, and therefore if we can possibly manage to work without bromide the full advantage of rapidity may be obtained.

A developer which is unequalled for use with such plates as the Ford "Monarch," the Cadett "Lightning," the Barnet "Red Seal," the Gem "Salon," etc., is one in which bromide is replaced by sodium citrate and sodium sulphite, which ensures cleanliness without reducing the effective exposure. It is a pyro-soda developer, and the reducing solution is made by dissolving 30 grammes of pyrogallol, 25 grammes of citric acid, and 150 grammes of sodium sulphite in 1,000 ccs. of water; the accelerator is merely a 25 per cent. solution of sodium carbonate. The great charm about this developer is the evenness of gradation which it gives, and negatives with a very wide range of tone are readily obtainable with it, in which the deepest shadows can be printed through.

Summer Dangers—Over Exposure and Warm Developer.

One of the chief difficulties, however, with plates of high speed is their exposure. The easiest mistake to make is to over-expose, and as the characteristic curve of the emulsion evidences a tendency for reversal at an early stage of over-exposure, the constituents of the developer are best arranged so as to give abnormal density; the abnormal density giving power, of course neutralises the flatness of the negative, or rather its tendency for flatness.

Development in summer is a subject which deserves special consideration. We have seen that the rapid plate has a tendency to give fog, especially if forced at all, during development. But the

fog-producing factor is enormously increased with a rise of temperature, the increase being unfortunately very unreasonable in : : " And the faster the plate the more unreasonable still is this proportion, so that it is essential, in order to treat the plates fairly, to keep not only solutions, but dishes, and the dark-room at as cool a temperature as possible.

Fixing Precautions.

A fairly weak fixing solution is required in order to avoid the partial solution of the least-exposed parts of the picture, and in order to prevent development from proceeding after removal of the plate from the developer, a small amount of acidity is desirable in the fixing bath. A very satisfactory solution will be obtained by dissolving 5 oz. of sodium thiosulphate and 60 grs. of acetone sulphite in a pint of water. If speed has been obtained by long digestion of the emulsion, and a tendency for frilling produced in consequence, the introduction of a small quantity of alum into the fixing bath may be necessary.

After-Treatment of Rapid Plates.

It is hardly my duty to-night to give practical suggestions for everyday work to members of the Photographic Convention, and I have therefore said little about development; but I would like to say a few words in connection with the intensification of over-exposed and flat negatives. The grain of the negative being large already, we require a method of intensification which will give us the greatest possible strengthening of the image concurrent with the least increase possible of the size of the granules (rehalogenising with subsequent partial reduction is therefore undesirable). Moreover, it is generally necessary to clear the unexposed and least-exposed portions of the negative previously to intensification in order to clear these parts from development fog. I have found that it is possible to substitute one operation for the two by simply employing an intensifier which will reduce in density the least-exposed parts of the negative, whilst it adds to the density of the more exposed parts. Such a result can be produced by bleaching the negative in a solution of mercuric chloride and ammonium chloride, with subsequent treatment with a re-blackening agent which readily dissolves Ag Cl, such as ammonium or sodium thiosulphate. Beyond these remarks, I have little else to say. On an occasion like the present, when the reading of a paper has been preceded by a long and fatiguing excursion on a very warm day, a lengthy mass of information on a strictly technical subject is not diplomatic on the part of its reader. But the little I have said will, I trust, have proved interesting, being founded, as it is, on the results of a long experience with the preparation and use of extremely rapid plates.

T. THORNE BAKER.

The following discussion ensued:—

Mr. C. H. Bothamley expressed his pleasure that a paper so full of practical suggestion had been brought before the Convention, and described the reasons given by one of the oldest conventioners, the late Mr. Frederick York, for preferring a plate with thin films, well backed, and of only medium sensitiveness, for general work. In many cases of architectural interiors, where the exposures were, for the most part, too short to give full detail in the shadows, Mr. Bothamley had found the great value of the same class of plate.

Professor J. Alfred Scott, M.D., said that in his own photography, which was entirely for lecture-illustration, by means of lantern slides, he had found extremely rapid plates unsatisfactory. There was inability to fog, thinness of image, with large grain, which was increased by intensification, and, of course, greatly exaggerated on the screen. Many of his subjects were zoological—ochreous-coloured animals, in yellowish surroundings—and he got the most satisfactory results by using plates of medium sensitiveness, and developing until the negative was exceedingly dense.

Mr. H. Snowden Ward said that he thought that examination of the safe-light by spectroscopy would not appeal to the ordinary working photographer, who might better test his light by exposing the sensitive surface to be worked with it, for the longest time and at the shortest distance that would occur in practice, with part of the surface shielded from the light, so that subsequent development would show whether the unexposed part was fogged. He hoped that, perhaps for the next Convention, Mr. Thorne Baker would amplify his suggestions re those combinations of development and intensification whereby the advantages of the very rapid plate and the slow plate might to some extent be secured at the same time, and specially commended the remarks on the effect of temperature upon development.

Mr. F. A. Bridge supported Mr. Ward's recommendation of test by exposure rather than by spectroscopy, and mentioned several classes of work for which the thin plate, well backed, and not of excessive sensitiveness, was decidedly the best. With extreme contrasts, and also when sufficient exposure was impossible (as in underground workings), it was the best plate one could use. But—and this was very important—it must be a plate that would stand "playing with" in development.

Mr. Hedley M. Smith, of Paris, said he thought that the paper should have been entitled "The Disadvantages of Extremely Rapid Plates," for they had more disadvantages than virtues. In his own work, and in dealing with the work of thousands of amateurs, he had found that an emulsion of medium sensitiveness was almost invariably the best. Extreme rapidity was a real advantage only in a very few cases, and then only in most competent hands.

Professor John Joly, F.R.S. (president), said that extreme rapidity had been of great value in some recent scientific work. The views of the corona of the unclipped sun, which were brought out by successive processes of intensification on plates exposed through deep colour-screens transmitting red, were a case in point. Another was the report from America that the "canals" of Mars had been photographed, and if this were confirmed, it would make a new "record" for the photographic method of observation. Hitherto, though the plate, by its cumulative action, excelled the eye in recording very faint luminosities, the eye had excelled the plate in detecting faint differences of luminosity. If the Martian "canals" had been photographed, the plate would have recorded what only a few highly-trained eyes (as those of Schiaparelli) had been able to see.

A curious question in relation to sensitive plates arose from the recent demonstration of the universal bombardment of electrons. It seemed impossible to escape from this bombardment, which penetrated even boxes of thick lead, and which had the property of ionising the air and all bodies with which it came in contact. As this ionisation affected plates in the same way as light did, it seemed marvellous that all extremely sensitive plates were not spontaneously fogged. It might be because the fading of the latent image (which had been proved to occur) was as rapid as the ionising, but the point was an interesting one, and worthy of investigation.

In reply, Mr. T. Thorne Baker dealt with several of the questions raised. He recommended, in the case of the subjects mentioned by Dr. Scott, that the development of the extremely rapid plates should be incomplete, and be followed by intensification with mercury and hypo, to secure density without very large grains.

BURROUGHS WELLCOME AND CO.'S QUARTER CENTURY COMMEMORATION.

THE Wellcome Club and Institute at Dartford, Kent, was a scene of great activity and brilliancy on Saturday last. The occasion was the visit of the President, Council, and Members of the Society of Chemical Industry of the British Empire and America, and a fête commemorating a quarter century's work of the firm of Burroughs Wellcome and Co. A most elaborate programme had been arranged, including a display by the private fire brigade of the Institute, aquatic sports, a luncheon to over two thousand guests and employees in a huge marquee, athletic sports, maypole dances, dinner in another marquee, fireworks and illuminations, and an open-air concert.

The weather was propitious, and the splendidly organised arrangements went without a hitch, thus speaking well for the *esprit de corps* apparent on every side in this model firm, which can be likened more to a great happy family, numbering over thirteen hundred, than to an ordinary business house. At the luncheon many guests distinguished in the world of pharmacy and medicine were present. Mr. H. S. Wellcome presided, and the toasts were received with great enthusiasm. Congratulatory telegrams were received during the morning from branches at Berlin, Montreal, Shanghai, Calcutta, Amsterdam, New York, Brussels, Switzerland, Vienna, Sydney, the West Indies, and Milan, and after luncheon Mr. Wellcome presented the cup of the Wholesale Chemists and Druggists Cricket Championship to the Wellcome Cricket Club, who had won it five years in succession. In the staff club house of the Institute an exhibition of historic medicine cases proved of great interest. They included one of the "Tabloid" medicine chests carried through "Darkest Africa" by the late Sir H. M. Stanley; one of the medicine cases specially designed for and supplied to the hospital ship "Maine"; also the saddle-bag medicine cases used by Dr. J. W. B. Wellcome, in pioneer days of Minnesota and Dakota, during the great Sioux Indian wars, etc., etc.

In the gymnasium an exhibition of photographs was on view. This exhibition, organised by the photographic club of the Wellcome Club and Institute, consisted entirely of pictures by club members and employees, and the work was of a high average. Egyptian and Soudanese photographs, photographs of St. Louis Exposition, and some typical pioneer Western American and Mexican habitations and views were exhibited by Mr. Henry S. Wellcome, and the winning photographs at the Chemists' Exhibitions 1903, 1904, and 1905:—The Bread Winners—1st prize, 1903, H. W. Lane; Early Morning in a Pine Wood—1st Prize, 1904, E. F. Harrison; The Artists' Valley—1st prize, 1905, H. W. Lane, were also shown. The club's permanent collection, consisting of pictures purchased by Mr. Wellcome from previous photographic exhibitions and presented to the club to form a representative show, included several fine pictures by H. W. Lane, W. H. Fawkes, H. W. Gray, E. F. Harrison, and H. H. Crosbie.

An arts and crafts exhibition, consisting entirely of work by club members and employees, was also interesting. It included over 300 entries in the following classes:—Needlework, Fancy Work, Model Carving, Fretwork, Poker Work, Machinery, Vegetables, Flowers, Fruit, Cookery, Painting, Drawing, Table Decoration, Scientific apparatus, etc., etc.

Altogether, the firm of Burroughs Wellcome and Co. can be congratulated on a most successful commemoration function, and we look forward to seeing this house of original ideas and sound business methods, go on flourishing and repeating Saturday's entertainment on even a larger scale every succeeding quarter of a century with that regularity and despatch which characterises every other phase of its organisation.

PHOTOGRAPHS OF ROYALTY.

A WRITER in the "Book and News Trades' Gazette" discusses at some length the relative popularity of Royalty and stage favourites as subjects for picture postcards. He says:—"The portrait postcard claims much attention both from publishers and retailers, but the latter are, I think, inclined to give too much of their attention to one description of portrait postcards. I refer to the stage celebrity portrait, but recognise that these are very greatly in demand, and therefore merit some amount of attention, and many will, perhaps think that it is impossible to give too much heed to such cards. They are to a certain extent right, but there is no reason why other portrait cards should be neglected. In their anxiety to supply the extraordinary demand for pictures of actors and actresses many retailers have ignored the portraits of members of the English Royal family. Taking Miss Marie Studholme as a representative for stage celebrities and King Edward VII. for the Royal family, I make bold to say that, if retailers gave equal prominence to the two portraits in their window displays, the bigger demand would be for the photograph of the King. Every true Britisher respects him—in fact, I might say loves him—while foreigners and colonialists would always welcome the opportunity of purchasing a portrait of the world's greatest Sovereign. Pictures of prominent actors and actresses, while only appealing to a section of the public, have sold in unthought-of numbers, so that it is hard to imagine how big would be the demand for a picture of the King of England, who can also lay claim to being the King of Diplomats and the King of Sportsmen, if his portrait was well shown by all retailers of pictorial postcards. The Queen would not be one bit less popular, while portraits of the other members of the Royal family would also sell well. But there is no need to confine these remarks to members of the English Royal family; a ready sale could be found for portraits of all the crowned heads of Europe if retailers would only see that they are properly shown. I make the statement knowing full well that those newsgents and stationers who have given such cards a trial have been more than pleased with the result."

NATIONAL PORTRAIT GALLERY.—In their annual report the trustees of the National Portrait Gallery remark that much of the increased popularity which has been gained for the National Portrait Gallery during the last few years has been to a great extent due to the noble series of portraits painted and presented by Mr. Watts, and "they wish to place on record their sense of the debt owed by them and this country to their late distinguished colleague for his public spirit and generosity." The pressure on the existing wall-space in the galleries suitable for the hanging of pictures, and the difficulties in maintaining the historical and chronological arrangement of the collection continue to increase. The trustees have been in communication with the Army Council as to the possibility of some portion of the site now occupied by St. George's Barracks becoming available for an extension of the gallery; but up to the present date the trustees do not find themselves in a position to think that there is any immediate prospect of the much-needed extension to the National Portrait Gallery taking place.

THE R.P.S. AFFILIATION.—The judges have made the following awards in the third Lantern Slide Competition:—Plaque, E. Seymour (Watford C.I.C.) for his slide entitled "Currants"; plaque, G. J. T. Walford (Southend-on-Sea P.S.) for his slide entitled "A Norman Triforium"; plaque, J. Walker (Birkenhead P.A.) for his slide entitled "After a Shower"; first certificate, South London P.S. (2.65 points); second, Southampton C.C. (1.95); third, North Middlesex P.S. (1.91). The executive committee has selected for circulation among the affiliated societies a number of slides from those sent in for competition.

Photo-Mechanical Notes.

"True Scale" Photo-Lithography.

A good deal of attention is being paid at present to reproductions of same size from originals in black and white from the paper drawings themselves, as, for example, maps and plans or engineers' drawings. Most of the new Ordnance maps are produced in this way, the original map being drawn on Whatman paper in quite opaque ink. This drawing is then placed in contact with a zinc plate, sensitised with a film of bichromated fish glue, and exposed from ten minutes to four hours, according to the light. This plate is then developed, giving a negative image on the zinc plate, the ground of the drawing being represented by insoluble fish glue, and the lines by bare zinc. After drying, the plate is inked over with a greasy ink, and then placed in very weak hydrochloric acid, and rubbed gently with a wad of cotton wool; this brings away the insoluble fish glue and the ink on top, but does not remove the ink from the lines, thus giving the desired positive ready for printing in the usual lithographic way.

The process outlined above has been patented by Conductor Andyke, of the Government of India Survey, and a full account of the process is to be found in the Report of the Survey of India Office for 1899-1900, page 26 of the Appendix.

Recently Messrs. Klimsch, of Frankfort-on-the-Main, have patented a modification of the above process (3,608 of 1904), which consists in treating the bare lines of the zinc after the negative image is obtained by some chemical to remove what they term the "alteration product," which they say is formed when bichromated fish glue is placed in contact with metal, even though the glue is not rendered insoluble.

However, there does not seem to be any trouble in working the process without this modification, provided a suitable ink is used, and is allowed to remain on the metal long enough before development is attempted. Such an ink can be simply made by taking bitumen four parts by weight, lithographic printing ink in sticks one part, and dissolving in benzole until completely homogeneous, and then thinning with turpentine to the requisite consistency for rolling on the plate. The time it should be allowed to remain on, before development, is at least four hours to be certain of getting good results when developing.

If, however, it is desired to develop at once, then, after the fish-glue negative image is on the zinc, it should be dried, and the plate plunged for an instant in iron chloride solution at 5 deg. Réaumur. The plate must not be left in longer than just sufficient to blacken the bare zinc lines, otherwise the iron stains the fish glue, and it is difficult to rub it away. Or, instead of iron, a very weak solution of tin chloride may be used, say one grain to the ounce of water. Considerable knack is required in using either of these solutions, so that if the time can be spared it is simpler not to use them, but merely to allow the inked-up plate to rest over night, or for some hours.

PROCESS in India obtains extremely good representation in the "Empress" magazine, edited by A. J. Parker, and printed by Messrs. Thacker, Spink, and Co., of Calcutta. A copy which just reaches our table shows the very full half-tone illustration adopted in the production of the magazine. Some half-dozen pages are occupied by pictures of the recent earthquake in Northern India, and the final effect of photography, block-making, and printing is such as many a journal produced in London would be glad to equal. We are interested in learning that the "Empress" has been using process blocks since 1898, and that all the photo-mechanical work is done in the office by a native and Eurasian staff.

New Materials.

The Barnet Roll Film. Made by Elliott and Sons, Limited, Barnet, Herts.

With the desire to make the roll films of their manufacture completely responsive to the demands of the great army of photographers who pin their faith to this form of sensitive material, Messrs. Elliott have now issued a revised edition of the film, in which are embodied the two very distinct advantages of orthochromatism and flatness in the finished state. The latter quality, be it observed, refers to the superficial contour of the film, not to the character of the negatives, which, in our experience, are endowed with desirable brilliancy and vigour. No user of the film can fail to appreciate the gain in ease of manipulation which a flat film confers in comparison with one that curls. The added iso properties are probably overlooked altogether by a large proportion of those who go forth photographing and to photograph; but the minority, who have proved the benefits of a film sensitised for the green and yellow, will thank Messrs. Elliott for this gratuitous boon. We need not say more, except that in its other properties the new Barnet film sustains us in the good opinion we had of its progenitor, and we note its appearance as another instance of the watchfulness exercised in the production of the various "Barnet" manufactures. For the convenience of our scientific friends we give sensitometric measurements by C. E. Kenneth Mees, B.Sc.:—

Inertia (H. and D., pyro-soda), .289.

$\gamma \propto$ (density-giving power), 2.68.

K (velocity constant of development with standard ferrous oxalate), .060.

Opacity (to blue light—an index to latitude), 17.

t_f (time of development for standard gradation of 1), $7\frac{1}{2}$ minutes.

Colour ratio $\frac{\text{Blue sensitiveness}}{\text{Yellow sensitiveness}} = 11.2$

The roll film is issued in the usual sizes at the standard price

AN interesting little catalogue of photo jewellery has been sent us by Messrs. F. Helmrich and Co., Wholesale and Export Jewellery and Fancy Goods Merchants, of 37, Walbrook, London, E.C. Screw top photo pendants, miniature rims with velvet backs, lockets, brooches, and necklets, in great variety are listed in various styles and finish, rolled gold, silver, or nine carat gold. Judging from the illustrations with which the catalogue is embellished, some very chaste designs in this popular form of trinket are to be obtained from Messrs. Helmrich at very reasonable prices. In addition to these metal frames, etc., a selection of excellent wood and ornamental photo frames are illustrated also at low figures, while postcard albums and series of picture postcards are likewise included. Every photographer and dealer interested in these remunerative side lines should send for a copy of this catalogue, which will be sent free from the above address.

ROYAL PHOTOGRAPHIC SOCIETY.—The Council has appointed as a committee to abstract from English and foreign journals and to report upon materials and apparatus sent to the "Journal" for review:—(Abstracts) Messrs. T. Thorne Baker, F.C.S., George E. Brown, F.I.C., A. J. Bull, E. J. Denney, F.I.C., A. Haddon, H. Holcroft, M.A., F.C.S., C. E. K. Mees, B.Sc., A. J. Newton, H. H. O'Farrell, Welborne Piper, A.R.I.B.A., Dr. Prevost, Messrs. F. F. Renwick, E. A. Robins, S. E. Sheppard, B.Sc., E. J. Wali, and Major-General J. Waterhouse, I.A. (Reviews) Messrs. S. D. Chalmers, M.A., C. E. K. Mees, B.Sc., A. J. Newton, and S. E. Sheppard, B.Sc.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between July 3 and July 8:—

PRINTING FRAMES.—No. 13,817. Improvements in photographic printing frames. John Lewis, 24, Temple Row, Birmingham.

BLOCKING OUT.—No. 13,846. Improvements in the method of blocking out certain parts of photographs, drawings, etc. Cecil Haldy and Taylor Garnett, Evans, and Co., 51, Deansgate Arcade, Manchester.

STEREOSCOPY.—No. 13,862. A stereoscopic magic lantern. Charles Hartley Clements, 8, Euston Square, London.

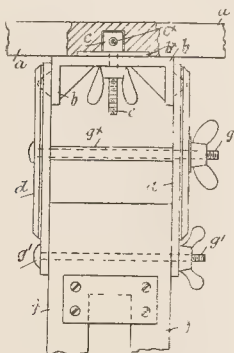
COLOUR PROCESS.—No. 14,023. Improved chemical colour printing process. Peter Oscar Serck, 12, Charlwood Race, Belgrave Road, London.

ENLARGING.—No. 14,052. An improved stand for use in bromide printing, and for enlarging, reducing, or copying photographs. Arthur Jas. Lambert and Charles Henry Land, 8, Quality Court, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

TRIPOD.—No. 18,718, 1904. The full patent specification of a tripod recently reviewed in our pages is now published. The claims are for:—1. The improved means for connecting the legs to the tripod head, consisting of swivel blocks connected at preferably equal distances apart near the outer edge of the underside of the tripod head, links connecting the upper ends of the legs to the swivel blocks and head, and tightening screws for holding the legs, links, and blocks in the required position. 2. The combination with a tripod leg of a swivel point that may be fixed in a vertical or an approximately vertical position, with the leg in a position more or less inclined. 3. The combination with tripod legs, links, and swivel blocks of extension bars such as *k* and block *x* for the purpose of occasional extension. 4. The general



combination and arrangement of parts constituting means for enabling a tripod head to be placed and fixed in either a horizontal position or a vertical position, or at any angle between a horizontal and a vertical position. The construction of the chief novelty in the tripod, the swivel block connecting each leg to the tripod head, will be clear from the figure. William Butler, 20, Crosby Road, Birkdale, Southport.

CELLULOID.—No. 11,512, 1905. Protection is claimed for a process of preparing celluloid by dissolving borneol in a solvent for nitro-

cellulose, mixing intimately the dissolved borneol with the nitro cellulose, and eliminating the solvent after the mixture has become homogeneous. Auguste Behal, 4, Avenue de l'Observatoire Paris.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

PHOTOGRAPHIC MOUNT.—No. 12,273, 1905. Cheney.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
22.....	Hull Photographic Society	Outing to Stamford Bridge.
22.....	Birmingham Photo. Society. ...	Half-day Excursion to Sutton Park.
22.....	Cricklewood Photo. Society	Trip to Chalfont St. Peter's.
22.....	South London Photo. Society....	Outing to Chingford Marshes.
23.....	Wallasey Amat. Photo. Soc.....	"Lenses." Mr. W. Hayes.
21.....	Everton Camera Club.....	Evening Outing to Fazakerley.
25.....	Birmingham Photo. Society.....	{ Exhibition of Pictures taken on Excursion to the River Thames.
25.....	Manchester Amat. Photo. Soc. ...	{ "Woodland Photography." Mr. J. D. Berwick.
26.....	Everton Camera Club	Evening Outing to Fazakerley.
26.....	North Middlesex Photo. Soc....	{ "Further Words on Toning Bromide Papers." Mr. A. G. Lawson.

THE LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the annual meeting of the L. and P. P. A., on June 29, the following were elected officers for the ensuing year:—Trustees—A. Haddon, T. E. Freshwater. Committee—R. Beckett, S. H. Fry, T. K. Grant, E. Human, R. J. Kindon, D. W. Hart, J. S. Teape, J. E. Ellam. Hon. curator and lanternist—E. T. Wright. Hon. librarian—W. J. Marshall. Hon. secretary and treasurer—H. C. Rapson, 13, Shaftesbury Road, Hornsey Rise, N., to whom all communications should be addressed. Meetings are held every Thursday evening at 8 o'clock at the White Swan, Tudor Street (room open at 7 o'clock). During July and August all meetings are open for general discussion.

ABERDEEN PHOTOGRAPHIC ASSOCIATION.—The annual excursion of this association took place on Saturday last. There was a large muster of the members and their friends, and the party journeyed by train to Stonehaven.

SOUTHAMPTON CAMERA CLUB.—The members of this society to the number of about fifty, enjoyed a repetition of last season's launch trip up the Beaulieu River. At the ordinary meeting of the club at headquarters on Monday evening, Mr. C. D. Kay gave a demonstration of the carbon process. Mr. S. G. Kimber, the club secretary, expounded the beauties and advantages of the platinum process.

THE OPTICAL CONVENTION.—We owe an apology to our readers for our omission to print the discussion of Mr. Rosenhain's paper on "Possible Directions of Progress in the Production of Optical Glass," but an authorised text of the discussion proves unobtainable from the Papers Committee, and we therefore refer our readers interested in the subject to the official report of the Convention, which will doubtless be issued in due course.

A NEW PHOTOGRAPHIC FLASH-LIGHT.—The studio flash-light of a French photographer consists of a large parabolic reflector of aluminium, with a series of incandescent lamps around its edge, and in the centre an arc lamp with three carbons—one fixed and two movable. The small lamps enable the photographer to pose the subject. When this is done, pressure on a rubber bulb draws the movable carbons across the fixed one, producing an arc for the fiftieth of a second, and closing a circuit which energises an electro magnet pulling the carbons away. The brilliant flash is said to give life-like portraits.

News and Notes.

INDUSTRIAL ALCOHOL.—In accordance with the recent promise of the Chancellor of the Exchequer, a memorandum explanatory of the Revenue Bill has been issued by the Treasury. The main object of the Bill is to give legal effect to the recommendations of the Departmental Committee appointed last year by the Chancellor of the Exchequer to consider questions relating to the use of spirits for industrial purposes. In order to lessen the cost of using spirits for industrial purposes in this country, it is proposed—1. That an allowance should be given to cover the cost of the Excise restrictions in respect of all spirit used for industrial purposes, whether it is methylated spirit or pure spirit, used under Section 8 of the Finance Act, 1902. 2. That the first grade of methylated spirit need not be so completely denatured as it is at present, and that the minimum amount of wood naphtha required for methylation should be reduced by one-half. 3. That the cost of the necessary supervision required in the use of spirits under Section 8 of the Finance Act, 1902, should not fall upon the manufacturer, except in special cases; and that foreign methylic alcohol used under Section 8 of the Finance Act, 1902, should no longer be subject to the surtax even though it be purified so as to be potable. It is also proposed that the restrictions on the retail sale of the second grade of methylated spirit should be somewhat relaxed.

"TABLOID" PYRO-METOL PRIZE COMPETITION.—The prizes offered by Burroughs, Wellcome, and Co. for negatives developed with "Tabloid" Pyro-Metol Developer have been awarded as follows:—1st prize, S. G. Kimber, Southampton, £5 5s., for "Unjil the Daybreak"; 2nd prize, Clarence Ponting, Scarborough, £3 3s., for "Roses"; 3rd prize, Mrs. G. A. Barton, Birmingham, £2 2s., for "Bottin." Works submitted by the following competitors are highly commended, and Burroughs, Wellcome, and Co. have purchased the negatives of their respective pictures:—Adolphe Abrahams, Cambridge, "Throwing the Hammer" and "The Hurdle Race"; Geo. L. A. Blair, Paisley, "Sunset"; F. Cecil Cobb, Margate, "Look Out"; J. MacLennan, Aberdeen, N.B., "The Harbour, Aberdeen"; A. H. Ross, Dundee, "Blossom"; A. F. Morrow, Tooting, "In Norway"; Clarence Ponting, Scarborough (in addition to "Roses" which wins a prize), "Reflections."

THE FUTURE OF THE CAMERA CLUB.—At the extraordinary general meeting of the Camera Club Company which, as announced in our last, was held on Monday, the existence of the Camera Club as a separate entity was practically doomed, for it was decided, unanimously, to amalgamate with the Blenheim Club, of St. James's Square. Some interesting details were given as to the Camera Club; here are, it appears, 212 town members and 193 country members, and of this 400 odd only about 50 were found who took sufficient interest in the existence of the club to turn up to consider the proposals which had been put forward for consideration. In the first place, it was announced that the second suggestion "to make a whip, and increase the amount of subscriptions for the year 1906, and possibly subsequent years," was withdrawn, the reason being that already eight resignations had been received, apparently on account of this suggestion, since the circular had been sent out. It appears that there is still enough money available to carry the club on till the end of August, and that, if everything is sold up, all liabilities will be discharged. The journal, in any case, is to be given up as not proving remunerative. The Blenheim Club has a membership of 1,600 and they are, so far as the negotiations have proceeded, prepared to absorb the Camera Club without entrance

fee, provided at least 300 members of the latter club are willing to join. The annual subscription to the Blenheim is seven guineas; but if the 300 members will join they are to be admitted for five guineas, at any rate for the first year, if they pay the subscription in advance. A committee was empowered to issue another circular to all the members, laying before them the proposition, and asking for support. We think it is extremely unlikely that the general body of Camera Club members will dissent, considering that the photographic character will practically disappear; although it was stated that the Blenheim will build a studio and fit up dark rooms, to the former of which, by-the-by, ladies would not be admitted. Another point is that the distance limit for town and country members for the Blenheim is much greater than for the Camera Club, and, therefore, this would mean an increase of subscription for many. Presumably so far the negotiations have been between the committees of the two clubs, and it remains to be seen whether the rank and file of the members of the Blenheim will endorse their committee's action.

Commercial & Legal Intelligence

THE CROOKE-IRVING CASE.—An important case came before the Court of Session, Edinburgh, at the end of last month, and was reported at length in "The Scotsman" of June 28 and 29. Lord Ardwall reserved judgment, and our report of the case should have appeared last week, had not great demands upon our space crowded it out. The action was brought by Mr. William Crooke, the well-known Edinburgh photographer, against the Scots Pictorial Publishing Company for infringement of his copyright in a portrait of Sir Henry Irving. Mr. Crooke claimed damages £2,000 and delivery of all copies made, or failing delivery, payment of £1,000 further damages. In the case the points raised were more of facts than of law. Briefly, as we gather from the Scottish papers, the case was this: Last year Mr. Clement Shorter, the editor of the "Sphere" and the "Tatler," prevailed upon Sir Henry to sit for a portrait of himself for the "Sphere," and they went together to Mr. Crooke's for the purpose. The copyright in this portrait was to be Mr. Shorter's. Then, at Mr. Crooke's solicitation, Sir Henry gave him a sitting for himself, the copyright in this portrait being Mr. Crooke's. Several portraits were taken, and some were rejected by the sitter as not being satisfactory. The question seems to have been whether the picture reproduced by the defendants was the one taken for Mr. Shorter or the one in which the copyright is held by Mr. Crooke. The one side asserted it was, and the other averred it was not. Sir Henry was in the wintess-box for about an hour under examination and cross-examination. Lord Ardwall, in giving judgment for the two defendants in the case, and finding them entitled to expenses, gave his opinion at some length. His Lordship said the principal question which fell to be disposed of in this action was whether the pursuer was the true proprietor of the copyright of the large full-length photograph of which the portraits in the "Sphere," the "Dundee Advertiser," and the "Society Pictorial" were reproductions. It seemed settled that if a person went to a photographer and asked for a sitting he was entitled to the copyright of the photographs then taken, it being presumed that he was liable and intended to pay for them. On the other hand, it seemed that if a photographer invited some celebrated person to give him a sitting, and the person agreed to do so, the copyright to the photographs was the photographer's, even though the sitter should afterwards pay for copies. Further, if a third person

employed a photographer to take the likeness of another person, whether that person were a celebrated person or not, and arranged for a sitting accordingly, the photographs taken at such sitting belonged to the third person, and he was liable to pay for the sitting. His Lordship had come without any difficulty to the conclusion that the truth of the matter was that the sitting at which the photograph in question was taken was a sitting given at the request of Mr. Shorter, as acting for the "Sphere" newspaper, and that he was *prima facie* entitled to the copyright of all the photographs taken at that sitting unless it could be shown that Sir Henry Irving or Mr. Shorter himself agreed to the copyright of any of the photographs becoming the property of the photographer or other person. That, his Lordship thought, had not been shown with regard to the photograph in question. On the contrary, his Lordship held it proved that it was taken for Mr. Shorter, and that he was the person entitled to the copyright thereof. The next question was whether the copyright of the photograph in question, though taken at Mr. Shorter's sitting, had become the pursuer's property by agreement with Mr. Shorter or Sir Henry Irving, and the first inquiry into the facts which now arose was at what stage of the sitting was the photograph in question taken. There was a slight conflict of evidence between Sir Henry Irving and Mr. Crooke on the point, but Mr. Crooke's evidence was not very distinct, and his Lordship attached little importance to it in view of his letters. He should, therefore, in the absence of anything else to the contrary, accept Sir Henry Irving's evidence as correct, that the full-length portrait was first taken. His Lordship therefore attached no weight to the alleged contract by which the pursuer maintained that he secured to himself the copyright of the large photograph in question. On the facts his Lordship held the truth of the matter to be that the whole sitting was given by Sir Henry Irving and accepted by the pursuer as a sitting for Mr. Shorter, and that so far from the pursuer having proved that the photograph in question was in an exceptional position as regarded Mr. Shorter, it had been proved that it was the first taken, and therefore belonged to Mr. Shorter, by whose request and for whose behoof alone Sir Henry Irving gave the sitting.

BAS Relief Photographs.—In the City of London Court on Thursday last, the Taber Bas Relief Photographic Company, of 115, Newgate Street, sued Mr. Beaufoi Moore, barrister, 145, Fleet Street, for £6 11s. for supplying a dozen enlarged photographs in bas relief of his late wife from a photograph. The defendant said that the work was done very badly, and that he and the plaintiffs' artist destroyed all the photos except one, which he kept as a curiosity. Mr. George Cruikshank, the great-nephew of the famous artist of the same name, said that the bas relief photo was a gross libel, and it turned a pretty woman into a guy. The Judge said that the defendant had countermanded the order after seeing the proof, and was thoroughly justified in doing so, as the process had destroyed the likeness. The raising of the nose had entirely changed the appearance of the lady. In the original the nose was straight, and in the plaintiffs' work it became curved. The shape of the chin had been altered, and it ceased to be a faithful reproduction of the picture that the plaintiffs had to copy from. Judgment for the defendant, with costs.

A PHOTOGRAPHIC Transaction.—In reference to the claim of Messrs. Alphonsus John Smith and Co., photographers, of Moot Hall Chambers, Wigan, heard in the Wigan County Court, and reported in our issue last week, the plaintiffs inform us that they only purchased the business in March last, whereas it was urged by the solicitor for the defendant that plaintiff had taken two years to perform the contract.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

THE BEGINNINGS OF GELATINE EMULSION.

To the Editors.

Gentlemen,—It gave me great pleasure to see in your historic page a reproduction of the advertisement I sent to your journal thirty-two years ago. That advertisement did wonders! It started a revolution which has now reached the ends of the earth, and produced results no one ever dreamed of then. It brought me letters from the principal cities of Europe and America, and started several Paul Prys on priggish expeditions to Peckham. But that is a sad story better buried.

It was a mistake quite fatal to my interests to issue those bottles of emulsion. The first washed emulsion ever made, be it noted. The weather then was just as it is now—very warm. The gelatine decomposed, and that gave the whole thing away.

Yet I have my consolation—my loss was the world's gain. Several large fortunes have been made out of it by the enterprising traders, and it has put a healthy hobby within easy reach of millions, for it made photography mere child's play compared to what it used to be. So I content myself, and cherish the hope that I shall do better with my next venture, which you will hear of soon. I will be something simple in the colour way.—I am, yours faithfully,

JOHN BURGESS.

71, Stillness Road, Forest Hill, S.E.

July 15, 1905.

COPYRIGHT AND FREE SITTINGS.

To the Editors.

Gentlemen,—I would like to have your opinion as to copyright and permission of reproduction on the following, which happens here in France, and may also in England:—I subscribe to a weekly illustrated paper, price 12s. This includes a coupon allowing a photograph to be taken free of all charges by a well-known photographer. I go there, and two negatives are taken of different positions. One of these two is given free of charge, as agreed, and the other one is left at your option, but charged for 5s. This amount I paid and got one copy of each position. Now what I want to know is: 1. Have I paid now for the two views, and can I reproduce them; one was paid for cash 5s., and the other inclusive in the 12s. of the subscription of the periodical? Or, 2. Can I only reproduce one, and which, the 5s. one or the 12s. one? My personal opinion is that I can reproduce both—but I would like your opinion, as similar things may happen in England.

A. LEVY.

Asnières, July 17, 1905.

[We must confess that we are not well-versed in the copyright laws of France. In England the copyright in the portrait paid for by the sitter belongs to him. The copyright in the one taken on behalf of the newspaper would belong to its proprietors, and not to the sitter.—Eps., B.J.P.]

THE R.P.S. SELECTION COMMITTEE.

To the Editors.

Gentlemen,—Will you kindly make public in an early issue of the *BRITISH JOURNAL OF PHOTOGRAPHY* that the announcement in the Royal Photographic Society's exhibition prospectus, to the effect that additional names would be added to the Selecting and Hanging Committee, is now withdrawn. No alterations in the constitution of that body will be made.—Yours faithfully,

J. MCINTOSH, Secretary.

66, Russell Square London, W.C.,
July 14, 1905.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

Leak, 60, South Parade, Bradford. Photograph of "Bramley Prize Band." ry Llewellyn Higgins, The King's School, Grantham. Photograph of His Majesty the King Driving from Peel Castle, August 25, 1902.

Allison & Co., Scotch Street, Armagh, Ireland. Photograph of House Part at Castlebellingham, July 4, 1905. Photograph of the Marquis and Marchioness of Bute taken at Castlebellingham, July 6, 1905.

Ham Henry Hudson, 243, Gooch Street, Birmingham. Photograph of Flowers and Leaves comprising "Rose," "Ivy," "Forget-me-Not," "Pansy," "Poppies," and "Wallflowers," in Six Circles with Border round each and Language of the Flower inscribed thereon.

R. Robinson, 188 and 187, High Street, Homerton, N. E. Four Photographs of Statue Unveiled by Duke of Fife at Highbury.

Bros. 91 Oxford Road, Manchester. Three Photographs of Romanoff, Wrestler. Photograph of Mr. J. Lind.

I. Wilkins, 17, Barnard Road, Clapham Junction, London. Photograph of and Old Engraving entitled, "The Red House, Battersea."

W. Lark, 119, High Street, Deal, Kent. Four Photographs of the Rev. A. Cochrane.

J. McBurney, 405, Stretford Road, Manchester. Photograph of Miss Hickman with Bouquet Presented to the Queen, July 13. Photograph of the Queen Receiving a Bouquet from Miss Hickman. Photograph of the Lord Mayor's Carriage and Occupants taken in the Royal Procession at Manchester. Photograph of Royal Deaf and Dumb School. Stand and Occupants, Erected for Royal Visit. Photograph of the King and Queen immediately after the Presentation of Bouquet to the Queen.

M. Cromack, 30, Newboro', Scarborough. Two Photographs of the Rev. T. E. Lindsay.

CIOS.—We have refused to be the medium for further announcements. As your case stands, we should advise you to ask the police in your town to have the party called upon.

REIGN JOURNALS.—Can the French or Belgian photographic journals be seen in London? An answer in your "Answers to Correspondents" column would greatly oblige.—INTERESTED.

At the Royal Photographic Society, 66, Russell Square, W.C., or the Patent Office Library, Southampton Buildings, Chancery Lane, E. C.

ASHLIGHT AND FERROTYPES.—We want to work dry-plate ferro-types by an artificial light. We have ferrotype plates of the same speed as Imperial ordinary 88 H. and D. Can you inform us if a Todd-Forreth flash lamp, enclosed in a tin case 3 ft. by 2 ft., and having a blue or violet glass front, with a continuous flash of four seconds, and lens at $f/4$, would work?—H. BLACKBURN.

Certainly it would work, provided your lens works at a reasonably large aperture, say $f/8$. There is no necessity to have blue or violet glass in front of the tin case. If it is necessary to keep the smoke in, use ordinary white glass.

WAXING PRINTS.—Will you be kind enough to give us, through your next issue, a reliable formula for waxing plate glass so that the prints will not stick to it? We have tried various formulae, but have failed to get a reliable one, and consequently have had great loss and disappointment through the prints sticking. We are at present using: beeswax, 15 grains; benzine, 3 oz. We tried aluming the prints this week because of the heat, but

they stuck just the same. If you can help us, we shall be greatly obliged.—STICKON.

If the prints, after washing, are treated for ten minutes to a 10 per cent. formaline bath and then squeegeed, we do not think that any trouble of sticking will be met with. Even better than plain beeswax is a mixture of ordinary resin ointment, 1oz., benzole, 2 oz. The resin ointment can be obtained from any chemist: it should be melted and then the benzole added, away from any light, and a little of the mixture poured on the glass, which should be quite clean, and then the glass polished with the mixture. Another simple method is to use ordinary soap liniment, and clean the glass with this. If the glass is absolutely clean, which may be secured with a mixture of ammonia and methylated spirit, there is no need to use any waxing mixture.

COLOURED MINIATURES.—Could you inform me how P.O.P. miniatures are coloured—those advertised largely with gilt rim for about 1s. 6d.? They give the appearance of being washed with dyes. Also are they permanent? Should be glad if you would oblige through your paper.—C. SMITH.

We should say that the cheap results were obtained by the use of aniline dyes: exactly the same effect may be obtained by using aniline dyes mixed with weak albumen solution, but it is far preferable to use some of the stable tinting media such as are advertised every week in our pages.

MANXMAN.—We do not think that there is any doubt that the stains are produced either by imperfect fixation or, more likely, hypo introduced into the toning bath. Absolute cleanliness is a *sine qua non*, and there is not the slightest need for you to have hypo, or a dirty towel, anywhere near the toning bath.

LOST PARCEL.—Last February I sent a negative to the Enlarging Co., Bradford, Yorks, for an enlargement. They advised me they had sent the enlargement and negative on March 9 per Midland Railway Company. I advised them I had not received it. They have written to the railway company, and they, the railway company, reply they are looking into the matter. This was two months ago. Since then I have written to the railway company in Bradford without receiving any reply. Three weeks ago I wrote them again, sending in a claim for cost of enlargement, which I had paid for, and one dozen cabinet photographs which I have lost the sale of through the negative not turning up. The amount of the claim is enlargement 4s., one dozen photographs 15s., carriage 5d., total 19s. 5d. Would you advise me what to do?—J. C. GARNER.

The only thing to be done is to sue the railway company in the County Court for the value of the picture, the negative, and for the damage sustained through its detention. You will have to prove in the court that the parcel was received by the railway company. This the enlarging company can do for you by showing their receipt for it.

COPYRIGHT.—Will you kindly assist me in a question of copyright? I recently photographed an American aerial cyclist and high diver during a public performance in the park. The picture turned out to be one of the most successful ever taken. I had not been asked to take the photograph, but when the performer saw it, he asked me to sell him some copies, which I did. I have since had the photograph registered. Now the questions I should like your opinion on are:—1. Was it necessary for me to have asked the performer for permission to photograph the performance? 2. Did I, by selling the copies, to the performer, lose my right to the copyright? 3. Can I prevent the

performer or committee who engaged him from getting a half-tone block made from the pictures I supplied?—**IAGO.**

1. In the circumstances, as it was a public performance, we should say not. 2. No, you did not. 3. As the copyright is yours, you can restrain anyone from infringing it.

RIGHT TO SELL.—I have taken a snap of a group without their knowing anything about it. Can anyone in the group prevent me, or claim damages, for selling copies to others, without their permission?—**DOUBTFUL.**

This is a moot point. If there is anything in the picture that is offensive to any of the parties, or would hold them up to ridicule, you could certainly be restrained from publishing it. Why not ask the parties in the group if they have an objection to its sale? That would be the best thing to do.

COPYRIGHT QUERY.—I write to ask you if it is possible for me to have the rights reserved of a negative I had given me by the son of a gentleman who took it, but who has been dead for a few years? If you would kindly answer this in your columns I should be pleased. I may mention that it is very valuable, and should like to know what it would cost to have the copyright of same.—**D. McH.**

The copyright is vested in the one who took the picture, but his executors can assign it to you, and you can then register it. The assignment must be in writing, and should bear a six-penny stamp. The fee for registration is 1s., with a penny for the form. If you send us two prints from the negative, and the 1s. 7d. in stamps, we will effect the registration for you.

NATIONAL.—We have written to the firm, and hope that the matter has been put straight by this time. If not, you had better ask the police in your town to make a call on the firm.

A POINT OF ETIQUETTE.—I am a photo-engraver (master), and dabble more or less with a hand camera week-ends and holidays, using the results where possible in my business as a comparatively small side line. Would I be eligible to compete in the usual non-professional classes at photographic exhibitions?—**A. H. E.**

We ourselves would regard photo-engraving as quite distinct from photography, and you would thus be classed as a non-professional. But possibly others might disqualify on the ground that your livelihood was essentially photographic.

A FORMULA QUESTION.—We are at present using here a German P.O.P. The maker's formula for toning bath is as follows:—Sulpho-cyanide of ammonium, 3 parts; chloride of aluminium, 2 parts; sulphite of soda, $\frac{1}{2}$ part; water, 600 parts; chloride of gold (1 : 250), 45 parts. I do not quite understand what relation a part of the solids, as given above, has to the fluids (water). Perhaps you could simplify it for me by putting it in the usual English way—grains and fluid ounces—in your "Answers to Correspondents" next week.—**PRINTER.**

The formula can be written as follows:—Sulpho-cyanide of ammonium, 130 grains; chloride of aluminium, 87 grains; sulphite of soda, 14 grains; water, 60 ounces; gold chloride (1 : 250), $4\frac{1}{2}$ ounces.

RETOUCHING "E. F." AND "B. W."—You have both only mastered the rudiments of retouching, and have a great deal to learn before you can call yourselves really competent retouchers. The modelling is very defective, the touch weak, and "B. W." has placed too much work on the old man's face, and so affected the character and likeness. "E. F." has made a similar mistake with the woman. Be bolder in the touch for faces displaying character, for over-fineness and over-working only produce a mawkish effect. You certainly need finishing lessons. If you are clever receptionists, spotters, and printers,

you might command a guinea a week in a good firm, but you probably only receive half that sum in the majority of houses.

TELEPHOTO QUERY.—Is it possible with the telephoto lenses on the market to take instantaneous photographs of moving objects, etc., or does the increased length of focus make this impossible? Is the exposure very much longer than an ordinary lens or much the same?—**SENILIM.**

It depends on the working aperture of the positive lens, and on the magnification, assuming the former to be that of a good anastigmat, say $f/6$, and the latter to be, say, 5, the actual working aperture of the telephoto becomes $f/30$, and you will understand that the conditions of light, subject, and place must be very favourable to permit of instantaneous work. In usual circumstances, exposures of about one-quarter of a second are about as quick as can be satisfactorily given.

R. A. DAY.—We believe the wholesale vendors of the camera are Messrs. Smith, Clerkenwell Close, E.C.

BITUMEN-BICHROMATE.—Will you kindly furnish me with a good formula for a bitumen-bichromate emulsion for etching purposes? Will you kindly say, also, if turpentine would be the best developer?—**A.**

We know of no such process, and we can see no way in which it could be worked. Are you not under a misapprehension?

J. HARRIS.—The emulsion is not washed at all, but coated as it is after mixing. We should say the card was rather too poor in quality.

PLATINUM TONING.—Has the platinum meta-phenylenediamine bath given on page 544 of to-day's B.J., when used for C.C. matt, to be used after the gold bath or without? What is meta-phenylenediamine, and what is the cost of it?—**OLD CROW.**

The gold bath should not be used. Meta-phenylenediamine hydrochlorate is a definite salt, which costs about 1s. 8d. per oz., according to Merck's list.

NOTICE TO LEAVE.—I should feel much obliged for your advice on the following:—1. A young assistant in my employ was granted a week's holiday although he had only been employed barely six months and was allowed an additional week. On the first day of the holiday he wrote saying that he expected his salary doubled when he returned, and as we replied we could not grant same, he gave a week's notice in return. What redress have we as he has not returned and we paid him for the week of holiday? 2. When should the week's notice take effect in this case?—**HOSBORNE.**

1. We do not well see that you can expect any as you gave the holiday, though it was not nice behaviour on the part of the assistant. 2. From the week it was received.

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EX CATHEDRA.

Printing on Platinum. A correspondent draws our attention to the July issue of a magazine in which is one of those articles for the beginner that we all know so well, the kind of article which scatters "fascinating" and "beautiful" in its preamble, and at the fifth paragraph traces itself up with the exquisite phrase, "Now to our nuttous." Platinotype is our writer's theme, and he is good enough to say "many professionals cannot work platinotype, and consequently they have to get them done, and there are two profits to make instead of only one," which remark our correspondent thinks will have a damaging effect on the profession. Let him not despond. We can assure him that what the Reverend So-and-So says in the — is not going to damage the photographic profession. A writer who wildly generalises: "A platinotype is permanent, a silver print is not," surely does not expect to be received as an authority.

Another Colour Process. The colour process for the week ending to-morrow, July 29, is an electrical one. According to "Electricity," "Certain substances, such as selenium, have an electric resistance varying with the degree of light, and, when such a substance is used as an electrode, and the image projected on it, a galvanic deposit would be formed, with a rapidity varying with the intensity of the illumination. Though the difficulties seem formidable, experiments are stated to be in progress with anodes of different kinds, prepared by exposing to light in a bath containing lead oxide in solution with potash." We look forward with interest to seeing results by this galvanic process, which is actually less novel than our contemporary appears to think.

Photographic Copyright in France.

Another decision in the law of photographic copyright in France is reported in the "Daily Telegraph" by the Paris correspondent of that paper. The issue is similar to, but more definite than is, the case referred to in our issue of June 9. In the present case it appears that a portrait of some musical celebrity had been reproduced in a newspaper from a negative taken by M. Nadar, the well-known Paris photographer, and the editor refused payment. His counsel in court argued, rather disingenuously, that the French copyright law of 1793 protects writers', artists', and composers' works, but not photographers'. The obvious reply was that in 1793 photography had not been heard of. Counsel then drew attention to amendments made to the same law as recently as 1902, in which photography was not mentioned. The inference was that a photograph, not being a work of art, no copyright could be claimed by the author. The Court, however, decided that in the case of a photographer whose name is well known to the public "his celebrity is not merely due to his skill in the manipulation of purely mechanical processes, but to the fact that his works bear the mark of personal talent, and constitute, therefore, works of an artistic character." The editor was accordingly sentenced to pay M. Nadar £2 for his picture. This decision appears to finally settle the question as to whether the photograph or the photographer is the chief consideration when deciding if the production is a work of art.

The Proof Grievance and Cheap Copies.

The difficulty of dealing with the sitter who complains that proofs are not satisfactory and then straightway has them copied or enlarged was recently emphasised in these columns. It was also pointed out that when a number of untuned prints are submitted they are not all returned, and the retained ones are afterwards toned and mounted by some amateur friend, or by a local chemist, who caters for amateurs. If this thing is done it is clear that the order the professional would otherwise receive for duplicates is, to some extent, curtailed. But is this practice followed to the extent that some have alleged? We are inclined to question it, though there are cases, no doubt, where the thing has been done. But cannot the photographer combat the practice in a very simple way? If he imprints with a rubber stamp, on the background near the head, such words as "Proof to be returned" or "Unfixed proof," reproduction would bear the imprint and be useless, and it could give no offence to the customer. This course would be much better than such intimation.

as that all proofs not returned will be charged for, because this rule, as many know, is difficult to enforce without, at times, giving offence to the customer. If some reducing agent, such as a little pyrogallie acid or, say, some hypo were incorporated with the ink, anyone attempting to tone the unfixed prints would quickly find something wrong with his toning bath as well as with these prints. Of course, if finished proofs were branded in the way suggested, a print or two would be wasted at times; but that, after all, is but a trivial matter, for the photographer would have the satisfaction of knowing that unpaid-for proofs were not being utilised in place of duplicates which otherwise would have to be ordered.

New Scheduled Poisons.

The Privy Council have approved the recommendation by the Pharmaceutical Society to place a number of substances on the schedule of bodies to be deemed poisons within the meaning of the Pharmacy Act of 1868. One of them is mercuric iodide, the constituent of the well-known Edwards' single solution intensifier. In this form, and in the newer Lumière intensifier, sold both in the solid and liquid state, mercuric iodide has hitherto been free for sale by anyone; but henceforth only certificated pharmacists may sell it in small quantities. Therefore, photographic dealers should beware lest unknowingly they expose themselves to prosecution for infringement of the Act. Mercuric sulphocyanide is also placed on the schedule, but as its photographic properties are unimportant, it scarcely calls for mention.

Poisons and the Poisons Act.

An inquest was held at St. Pancras one day last week on the body of an unfortunate young woman who had taken some oxalic acid in mistake for Epsom salts. She found out her error almost as soon as she had swallowed the poison, and there is little question that had an antidote been at once administered no great harm would have resulted. It appears from the evidence that the oxalic acid had been used for removing some stains, and had afterwards been wrapped in a paper without a label on it, hence the accident, the acid being very like Epsom salts in appearance. Oxalic acid is one of the scheduled poisons, and can only be sold by pharmaceutical chemists; but, as we have often pointed out before, accidents with poisons usually happen when in use, bottles of the solutions made with them not being labelled, or, as in this case the paper being changed. It is not unusual for chemists to parcel substances in two papers and to put a label on the outer one only, and, as often occurs, this, in opening the packet, is torn and thrown away, and the stuff kept in the unlabelled piece. The Pharmacy Act is framed, ostensibly, to safeguard the public, and it would be well if it enforced that each paper should bear a "poison" label. The Pharmaceutical Society, which takes such an interest in the "safety of the public," might enforce upon chemists the necessity of putting on the labels of the poisons they vend the antidotes for them, and the measures that should be taken in case of their being accidentally swallowed. Had this been so in the case just cited, a life would have been saved, as an antidote, in the shape of some chalk or common whiting mixed with water is quite effective. Common whiting is to be found in every house, and lime water, which is better perhaps, is to be had at the nearest chemist's. Again, with bichloride of mercury, if the whites of eggs be immediately taken, the effect of the poison will be at once counteracted. If such intimations as these were placed upon the poison labels lives might frequently be saved.

A Bichromate Fatality.

In our issue for July 7 (see page 536 ante) is a report of a case of suicide by bichromate of potash. It is the first case of suicide by this salt we have heard of, though there have been one or two cases of death resulting from a solution of it being drunk in mistake for beer. At the inquest on the body of the suicide, the doctor is reported to have said that one-fifth of a grain was enough to have killed her, and she must have taken about 36 or 40 grains. The statement that the fifth of a grain should cause death is certainly astounding. This would make bichromate of potash a more deadly poison than the commercial cyanide of potassium. We should almost have doubted if the full quantity alleged to have been taken would, in the ordinary course of things, have had a really fatal effect. Bichromate of potash, though poisonous, is not a scheduled poison, and had it been of such a deadly nature, there is little question it would have been scheduled. Surely the doctor, in his premises, is entirely mistaken, or has been misreported?

Explosive Flashlight.

The accident at the General Post Office some months ago caused by the transmission of a packet of flashlight cartridges, was alluded to in our columns at the time, but we may refer to the incident again as we now have before us the twenty-ninth annual report of H.M. Inspector of Explosives just issued by Messrs. Wyman and Sons. It will be remembered that a small packet, on being thrown into a basket, exploded and set fire to other parcels. It was found to contain a dangerous form of flashlight powder made up into "sachets" intended to be ignited by pulling a loop. The sender was not aware of their dangerous character, having been assured by the French firm from whom they were obtained that they were safe. H.M. Inspectors state this to be the second instance during a year of such assurance being given in regard to dangerous explosives sent from France. It is suggested that before ordering similar articles traders should communicate with His Majesty's Inspectors, an offer which photographic dealers may be glad to bear in mind.

Certificates by Exam.

From time to time the question of a diploma for photographers has been raised by correspondents in our columns, and the idea is often expressed that something of the sort would not only improve the status of the professional, but what is evidently more to the point with the writers in question, put money in their purses by the elimination from competition of those with no diploma to show. One may well ask, what is the value of a certificate? It must be well within the experience of many that the best doctors from the point of view of ordinary bedside practice are by no means those with the highest examination qualifications. They may be, but they are not necessarily so. The oft quoted instance of the small value of examination certificates or degrees may be cited again: How often do Senior Wranglers make any mark in after life? In fact, how often are they heard of again outside a very limited circle? We should be the last to decry the acquirement of theory in addition to practice, the two together are most helpful to each other, but the mere theorising without any knowledge of practical conditions is of little use. Yet in many instances the theorists are those who would secure the best positions in a mere examination.

Practical Examinations.

It may be urged that examinations for photographers should be practical as well as theoretical. The City and Guilds' examinations

ude a practical test, the value of which was eulogised a contemporary a week or so ago. As a matter of fact practical test applied to candidates in the ordinary is so absurdly simple that any intelligent amateur month's standing could pass it easily. But assuming ally stiff examination, both practical and written, what d the granting of a diploma to successful examinees ve? Nothing more than that a certain amount of tsmanship had been acquired. Success in photophy as a business is not a matter of craftsmanship to great extent. It is far more a matter of ready adaptat- to varying conditions, of aptness to grasp the aliarities of clients and of personality. And who can raise these qualities in an examination? Examinas- and certificates have their value, no doubt, but it is practical man who scores, the man who can "do gs."

* * *

P.P.A. Certificates. The above considerations should confirm the views of those who hold that the Professional Photographers' Association, in granting certificates, is wise to take as a proof of competency the testimony of past and present employers of the assistant. That plan, though put forward by the P.P.A. as a provisional one, to be replaced possibly by a system of examination, has the merit of including the personal element as it applies to the practical side of a photographer's business. Hence the certificate is a guarantee of the examinee's record, based on persistent work, not on one heroic effort to pass the examination. Whatever merit there may be in a written practical examination—and there are duties which such test can usefully fulfil—the testimony of an employer is means of certification which has strong claims to retention, and the Association will be wise never to forget its social value in such a profession as photography.

* * *

Deceptive Light. The bright blue skies we have had of late have proved very deceptive to many experienced outdoor photographers, who have surmised that the light was much better than it actually was, and, as consequence, their negatives have turned out to be considerably under-exposed instead of being, as was expected, the over-exposed side. An amateur recently showed us some negatives—the result of a day's outing—which were considerably under-exposed. On telling our friend of the fault with them, he seemed somewhat dubious, as he held that the plates were those he always used, with the same speed of shutter, and a stop only one size smaller than that he generally employed in a much inferior light. A smaller stop, he told us, was used because of the exceptional brilliancy of the light. With a cloudless blue sky such as we have had of late, the light has been really very deceptive, being very deficient in actinism. The direct sunlight has produced strong cast shadows; there has been no diffused light from clouds to soften them, as a result negatives have been under-exposed in the shadows. Some days last week the light was quite deceptive and was equally as deceptive to novices. In lighting, also, the light in the shade has been very slow at midday, through the cloudless sky. We are, of course, speaking of the light we have had in the London district during the past week or two. In other districts it may have been different. Our object here is to point out to novices that when there is a clear dark-blue sky about light clouds, it may be taken for granted that there is comparatively very little action in the light, and that a fairly long exposure will be necessary to obtain detail in the strong cast shadows.

PRINTING PROCESSES.—IX.

THE FIXING AND WASHING OF PRINTS.

In this series of chapters on the modern printing processes it is scarcely necessary to say anything on fixing and washing prints in special reference to each kind of paper; save for certain minor differences, what applies to one applies to all.

It will be sufficient therefore to deal with these two important operations in the making of a print once and for all at the length they deserve, and leave the reader of the past and future articles to refer to what now follows. At the same time too much stress cannot be laid on proper fixing and washing, for upon them depends the life of the print.

It is immaterial whether the print is on albumenised or P.O.P.; for the same facts must be taken into consideration. Perfect fixation is the complete solution of the silver salts left in the paper, and without entering into the chemical questions of the formation of the various double hyposulphites of silver and soda, it will be sufficient to point out that there should always be a considerable excess of hypo, that the temperature of the bath must not be too low, nor should the bath be used too long. Another point is that a used bath should not be exposed unduly to the air, as is often the case when it is allowed to remain for days in an open dish; under such conditions decomposition sets in and silver sulphide is precipitated and the bath becomes acid.

If the prints are thoroughly washed prior to toning, and an alkaline toning bath be used there is not much chance of their carrying acids into the fixing solution. Yet it is strongly recommended by many authorities to make the fixing bath distinctly alkaline, either by the addition of carbonate of soda or ammonia, the latter being preferable as it certainly exercises a slight solvent action on the silver chloride.

The strength of the fixing bath may vary from 1:10 to 1:6, the former being the strength usually employed for albumen paper and the latter for P.O.P.; beyond this strength it is not advisable to go on account of the danger of blisters.

Exactly how long prints should be immersed in the fixing bath cannot be definitely stated, but fifteen minutes is not too long, and they should be kept on the move the whole time, and also kept well below the surface, for it has been proved that hypo in the presence of oxygen can dissolve metallic silver, and the image in all printed-out papers is in an extremely fine state of division.

There are doubtless many of our readers who can recall the old practice of washing albumen prints, when twelve hours or an all night's soaking or washing in running water was considered to be absolutely essential. With the introduction of gelatine surfaced papers, this was found to be impracticable, for, especially in warm weather the gelatine film was so softened by the prolonged washing that it either dissolved in patches or was so tender as to bear no handling.

At the Photographic Convention in 1894 (*THE BRITISH JOURNAL OF PHOTOGRAPHY*, Vol. XL., p. 511) Messrs. Haddon and Grundy read a paper in which they proved that ten minutes' washing of albumen prints in running water was sufficient to remove the whole of the silver and sulphur salts that can be washed out and that a small quantity of silver still remained in the paper in some form even after nineteen hours' washing in running water, but its amount was no smaller than at the end of ten minutes' washing. The quantity of sulphur left in the

paper at the end of ten minutes, washing was no more than was originally in the paper.

In the following year (*THE BRITISH JOURNAL OF PHOTOGRAPHY*, Vol. XLI., p. 570) the same experimenters proved that with gelatino-chloride paper the whole of the silver was also removed by ten minutes' washing. Further, that no silver remains in the print as in the case of albumen prints, and therefore this paper is not so liable to discolouration as albumen prints. Prolonged washing merely removes some of the alum which is used to harden the film.

It would seem, in the face of the above experiments, somewhat supererogatory to adduce further testimony on the importance of short but efficient washing, but M.M. Lumière and Seyewetz have also attacked this subject (*THE BRITISH JOURNAL OF PHOTOGRAPHY*, May 16, 1902), in another manner, and proved that if a print is washed in successive changes of water, the total consumption being about a pint and a half, it is more efficiently washed than by the use of about 17 gallons of running water. This is an extremely important point where the water supply is limited.

Summarising Lumière and Seyewetz's paper the method

to be adopted is to allow about $1\frac{1}{4}$ ounces of water for every 12 square inches of print (that is, practically a quarter-plate), to soak the print or prints, and if more than this area is washed then the water must be proportionately increased for five minutes; the print should then be lifted and drained well, placed on a hard surface and well squeegeed with a roller squeegee, and the operation repeated eight or ten times. When more than one print is washed at once the prints may be placed in a pile and subjected to the squeegee.

In the face of these facts, the use of hypo-eliminators would seem superfluous. Their action is generally assumed to be the oxidation of the hyposulphite to a higher sulphur compound, but one must not forget that we have not only hyposulphite of soda, but the hyposulphites of silver to take into account, and it may be questionable whether the higher compounds of silver and sulphur are more soluble or more stable than those which exist in the print as it comes from the fixing bath. In particular cases where economy of time is the main point they may be extremely useful, but for everyday work we may surely rely upon plain water, economically but efficiently used as indicated above.

PHOTO-MICROMETRIC METHODS.

In making measurements of minute bodies by means of photography, there is an opportunity of using a method giving very accurate results, and, moreover, capable of being read in a scientific manner. It is a matter for regret that such a method is not more frequently employed in describing the scale of magnification of photo-micrographs. To say that a microscopic object shown in a photograph is magnified sixty diameters is to give a very indefinite idea as to its length, breadth, or distance between parts. Then again, in computing the amount of magnification in diameters, too much is taken for granted if it is assumed that the eyepieces and objectives are accurately named as to their focal lengths.

While the following method is by no means new in principle, there are modifications possible, which, as far as the writer is aware, have not been advocated. This method of recording the size of the object photographed does not interfere with the usual procedure to obtain a photo-micrographic negative, until after the plate has been exposed, and the required negative obtained. Then proceed as follows:—Remove the object from the stage of the microscope, and substitute for it a micrometer ruled in hundredths and thousandths of an inch, or fractions of a millimetre, without disturbing the apparatus, so as to get the same degree of magnification as when the plate was exposed. Take a pair of spring dividers, having sharp points; set these points to the lines now projected on the focussing screen of the camera, preserving the measurement until the photographic negative has been developed, washed, and dried. Then with the dividers the recorded size of the micrometer lines can be marked off along the edges of the plate, and these marks joined by ruling lines parallel, and at right angles to each other, across the film of the negative, with a sharp point. By this means the photograph is divided into squares as shown in Fig. 1, and if required these squares may be again mechanically sub-divided.

Assuming that the negative be quite dry when thus scored, these lines will appear black on all parts of the print, and

possibly may be difficult to distinguish on such areas as are black on the print or dense if the positive be a lantern slide.

If, after the negative is dried, it is placed in a damp atmosphere where the gelatine film can take up a small amount of moisture, and so become very slightly softened, and if, while in this condition, the film is scratched with a point slightly blunt, rounded, and at the same time well polished and smooth, a striking modification is obtained, the advantage of this proceeding being that in no part of the print will the

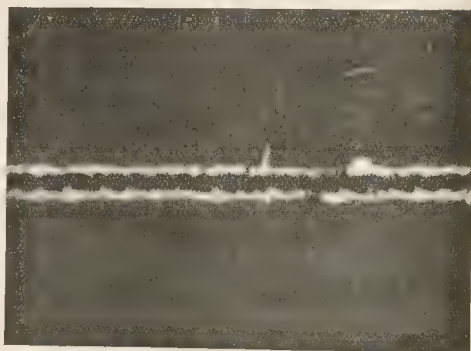


Fig. 2.

lines be difficult to see, for while the lines print black on the white places and half-tones of the positive, there is a slight ridge of gelatine raised on each side of the lines by the steel point, and this appears on the dark parts of the positive as two fine white lines with the black measurement line between them. A black line running through a black area bordered on each side by a white line, is demonstrated in Fig. 2, which



Fig. 1.—Spiracle of Dytiscus.

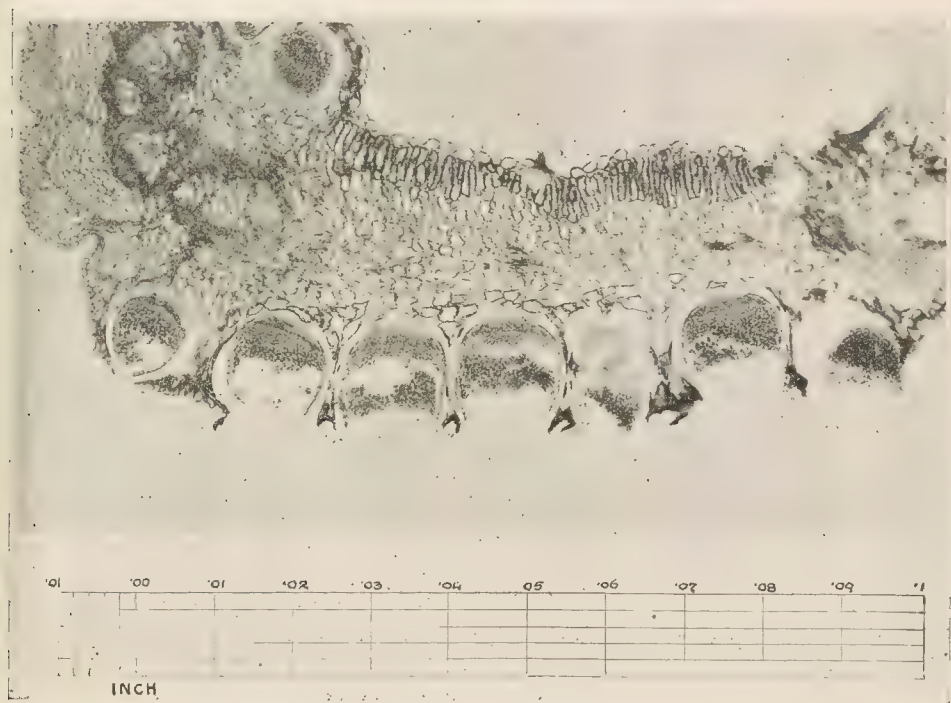


Fig. 3.—*Ecidium Berberidis*.

ILLUSTRATIONS TO "PHOTO-MICROMETRIC METHODS," PAGE 584.

is a photo-micrograph under low power of a measurement line, on a lantern slide positive, which has been printed from a negative treated in such a manner.

When two or more plates are being exposed on different objects or magnifications, and many measurements are being taken, the records may be marked on a strip of soft copper, vulcanite, or some such material, on which marks can be made, without injury to the points of the dividers. One leg of the dividers should be put into a common centre, and a small arc scratched with the other leg. These arcs should be numbered, its negative having the same number written on it, so that when all the negatives are ready for scratching its own record can be found on the strip of copper and transferred to the film.

In treating negatives that are to be subsequently enlarged, lines should not be drawn across the whole surface of the film, but only such a distance in from the edges as will be trimmed off the print, or covered by a cut-out mount. It will be manifest that in the enlarging of the photographic image the lines will be correspondingly enlarged, and will become coarse and unsightly. If the print is to be mounted with a cut-out mount and the marks are on the edges of the print, as recommended, fine lines connecting them are drawn by means of a draughtsman's ruling pen charged with Indian ink, after the print is mounted on its cardboard support. The lines of ink will be easily distinguished in any part of the print. But if the enlarged print is to be mounted on a

"stuck on" mount, the micrometer record marks will be trimmed off before the final damping, so before trimming the lines should be ruled by means of a lead pencil, these pencil marks being inked over after the print is mounted and dry. Another method of applying an actual scale to photo-micrographs is to so arrange the photograph as to leave space enough on the longer side of the plate to take a diagonal division scale, constructed from the recorded micrometer lines as in Fig. 3. A coat of a thin opaque varnish, a little wider than the space covered by the scale, makes a good ground to work upon, and may be rendered still more pleasant to draw on if the gelatine is removed from that part of the plate occupied by the scale, and the varnish laid on the bare glass. When constructed in this way, the scale adds to the clean appearance of the finished print.

It should be scarcely necessary to state that the unit of the scale—inch or millimetre—also its numerical value, must always appear on the print. It will be readily understood that in printing measurement lines on a print photographically, that any stretching or shrinking of the paper when wet from chemical treatment, or when mounting, that the scale or lines move with the paper.

Of course, though considerable accuracy may be claimed by these methods, the fact remains that there is no perfectly accurate method of measuring the edges of a microscopic object.

THOS. C. HUGHES.

THE WEEK IN HISTORY.

The Photographic Franchise.

ONE of the possessions of the Royal Photographic Society is a document of great historic interest in connection with the early days of photography. Fox Talbot, as I have mentioned before in these notes, patented all his discoveries, and while these patents were in force it was felt that the progress of photography was severely handicapped. It was therefore suggested by some one—I do not know whom—that possibly Fox Talbot would relinquish his rights were he offered a baronetcy. A preamble relating to the matter was drawn up and separate sheets circulated for signatures. It is one of these sheets which the R.P.S. possesses, the gift to it from Mr. John Leighton, who himself obtained the signatures which it bears. Mr. Leighton tried to obtain Faraday's signature, but without success, for Faraday, as is well known, set his face against any sort of patenting of scientific discoveries, and would have nothing to do with it. However, Talbot was approached by Lord Rosse, the President of the Royal Society, and did publicly resign his rights in his process, except in its application to portrait taking. It is exactly fifty-three years since this took place, but Talbot afterwards brought an action against those who were working the wet-collodion process, which he held to be an infringement of his calotype method. This action, however, he lost, and from that time forth the photographic field was free to all.

Photography Without a Dark Room.

Many estimable people there have been since the invention of photography who have proposed to introduce certain methods or apparatus to photographers for the convenience of the latter, and incidentally to the profit of the estimable parties. Usually these introductions are obviously the productions of persons entirely ignorant of practical photography and destitute of any intention to employ in their own practice the appliances for which they have frequently obtained Royal Letters Patent. One of the earliest of such "inventions" was that of T. E. Merritt, a drawing-master of Maidstone, whose patent for "ap-

paratus for taking photographic pictures in the open air" was applied for almost exactly fifty-one years ago—on August 1, 1854. That was in the first year or two of the wet-collodion process, and Mr. Merritt's idea was to dispense with the yellow tent by building a magazine for collodionised glasses at the back of the camera, and below it an elaborate system of trays and baths for developing and fixing the exposed plate. I cannot recollect that anything ever came of this early patent for "daylight photography," and when I look at the drawings in the patent specification (No. 1,696) I am not surprised that it shared the fate of similar unpractical suggestions, made before and since.

Talbot's Photography of 1835.

Perhaps it is not generally known that the first authenticated piece of photography which Fox Talbot did is still in a very fair state of preservation. It was made in August, 1835, and therefore is at least seventy years old at the present time. Mr. C. H. Talbot has the original in his possession. It is the image of a latticed window in Lacock Abbey, and is mounted on a piece of paper on which Talbot had written:

Latticed Window.
(With the camera obscura.)
August, 1835.

When first made the squares of glass
about 200 in number could be counted,
with the aid of a lens.

Mr. C. H. Talbot has stated that they can still be so counted, so that the negative—which is what the relic is—is not very much different from what it was when Talbot made it. The window can be identified in Lacock Abbey, and the claims of Talbot in his first paper viz., that he was bringing forward the results of work done several years previously—can thus be substantiated.

HISTORICS.

THE ACCURATE PRODUCTION OF SELECTIVE COLOUR-FILTERS.

(A Communication to the Paris Academy of Sciences.)

the facility with which, at the present day, photographic materials of almost any description of colour-sensitiveness can be obtained is rendered of much greater importance the use of coloured light-filters for the transmission of certain portions only of the spectrum. Our interest in this question has led us to design screens by a scientific method, according to which any given description of colour can be reproduced identically, and is therefore capable of exactly imitating the work of the original. The principle of the method is simple. A given weight of dye is diluted in a given volume of aqueous gelatine solution. Distributing the same volume of this solution over the same surface, the same weight of dye will occur per unit area, and the two colours will be identical. In practice the coloured mixture is spread on the surface of an optically-worked glass, and, after drying, the film of gelatine is covered by glass, also optically worked, and the two united by Canada balsam. If plane-parallelism of the filter is necessary, the two outside surfaces are then optically worked.

In the case of preparing a filter to possess certain properties previously decided on—i.e., absorption of certain particular parts of the spectrum—it is necessary to adjust, with the greatest possible precision, the weight of the dye or dyes before distributing these latter over the film. To avoid the disturbing action of the gelatine, Canada balsam, etc.—factors which are far from negligible—but also to avoid errors, which arise from differences in the absorptions of the dyes, according as the film is wet or dry, the following method has been devised:—Taking first the case of a single dye, the coloured gelatine mixture, prepared as above described, is applied to two glasses, one placed horizontally and the other inclined so as to form an incline of 2 in 100. The volume of solution applied to the first glass having been determined with care, the weight, p , of colouring matter per unit surface is known. After drying, the gelatine film has a thickness, e .

The gelatine having been flowed over the inclined plate and dried, the latter is divided into two parts along its length, and to one of these strips a white glass is cemented with Canada balsam. A screen is thus obtained, constructed in the same way as the one required, but with the weights $p_1, p_2, p_3 \dots$ of dye per unit area varying in the same proportion as the thicknesses $e_1, e_2, e_3 \dots$ of the gelatine film. This screen is then placed in an apparatus, by which the various parts can be gradually moved before

the slit of the spectroscope. The latter is illuminated by a narrow beam of light, projected perpendicularly on to the screen by means of a cylindrical lens, which forms the image of a slit, the latter being brightly illuminated by the condenser of the projection lantern.

By means of the eye-piece of the spectroscope, the portion of the spectrum corresponding to that, for which the screen should show the maximum of absorption, is observed, and the screen is then slowly displaced until this result is obtained. The portion corresponding to the coloured region, which was illuminated at this moment, is then noted. On the other piece of glass, the thickness e_1 of the gelatine film is measured. The weights of dye being proportional to the thicknesses of the films, it is easy to calculate the weight per unit surface required for the depth of colour corresponding to that we require:—

$$\frac{e}{e_1} = \frac{p}{p_1} \quad \text{or} \quad p = \frac{e_1 p_1}{e}$$

When the colouration of the screen comes from two dyes, from each are prepared (as described above) a plain and a graduated screen. These latter are placed in juxtaposition by cementing the films with Canada balsam, so that the deepest part of the first comes next to the lightest part of the second. We thus obtain a screen in which the weights p_1, p_2 , of each dye are inversely proportional. Passing this screen over the slit of the spectroscope, after we have located the region corresponding to the colour required, it is not difficult by measuring the thickness of the gelatine on each plate

to find the ratio $\frac{p_1}{p_2}$.

By this method we have succeeded in preparing a number of colour-filters, among which may be named a green screen, with maximum luminosity, corresponding to $\lambda 530$, a filter which with the Jougla "orthoscopic" plate permits of exactly the maximum colour-sensitiveness of this emulsion for the special radiation.

Another screen was an orange-yellow, prepared for the maximum colour-sensitiveness of this plate at $\lambda 588$. Another was a yellow filter absorbing up to $\lambda 500$, and another red filter absorbing the whole of the more refrangible part of the spectrum up to $\lambda 630$.

These first results given by the above method convince us of the possibility of preparing light-filters in a thoroughly scientific manner.

M. F. MONFILLARD.

FOREIGN NOTES AND NEWS.

Opaque Collodion and Celluloid Films.

GERMAN patent of the Aktiengesellschaft für Anilinfabrikation 51,213, (of December 5), has just been published, in which it is pointed out that a mixture of:—

Celluloid	20 gms.
Acetic ether	100 gms.
Methyl alcohol	120 gms.

After evaporation, an enamelled white film, but that if the quantity of methyl alcohol be increased to 250 gms. an extremely fine enamelled white film is obtained. Matt films are also obtained by diluting the alcohol-ether collodion with acetone, or acetic ether collodion with alcohol, or alcohol collodion with methyl alcohol. The films thus obtained are strong and may be coloured as desired, and may be used for the so-called baryta films for emulsion paper and for coating glass, wood, or leather.

For Three-Colour Workers.

Hans Schmidt gives, in the "Central Zeitung für Optik und Mechanik," some useful hints on building a camera for three-colour work. In the first place, he points out that it is better to obtain the filters from the firm whose process is to be worked. If the filter is to be placed near the lens, the glass of which they are prepared should be optically worked, but if they are used close in front of the plate this is immaterial. If, however, the distance between filter and plate is more than 2 cm., they must be flat, and flexible filters cannot then be used. It is practically immaterial whether the filter is placed in front of, or behind the lens, but in the latter place it will lengthen the focus slightly. The worst position is between the combinations of the lens. The disadvantage of having filters close to the plate is the necessarily large size of the fittings to change them, and therefore, the author suggests the use of two plate-glass reflectors at a

right angle to each other, the front one being at 45 deg. to the axis of the lens, an idea which has been repeatedly used. The red sensitive plate is placed opposite the lens, as there it receives about 64 per cent. of the light transmitted by the lens, the green sensitive plate is placed opposite the first reflector and receives 20 per cent. of the light, and the blue sensitive plate opposite the second reflector, where it receives about 6 per cent. of light. The accurate ratio of the exposures must be obtained by adjusting the filters. If the reflectors give double outlines the backs must be coated with coloured varnishes.

The Home Preparation of Coloured Screens.

Hans Schmidt, in the "Photographisches Wochenblatt," warns photographers against assuming that accurate filters can be obtained, although one may use specific formulæ with given quantities of dyes, gelatine, etc., and even when the dyes are obtained "chemically pure" from a given maker. The reason for this is stated to be that the manufacture of these dyes is so complicated that the colouring power cannot be guaranteed twice alike.

Silver Phosphate Collodion Emulsion.

Professor Valenta, in the current number of the "Photographische Korrespondenz," gives the following method of preparing the above, which is not only suitable for printing out, but also for development with an acid developer:—

Raw collodion 3-3½ per cent.	1,500 ccs.
Phosphoric acid 20 per cent.	20 ccs.

Mix and add—

Citric acid	60 gms.
Alcohol	100 ccs.

To this collodion the following ammoniacal silver solution should be added:—

Silver nitrate (powdered)	60-80 gms.
Liquid ammonia .880	q.s.

Enough ammonia should be used to give a perfectly clear solution, this should be warmed and

Absolute alcohol	250 ccs.
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added, and, this added to the acid collodion in small quantities at a time with thorough shaking. Then should be added:—

Ether	250 ccs.
Glycerine alcohol 1 : 1	20 ccs.

Coated on matt baryta paper, this emulsion gives a matt surface paper, which keeps a long time. If printed till the outlines of the image are just seen, full intensity can be obtained by developing with:—

Metol	1 gm.
Glacial acetic acid	25 ccs.
Water	25 ccs.

forty drops of this being diluted with 100 ccs. of water. If the prints thus obtained are treated to the phosphoric acid and chloroplatinite bath they will give beautiful brown to black tones.

Boric Acid as a Restrainer.

Professor Namias has recently strongly recommended the use of boric, or, as it is commonly called, boracic acid, as a restrainer, and states that over-exposure of from 40 to 100 times may be compensated by its use. He suggests that enough of the acid should be added to a 10 per cent. solution of potassium bromide to form a saturated solution, and that 10 ccs. should be added to every 100 ccs. of developer, for which he specially recommends the following formula:—

Sodium sulphite	50 gms.
Hydroquinone	7 gms.
Metol	1 gm.
Sodium carbonate (anhydrous)	30 gms.
Water	1,000 ccs.

As the solubility of boric acid is only 3.5 gms. in 100 ccs. of cold water, one may be permitted to question the value of the addition of less

than two grains to every ounce of the developer, as it could only neutralise a small amount of soda.

Soap in the Pyro Developer.

Franz Hofbauer recommends the addition of a little solution of medicinal soap, the soda and olive oil soap, to the pyro-ammonia pyro-soda developer to prevent the formation of black spots on the plates, which he calls granular fog, and ascribes to the combination of oxidised pyro with the silver bromide grains, which are set free from the gelatine through the large proportion of ammonia or soda. The particular action of the soap is said to be to hold this compound in suspension, or to destroy the stickiness of the gelatine. A 2 per cent. solution of the soap is made in water and filtered, and 2 or 3 per cent. added to the developer.

Violet-Tones on Prints.

Herr Kochler suggests the following method of obtaining a rich violet tone on P.O.P. prints:—The print should be very deeply printed and then toned in a combined toning and fixing bath till it assumes a blueish-grey colour, then washed for an hour, and whilst still wet immersed in a 2 per cent. solution of mercuric chloride. It is stated that the prints at once assume a deep velvety, violet tone, and only require washing for half-an-hour. It is possibly permitted one to doubt the permanency of such prints, as we may assume that the chemical reactions that would occur are analogous to those when a negative is bleached in mercuric chloride, namely, the formation of silver and mercurous chlorides.

Pseudo Photography.

Treating of the Russell effects of metals, etc., on dry plates Merckens of Mülhausen, in the current number of the "Photographische Korrespondenz," points out that many have assumed the action to be due to rays of some kind, and that Aubel has found that resin, copal, and alcoholic solution of phenol exerted the same action. He, therefore, considers that it must be ascribed to some chemical action which agrees with Russell's assumption of its being due to hydrogen peroxide. Blaas and Czernack have called those substances which thus act on plates "photochic," and explained the action as due to the occlusion of ozone, but Merckens states that in very few cases could he detect ozone, and in nearly all hydrogen peroxide. With minute traces of peroxide he detected the first action next the glass, with a celluloid film there was no action, but if the film was laid down on a sheet of glass there was immediate action. Glass, mica, and all metals are absolutely opaque to the action, but appear to retain peroxide most tenaciously on their surfaces. Very small quantities of peroxide will pass through a film without action, but if an opaque substance be placed behind the film, from which one can assume and prove reflection, there will be action, as simple reflection cannot produce alteration in the peroxide or its rays, the only explanation is a collection or concentration of the peroxide vapour on the surface of the plate. The author states that the peroxide vapour is dissolved by the emulsion, which always contains some water and that the alkali present in the emulsion converts the peroxide into water and nascent oxygen and this is the active agent. (Except for minute traces of alkaline and earth salts from the washing water, most emulsions contain no alkali.—Eds. B. J.) As a proof, however, of his contention, Merckens states that peroxide has no action on an acid emulsion, or one absolutely free from water, nor on acid collodion emulsion, or on a wet collodion plate. If, however, these films were made, alkaline action took place at once. If a dry plate is exposed to peroxide vapour and then bathed in peroxide, the preliminary action is destroyed. A film saturated with peroxide vapour and immersed in potash lye behaves quite differently to one immersed in a mixture of potash and peroxide, for the latter develops to a vigorous image, whilst the former only shows a slight trace. Plates dried at 120-130 deg. C till their weight was constant showed not the slightest trace of an action with peroxide.

The author concludes that the action of peroxide and "photechie" is a chemical one and should be ascribed to the nascent oxygen. An interesting experiment of the author's, is the production of duplicate negatives. A negative is dried at 120 deg. (unnecessary, the negative is kept in the dark for a long time), and is then printed on fresh celloidine paper, either by the arc or sunlight, about as usual for toning. The print is then pressed in contact with a dry plate, in the dark for twenty-four hours and then developed and a duplicate negative is obtained which, however, shows the paper grain.

The action of various metals on dry plates is in the following order:—Magnesium, aluminium, zinc, cadmium, nickel, cobalt, and lead, then tin, but the action of the last is so faint that there is practically no effect on the plate. The author here remarks that Krone has proved that dry plates can be kept perfect for twelve years if packed in tin-foil. This series corresponds with the electric resistance of the metals, so that the capacity to form peroxide agrees with the electro-positive character of the metals. Kahlbaum's "actinography" would appear to be rather due to electrical phenomena than radiation, and the phenomena would appear to be connected with earth currents.

SAVING BROKEN NEGATIVES.

R. O. H. BOYE, writing on this subject in the June issue of the *Monthly Review* of the P. A. of California, says:—

In the professional studios, where a great number of negatives are handled daily, it frequently occurs that valuable plates, which cannot be replaced, are either cracked during the process of printing or are badly broken by having been dropped accidentally. In the latter event, if the negative be broken into several sections, probably the best way to get satisfactory results is by the method of production, viz., mounting the pieces upon a clear glass, fitting them together accurately, and then exposing for a positive. Careful etching and retouching on this plate will eliminate a greater part of the cracks showing, after which a negative can be made and the etching done thereon.

Stripping Processes.

Where a negative is divided into but two or three pieces, stripping the film from the broken parts and floating on to another glass is the method that should preferably be adopted. Many formulae for this process have appeared in print, and work with various degrees of success. Hydrofluoric acid, a solvent of glass, while it does the work satisfactorily, is a messy solution at best and requires very careful treatment, or the film is easily torn. The formaline method is to be preferred as the safest process, allowing, as it does, a greater latitude in the handling. The formula recommended is thoroughly reliable, and also has the merit of being simple work. Some objection has been made to formaline on account of the danger in its use—said to injuriously affect the eyes and the hands—but as the solution diluted for use is very weak no greater caution need be taken than that used with a number of other photographic chemicals.

The Formula.

A stock solution of 10 per cent. of caustic soda should be made. The formaline recommended is the 40 per cent. solution supplied the trade:—

Solution A.

Caustic soda, 10 per cent. solution	½ oz.
Formaline solution	1 oz.
Water	5 oz.

Solution B.

Hydrochloric acid C. P.	1 dr.
Water	8 oz.

The negative to be treated should first be thoroughly cleaned from all traces of varnish or retouching medium by rubbing it with alcohol or turpentine, as the case may be, and left to soak in warm water until the film is softened. Before doing so, however, use a blunt knife and a straight-edge and scratch a line through the film to the glass around the four sides of the negative close the edges. This will give a clean edge for the solutions to act upon, and also facilitate matters considerably in stripping. The pieces of the negative to be stripped can be supported upon a sheet

of plain glass and attached thereto with rubber cement, shoemaker's wax, or any medium of a similar nature that will not dissolve in the solutions. This is for convenience in handling, and not absolutely necessary, as each piece can be stripped separately, if preferred. After soaking in the water for about a half-hour immerse the plate in Solution A for five minutes, rinse slightly, and then transfer to Solution B for a similar period. Rinse well after this bath and place on the table, face up, ready for stripping. Dampen a clean sheet of writing paper large enough to lap over the plate all round. Lay this on the film and cover with a blotter. Squeeze the paper into contact with the film by rubbing with your hand on the back of blotter. Take some blunt-pointed instrument or a knife and start a corner of the film by gently lifting it up with the paper. It will come away readily enough, but watch carefully for places that are inclined to stick; touching them lightly with the blunt point will assist in making them yield.

How to Transfer the Film.

A gelatine-coated plate previously prepared should be in readiness. The formula for this substratum is the same used for the carbon process, and consists of gelatine, 1 oz., soaked in water, 16 oz., till softened, then dissolved by gradually raising the temperature of the water over the stove nearly to the boiling point; then add chrome alum (20 gr.) which has been dissolved in warm water (1 oz.) gradually to the gelatine solution drop by drop, stirring constantly to prevent precipitation. A clean glass plate immersed in this solution while still warm and left to drain and dry is what is required. Rinse the surface of this plate well with water and lay flat on table. The film can now be lowered into position on its new support and rubbed into contact under a blotter. Remove the paper, and should any bubbles remain between film and glass they can be worked out by dabbing them lightly with the finger towards the edge of the plate. The remaining pieces can now be transferred in the same manner, but in adjusting the pieces together it is important that an overlap of about one-sixteenth of an inch be allowed for shrinkage in drying. While drying these places where the film overlaps it should be occasionally dabbed or pressed into contact in order that it adheres tightly to the glass at these points. After drying, should the overlap be too great, scraping off the surplus film with the etching tool will result in securing a perfect match.

Negatives that are simply cracked and not broken through the film are quickly transferred by this method. This process is also used for the reversing of negatives for the carbon process where a single transfer print is desired. Where an enlargement of a negative is wanted, say of a cabinet to a 10×8, the stripping process is the quickest solution of the problem. The hardening bath is omitted and plates are simply treated by immersing in the hydrochloric acid alone. The film expands considerably after leaving

its support, more than doubling its former size. Should this expansion prove too great, immersing it in alcohol will cause it to contract to the point wanted, or almost back to its original size.

Negatives enlarged in this manner, however, become considerably thinner in density by the expansion of the film, and, unless the negative was originally very dense, strengthening with mercury must be resorted to after negative is dry, when there will be no risk of the film leaving its support.

THE ROTARY PHOTOGRAPHIC COMPANY'S ANNUAL OUTING.

WEXMOUTH was the chosen locality this year for the sixth annual outing of the employees of the Rotary Photographic Company, Limited, and on Saturday, July 15, upwards of 300 journeyed per Great Western Railway special corridor train from Paddington and West Drayton to this charming seaside resort. On previous occasions a day in the country has been the rule, so this year's departure was thoroughly appreciated, especially in view of the fine weather that prevailed. Dinner was served at the Hotel Burdon (facing the sea) at 12 noon.

The committee who made the arrangements consisted of Messrs. Ley, Judge, Kral, Shrimpton, Hay, Lowry, A. W. Rushbrook, Armour, Wicks, Balch, Putman, Newbury, J. H. Tarr, Erskine, and King (representing the London office), with Mr. H. D. Hill as hon. secretary. There were 50 members from the London office present. A beautifully got-up souvenir card was presented to each employee, and is an excellent example of the fine photographic work of the firm.

At the dinner Mr. J. H. Balfour presided, and was supported by Mrs. Balfour, Mr. and Mrs. Haenel, Mr. Hall (from the London office), etc.

Mr. Haenel who was loudly applauded, said it was an agreeable task for him to bid them welcome once more, on behalf of the directors, on their sixth annual outing, and, looking at them, he wondered at the number. He remembered the time, five years ago, when they started for their first beanfeast in a brake or two, or it might have been a pony and trap. There were only about a dozen then, he thought, and now they were nearly 300, and that was a very good sign, for it meant good business relationship, and he hoped the increasing enjoyment of the outing. He wished them all a pleasant afternoon and another pleasant outing next year, and then he hoped there would be still increased numbers.

Mr. Hall, of the publishing department; Mr. Ley, on behalf of the employees; and other speakers voiced sentiments suitable to the occasion, and the party eventually reached West Drayton at 11 p.m., after a most enjoyable day.

THE SECOND AMERICAN PHOTOGRAPHIC SALON.

THE preliminary prospectus of the second American photographic Salon is to hand, and the particulars indicate that the enterprise is in a flourishing condition. Local juries have been appointed in all the great centres of the United States, and the work selected by these juries will be sent for the consideration of a "national preliminary jury," drawn from the best-known pictorial workers in the country. This jury will select about one thousand frames, to be further acted upon by a "final jury" of painters.

As a recognition of the intrinsic value and artistic merit of photographic pictures, the following purchase funds have been established—selections to be made by the final jury of painters:—The American Federation of Photographic Societies offers \$100 for the best picture exhibited, without restriction as to subject. "The Country

Calendar" (13, Astor Place, New York), the new magazine of outdoor interests, has established a purchase fund of \$50 for the best study of a rural outdoor subject accepted by the jury. "Landmark" (Editorial Office, Hartford, Conn.), a new illustrated publication now in course of preparation, has placed in the hands of the American Federation of Photographic Societies \$50 for the purchase at the second American salon of the best landscape embodying some particular scenic landmark in any State or territory of the United States.

Foreign entries are to be sent, mounted or unmounted, but not framed. All entries from Great Britain should be sent to arrive by September 20 to H. Snowden Ward, 6, Farringdon Avenue, London, E.C., marked "For Second American Photographic Salon."

All entries must be delivered at the rooms of the Metropolitan Camera Club of New York, 100-102, West 101st Street, New York City, U.S.A., on or before November 1, 1905.

Full particulars can be obtained from H. Snowden Ward as above or from the secretary, Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

THE FREE PORTRAIT TRICK.

AMONG the firms carrying on the "free-portrait trick" in this country at the present time, special reference has been made in "Truth" to the Crown Art Co., of 115, Seven Sisters Road, N. Possibly in consequence of the criticism they have incurred, this firm now makes it fairly clear in the original contract that the "free portrait" will only be delivered on paying the price of the frame; and they appear to make it a practice to show a "rough sketch" of the promised portrait when the frame is ordered. But they have evidently borrowed from Mr. Tanqueray, of Paris, the little dodge of squeezing customers by refusing to return the photograph entrusted to them for enlargement, as will be seen from the following letter:—

"Dear Sir,—Our collector informs us you decline to pay instalments due on our picture until it is finished. We therefore inform you that we do not finish pictures until half is paid, the balance to be paid on delivery. Trusting you will let us know if this will suit you, we remain, yours truly,

"THE CROWN ART COMPANY.

E. H.

"P.S.—Should we not hear from you within three days we shall destroy enlargement with original."

The customer to whom this was written had refused to order a frame, or pay anything on account, because he was dissatisfied with the portrait. The threat, therefore, to destroy the "original," i.e. the photograph entrusted to the firm for enlargement, speaks for itself. "Truth" further remarks: "It often happens that the photographs parted with in this way are the only copies in the possession of the owners, and they are naturally valued, or the owners would not desire to have them enlarged in crayon. Sometimes, of course, they are photographs of deceased relatives. All the free portrait dodgers know well enough, and they trade in this way on the value attached to the photograph. It may be as well to point out to any one who receives a threat like the above that the company have no right whatever to destroy the photograph, and could be sued for damages if they failed to return it in good condition. It may be added that in the above case the customer states that some of his friends who had fallen into the hands of the Crown Art Co. had paid their money, and had obtained the "free portrait" framed, but when it was delivered, they could see no difference between the finished article and the "rough sketch" previously submitted to them in order to secure the order for the frame."

Photo-Mechanical Notes.

A Modified Woodbury Process.

HERR A. KOLBE has recently patented (D.R.P.K. 27552) in Germany a modification of the Woodbury process. Instead of using a pigment print to obtain the matrix, he employs a swollen bichromated gelatine relief, which is obtained in the usual way by exposure of bichromated gelatine. From this relief a cast is taken in marble cement, which sets in a few days extremely hard, and is then coated with tin foil and then forms the matrix. A warm gelatinous ink is poured on to a smooth or matt sheet of metal, celluloid, or glass, and the matrix pressed on to it so as to form an image, and then a sheet of paper is squeezed down on to the image, and the whole set on one side to dry, and the paper bearing the print is then stripped from the metal or celluloid. According to the "Zeitschrift für Reproduktionstechnik," from which this note is extracted, the results are extremely good, and can hardly be told from a photogravure; but the process is considerably cheaper, as a cheap press can be used which will give one print a minute. After the pressure of the matrix on the gelatine ink, it only takes thirty seconds for this to set. The new process is also suitable for trichromatic work. From the three negatives, obtained through the screens in the ordinary way, three positives are made on one plate, and from these swollen reliefs obtained as described above, and then the matrices cut up and filed to register. The first impression is made in blue, then, on top of this, the red, and finally the yellow. Though this is the reverse order to that usually followed, it is obvious that, as the paper is squeezed to the yellow and the print stripped in the finished print, the order of the colours becomes as usual. The colours used were prepared by Gleitsmann, of Dresden, and they are stated to be quite transparent and permanent to light. Absolute uniformity of results is said to be obtainable by this process; and the extreme transparency of the pigments used gives a brilliancy of colouring hitherto unattainable in three-colour prints.

Photo-Lithography.

A photo-lithographic process for preparing a design on a zinc or similar lithographic printing or transfer plate, and dispensing with paper transfers, is patented by Mr. T. McLaren. According to an account in the "British and Colonial Printer," the plate is sensitised with bichromated albumen, gelatine, or the like, and is exposed under a negative. The surface is then smeared with a greasy substance permeable to water, but insoluble in turpentine or other ink solvents, and is developed in water to wash away the unaltered parts. The greasy substance consists essentially of a gum resin soluble in chloroform, as, for example, of bitumen, dragon's blood, gum mastic, chloroform, and benzol; oil of lavender may be added, and an aniline dye may be used as an indicator. In the case of bichromated albumen, alcohol is added to make it flow or dry evenly, the ingredients being water, white of egg, ammonium bichromate, ammonia, and alcohol.

In "Newspaper Illustrations," an eight-page sheet printed on ordinary "half-tone" news paper as supplied to a London illustrated daily, Messrs. Carl-Hentschel, Ltd., make a profound impression of their ability to produce half-tone cuts for all classes of publications, running into immense editions. "Newspaper Illustrations" makes a convincing show of what can be done, predicts great things from the general introduction of half-tones, and has some interesting things to say on the effect of the half-tone movement in newspapers on other sections of the press.

PHOTO-MECHANICAL PATENTS.

Application for Patent.

The following patent was applied for on July 12:—

ROLLER PRINTING SURFACES.—No. 14,047. Improvements in and means for the production of engraved printing surfaces on rollers and plates. Richard Bertie Fishenden, 17, St. Annes Square, Manchester.

New Books.

"Photography for the Press." By the editors of "The Photogram." Published by Dawbarn and Ward, Farringdon Avenue, London, E.C. Second Edition, price 1s.

"This is the golden rule in press photography:—Study your editor: through his journal." Its importance would almost warrant its being printed at the head of every page of this little book.

This is the theme to which the authors have attuned their lay in the second edition of "Photography for the Press," and no doubt their practical experience in the disposal of "photograms" of topical interest to the editors of the current illustrated papers has fully demonstrated its truth. There can be no contradiction to the statement that photography now plays a very important part in the illustrated journalism of the world, and that, in a great measure, the editorial department of most of the illustrated papers is dependent on the contributions of outside workers for representations of local events. With this fact in mind, therefore, it will be seen that the publication under consideration, dealing, as it does, with the practical side of the work of the photographic journalist, is likely to be of widespread usefulness. The utility of the previous edition is evidenced by the fact that it is the subject of a paragraph in the current annual report of the Photographic Copyright Union, recommending it to their members.

For the second edition the matter has been almost entirely rewritten; while sections on picture postcard work are entirely new. Apart from the advice and instruction given for the benefit of the aspiring photographic journalist, the advantages of the work as a profitable side-line open to professional photographers are not lost sight of.

"Das Radium und die radioactiven Stoffe." By Karl Frhr. v. Papius. Berlin: Gust. Schmidt. 1905. M. 2.

It is, of course, quite natural that a discovery of such far-reaching importance of so marvellous a nature as that of the radio-active elements should have given rise to a flood of literature, both from the pen of capable investigators and in the lay Press. The effusions of the latter were more or less prompted by the facility of creating sensational "copy," and the publication of an unpretentious, popular, but sober, account in book form of the various phenomena of radio-activity may therefore be hailed with satisfaction. "Das Radium," whilst devoid of all mathematics, covers the whole ground which has been so fruitfully explored by physicists like Rutherford, Soddy, Ramsay, J. J. Thomson, Curie, and Giesel. It is clearly written, it confines itself to the subject of radio-activity, and it avoids the temptation and error, usual in a work of this scope, to touch upon other correlated subjects in an attempt to introduce the reader to the phenomena. The illustrations materially aid the understanding of the experimental arrangements whereby, step by step, the properties of those minute quantities of radio-active bodies have been elucidated. Great prominence is given to the important aid which photographic methods have rendered in these investigations, and a special feature is made of pointing out—as far as possible—the practical possibilities of the various characteristics. A pity the volume is not in English.

"Stand-Entwicklung," by E. Blech. Published by Gustav Schmidt, Berlin. Price 1.80m.

Stand development has apparently not found such favour in England as in Germany, if one may judge from the fact that this is the second edition of a work devoted entirely to practical details of the process, whilst here we have no work and but little literature on the subject. This work is written in simple language, and numerous working formulæ for suitable developers are given.

The "Agfa" Handbook.

A new edition of this little guide to the use of the "Agfa" developers and photographic specialties is to hand, and it well bears out the good impression created by its predecessors. It is comprehensive and informative, and the photographer who possesses a copy need never go wrong in exposure and development if he follows the instructions given in its pages. Each of the preparations produced under the aegis of the Actien-Gesellschaft für Anilin-Fabrikation is dealt with in turn, and the various formulæ that have been advocated from time to time in which they are employed are given with full instructions.

"Agfa" developers in cartridge form, and also in solution ready for use, are the subject of a separate section, and the good qualities of Rodinal here comes in for prominent attention. The other specialties include "Agfa" intensifier and reducer, acid fixing salt, varnishes and toning and fixing salts, "Agfa" flashlight, and the Isolator non-halation plates.

A copy of this useful little booklet should be in every photographer's hands, and a copy will be sent by Messrs. Charles Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C., on application.

"Hauff on Modern Developers" is the title of a compendious booklet issued from the chemical works of J. Hauff and Co., Feuerbach, Wurtemberg.

The Hauff products are almost too well known to English photographers to need comment or further commendation, and this little handbook will be found to deal very concisely, yet exhaustively, with the patent developers, etc., that figure so prominently in most modern formulæ for dry plates and development papers.

The scope of the book has been increased, and the present edition can be regarded as a short guide for photographers, containing valuable hints which will help to overcome many difficulties. For instance, the purpose and properties of the dry plate are discussed, and "exposure" is very fully dealt with both from the theoretical and practical side. Useful exposure tables are given, and the subject of development comes in for a large share of attention. Each well-known developer is treated of separately, and every photographer of an experimental turn will find the pages devoted to "Combined Developers" specially attractive. Intensification and reduction are also expounded, and sundry other photographic processes that come within the application of the products of the firm are considered. It is a most useful little production, and a copy will be sent by the English agents, Messrs. Fuerst Brothers, 17, Philpot Lane, London, E.C., upon receipt of 1d. stamp to cover cost of postage.

"FALLOWFIELD'S COURIER," No. 16.—This little trade journal deals this month with the seasonable piece of apparatus—a dark-room ventilating fan. Other dark-room novelties are also illustrated, including waterproof aprons and sleeves, and new lamps fitted with gelatoid screens, ruled cutting shapes, plate-washer, and new developing dishes, to say nothing of the Taquta automatic camera, are likewise mentioned.

New Materials.

The "Ryston" Electric Dark Room Lamp, made by Reynolds and Branson, 14, Commercial Street, Leeds.

Some time ago we reviewed an early pattern of this lamp and have, for over a year, continuously employed it for dark-room work, and bromide printing, etc. The new 1905 lamp, illustrated below, is very similar in design to the previous pattern, but has several small additional advantages and improvements, that tend to make it invaluable in every dark-room fitted with electric light. The lamp is substantially and reliably constructed, and is handsomely finished in olive green enamel, with nickel-plated fittings and reflector. Two electric bulbs are fitted, one on top with reflector for white light, and the other inside for ruby light. The insulated switch handle on top is safe, and in the new pattern is well adapted for turning on the current to either ruby or white light, or instantly exchanging the one for the other by a small sliding movement. The



ruby glass provided is of special spectroscopically tested description, and it gives a pleasantly soft but brilliant illumination, while its semi-circular shape secures the lighting of the whole developing table. The lamp can be either placed on the table or suspended against a wall, and is an ornament to any dark-room, while its utility cannot be questioned. Gelatoid mediums to fit the lamp can be supplied if necessary, and electric lamps for any voltage are included. The lamp complete with all fittings measures, from base to top of outside light, about 14 inches. The working area of the ruby light is about 8½ in. x 4 in., and the price is 18s. 6d., including flexible cord and connections for existing electric fittings.

Griffin's Special P.O.P. and Tonix, made by J. J. Griffin and Sons, Limited, 20-26, Sardinia Street, Lincoln's Inn Fields, London, W.C.

This new P.O.P. is up to the usual high standard that we expect from Messrs. Griffin, and as it is introduced as being specially suitable for a combined toning and fixing bath, it may claim to be probably the first of its kind. A new combined bath called Tonix is also being issued simultaneously with the paper, and if they are used together, perfectly satisfactory results are obtained, which are claimed to be reliable as to permanency. We can speak as to the satisfactory results from personal trials with the paper and toner, and no doubt will be able to report in a future volume of the B.J. as to the permanency. The toning and fixing bath is supplied

in powder form in boxes of six packets at 1s. 6d., or in tins at 1s. each. Each little packet contains sufficient to make four ounces of Tonix solution, which will tone 12 to 14 $\frac{1}{4}$ -plate prints, or 7 to 8 5×4 to 7 cabinet, or 5 to 6 $\frac{1}{2}$ -plates. This cannot be called expensive, and it is certainly an extremely convenient and simple method of preparing a tone-fixing bath at short notice. The makers claim for the bath that its effect is to take up the excess of silver in the prints, before it can be converted into the harmful sulphide of silver, and if this is so one of the chief drawbacks to the combined bath is removed by the use of Tonix. In practice the P.O.P. is printed out in the usual manner—a little darker than is desired when finished, and good plucky prints are best obtained by printing in the shade. The prints are plunged, without washing, face downwards into the Tonix solution, and are kept moving for ten minutes. They are then washed and dried as usual. The resulting tone is a rich chocolate purple. For colder tones the prints are left in the bath for a longer period, say, twenty minutes; for warmer ones the prints are removed at an earlier stage, and complete fixation is ensured by immersion in a 10 per cent. plain hypo solution for the remaining period up to ten minutes. The P.O.P. can, of course, be toned and fixed in separate baths in the usual manner. It is not recommended to use the Tonix bath a second time, or just as much solution as the prints require and no more should be employed, and after use thrown away. The price of Griffin's special P.O.P. is the same as that now in force for all other P.O.P.'s.

An improved Dark-Room Pin, sold by Houghton's, Limited, 88 and 89, High Holborn, London, W.C.

Messrs. Houghton have sent us samples of the Moore Push Pin, which is exactly similar in appearance to other glass-headed pins of the same type already on the market; but by way of improvement it is claimed that the glass is now made much



tougher, and the points cannot come off. Also, there is no danger of the glass breaking across the bottom, as frequently happened with the older patterns. As the uses to which these little accessories can be put are so numerous, the qualities mentioned will be appreciated by every photographer. They are sold at 6d. a dozen, neatly boxed, and are obtainable through all dealers.

Particulars of the "Elias Patent Fountain Bulb" have been sent us. The apparatus is a neat attachment for emptying bottles or other vessels by air compression. The device consists mainly of an elastic bulb connected with a tight-fitting central tube forming a cap or stopper. The lower part of the bulb fitted to the neck of the bottle is provided with air channels or perforations communicating with the interior of the vessel, so as to exert pressure on the liquid therein when the bulb is squeezed by the hand. The liquid does not come into contact with the india rubber, but is forced by air-pressure through the glass tube, which can be easily detached for cleaning. It forms a most effective wash-bottle, or syringe, and enables a jet of liquid to be maintained for a considerable time. By the use of a pinch-cock, and the detachable non-return valve, sufficient pressure may be introduced into the vessel to ensure a continuous flow of liquid when required without further compressing the bulb, thus permitting the operator the free use of his hands. The syphon attachment will be found useful in photography, providing an even flow of the developing solution over the plate without the necessity of rocking the bath. By tilting the bottle a little on one side the fluid will flow back through the glass tube by gravitation, thus obviating the necessity of decanting

the solution in the usual way. To reverse the action of the syphon so that the solution may return into the bottle, the free end of the tube is dipped into the liquid contained in the developing dish before releasing the pressure from the bulb, and the fingers are released so as to create suction. The price of bulb attachment and valve is 2s. 2d., and it may be obtained from V. Aubrey Elias, 123, Waller Road, New Cross, S.E.

Samples of the Sandhurst Sépia Toner have been sent us by Messrs. Sanders and Crowhurst, successors to Williamson and Co., of Hove, Brighton. This toner is in two solutions and is of the now familiar sulphide type with its equally familiar odour. The tones obtained with it on bromide papers are of a rich sepia, and the ease with which they are produced should make the toner popular. It is very economical. The bleaching solution (No. 1) can be used over and over again, while one dram of No. 2 makes five ounces. The set makes in all 172 ounces, and the price is 1s.

No. 3 of the Kodak Handbook Series deals with "Bromide Papers," and is a comprehensive little guide to the use and manipulation of Kodak bromide and gaslight papers. Full particulars of each brand are given, and the booklet is embellished with half a dozen full-page prints on the different grades of paper made by the firm. Platino-matte, Permanent Rough, White Royal, Nikko, and Dekko are the papers used, and concise directions for sepia toning are included with an illustrative example. The photographs themselves figured prominently in the recent Kodak £1,000 competition, and are excellent examples of pictorial work. The book is published at one penny, and will be supplied on application to Kodak, Limited, 57-59-61, Clerkenwell Road, London, E.C.

A full list of the specialties made and marketed by the Tress Company, of 205, Oxford Street, London, W., has reached us. In it will be found particulars of the Tress Portrait Lamp for use with incandescent gas, also repeating cameras, rapid printers, copiers, vignettors, flash lamps, and many other useful novelties that are likely to appeal to the professional and amateur photographer. This firm has recently moved to larger and more commodious premises at above address, where all their latest novelties are on view.

A superb catalogue of Photographic Objectives and Cameras has been issued by Carl Zeiss, from 29, Margaret Street, Regent Street, London. The specialties of the famous Jena firm are set forth on art paper, and the accompanying illustrations are fine examples of the block maker's skill. A four-colour engraving executed by the engraving department of J. C. Schelter and Giesecke, of Leipzig, is a notable full-page reproduction of a vigorous painting, the reproduction being made with the Zeiss-Apochromat-Tessar lens, Series VIII. The various types of Zeiss lens—the Planar, the Unar, the Tessar, and the Protars are fully described and illustrated; and the telephotographic-objectives, Palnos and Manos cameras, the Verant, prisms, and light filters, etc., that have been described at various times in these pages, are catalogued and their performances demonstrated. As a proof of the high estimation in which the Zeiss productions are held, the statement in the preface of the catalogue that in ten years the combined supply by the Jena firm and their license-holders of anastigmatic objectives has reached a total of 100,000, should carry conviction, if any were needed, regarding the quality of the goods.

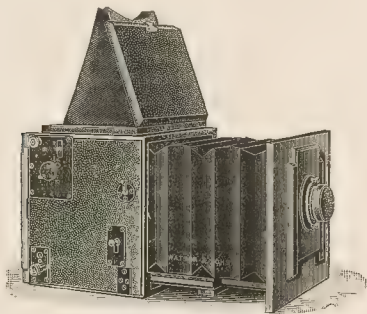
An abridged summer catalogue of photographic specialties is to hand from Messrs. Reynolds and Branson, of 14, Commercial Street, Leeds. Rystos cameras and camera sets, lens, enlargers, dark-room lamps, apparatus for ceramic photography, and other accessories for the photographer are listed, and a copy of this or catalogues of the firm's numerous departments for scientific apparatus, etc., will be sent post free on application.

New Apparatus, &c.

The "Argus" Reflex Focal Plane Camera. Made by W. Watson and Sons, 313, High Holborn, London, W.C.

A new pattern of this instrument has been submitted to us, and it only tends to strengthen the good opinion that we formed of its predecessor. The camera, although containing many new features, is not intended to take the place of the original "Argus," which we reviewed last year, but has been put on the market to supply the wants of those workers who require a reflex camera of the usual high standard of Messrs. Watson's productions, but with a square reversing back, which last year's pattern did not possess. Needless to say, the workmanship of the camera is of the best, and although very simple to use it has been specially constructed for precise work, and to fully meet the requirements of photographers who desire to see exactly what they are getting on their plate at the moment of exposure.

Further than this, by an ingenious arrangement of levers the full-sized finder, which is of course the great charm of the reflex camera, is obscured for an extremely brief period only, during the actual exposure



of the plate. The image can therefore be focussed right to the instant of exposure, and can be observed on the ground glass of the protected finder, not only immediately before the exposure, but immediately after. This is a great improvement over the type of reflex camera that totally obscures the finder at the time of exposure and keeps it obscured, as it is then impossible to further inspect the image on the ground glass until the shutter is set again. For press photographers the "Argus" camera will be particularly acceptable, and it is difficult to conceive any type of photography, technical, topographical, or pictorial, wherein it would not be of service. The body of the camera, which is of mahogany, is covered in black morocco leather; all uncovered parts are ebonised, and the metal fittings are finished black, rendering it as unobtrusive as possible. In the quarter-plate size the dimensions of the new square reversing back model are $5\frac{3}{4}$ by $6\frac{1}{4}$ by $7\frac{1}{4}$, which is extremely small for a camera with the qualifications this one possesses. It weighs but $2\frac{1}{2}$ lb., and has a bellows extension of 11 in. It is supplied with the Holostigmat lens, and the extension is sufficiently long to take the single combination. The focal-plane shutter, which forms an integral part of the camera, is highly practical. It gives "time" exposures of any duration, and instantaneous exposures from 1-15th to 1-1200th of a second. The alteration of the slit is made from outside, and the speeds can be ascertained at a glance. The camera (square form), complete with Holostigmat lens and three dark slides, sells at £18 for the quarter-plate size, £20 11s. for 5 by 4, and £24 for half-plate.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for patents were made between July and July 15:—

ROLL FILM.—No. 14,166. Improved method of using rolled film in cameras. William Augustus Casson, 1, Essex Court, Temple, London, E.C.

STUDIO CAMERA.—No. 14,373. A reflex studio camera. Scotts Studios, Limited, and Frank Piper, 37, King Street, Covent Garden, London.

METAL PICTURES.—No. 14,410. A new or improved process for the ornamentation of metal articles, particularly of oxidised steel, with photographic metal pictures. Emil Jabulowsky and Armand Bourquin, 31, Bedford Street, Strand, London.

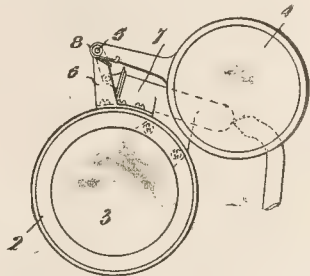
ORTHO PROCESS.—No. 14,449. Improvements in the production of coloured effects upon photographic emulsions on any surface, from the action of fluorescent or phosphorescent states of matter. Archibald Campbell Ponton and William Cullen Horne, Rylestone, Bromley Road, Catford, Kent.

TRIPLEX PHOTOGRAPHY.—No. 14,623. Improvements in cameras adapted for use in triplex photography. William de Wiveleslie Abney, Clun House, Surrey Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

EXPOSURE METER.—No. 16,468, 1904. According to this invention, the proper exposure to give a sensitised plate at the time a test is made is determined by the apparent recognised standard of brilliance or clearness of the object to be photographed when focussed upon a screen. This state of the image is dependent upon the quantity of light admitted to the screen, and this can be regulated at will by means of an orifice of variable size and the variations indicated by a scale and pointer. In the improved exposure meter there is a chamber provided with a lens which has an adjustable shutter arranged so as to admit as much light as



is required at the time by means of a suitable regulator. Opposite to the lens is an orifice which is preferably provided with a lens also. Between the latter and the first-named lens is arranged the screen. The regulating means of the shutter is provided with a pointer, and a scale representing preferably seconds of time and fractions thereof, is marked within the range of the pointer. An auxiliary scale is also preferably provided for compensation for the discrepancy which would occur in the reading if "stops" were used in the lens of the camera. In using the apparatus, the lens 3 is placed to the eye, and the object to be photographed is viewed upon the screen 4. The milled cap 9

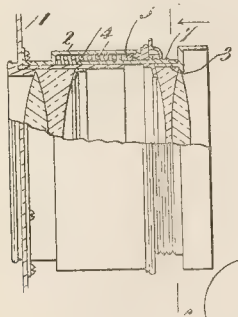
is now turned until the image shows a recognised standard of brilliance. The value of the "stop" to be used with the camera is now noted, and the "speed number" value is brought opposite thereto. The number which the pointer 26 indicates upon the scale 23 then represents the proper length of time for the exposure of the plate. William Augustus Brooks and George Andrew Watson, 81, Tower Buildings, Liverpool.

BACKGROUND STANDS.—No. 18,102, 1904. Protection is claimed for a special construction of background stand, for which it is claimed that it permits the use of any desired sequence of backgrounds without requiring the shifting about of any parts, and also avoids the disadvantages incidental to the use of pawls and powerful springs to wind up the background, and to having to hang up a separate background when a variation is desired. Further, the contrivance can be readily taken apart for transport and can be readily set up without the use of tools, and confusion of operating cords is not liable to occur. George Rutter, 181, Wardour Street, London, W.

FOCUSSEING DEVICE FOR CAMERA.—No. 18,455, 1904. The patent specifies the mechanism by which the adjustable part of the camera can be instantly moved into the required position to focus objects at various distances. The full text and figures are necessary to explain the claims. Kodak, Limited, 57, 59, 61, Clerkenwell Road, London, E.C.

FLASHLIGHT.—No. 628, 1905. The patent relates to the electrical ignition of flash powder, and claims the covering of the igniting wire with some material more inflammable than the flash powder. Frederick Fitz Payne, 27, Chancery Lane, London, E.C.

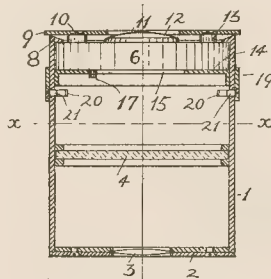
ALTERING FOCAL LENGTH.—No. 1,594, 1905. The invention provides means for changing the focal distance of a lens system by moving one of the components during exposure. A suitable space is provided between the two casings for receiving an elastic or resilient means, such as a coiled spring 4, Fig. 1, which when operating causes a change of the distance between the lenses or lens sets forming the system, and, therefore, a change in the focal distance. The resilient means may be adapted to operate by expansion as well as by contraction. The coiled spring 4, for instance, may first be compressed and then act on the lens-carrying



casings by expansion, thereby increasing the distance between the lenses, and consequently changing the focal distance of the system. If the same spring is fastened to the lens casings and first expanded it will act by contraction, and thereby decrease the distance between the lenses. These elastic or resilient means may be located between the lenses, as shown in the drawing, or they may be outside of one or the other lens. In using the device the release 6 is set into such a tooth 7 as to cause, when released, the desired change of the distance between the lenses and the corres-

ponding change of the equivalent focal distance. Taking, for instance, the device illustrated in Fig. 1, the front lens is pulled out a short distance and the coiled spring thereby expanded. The release 6 is set, for instance, in the first tooth. The object to be photographed is then focussed in the ordinary way, and the shutter, which may be operated by the same bulb as the release 6, is opened, and during the time or duration of the photographic exposure one lens moves gradually, without jerking, towards or from the other lens, whereby the distance between the lenses is varied, causing a corresponding change of the focal distance or equivalent focal distance of the lens or lens system, and producing a photographic negative of even sharpness and without distortion, and giving a true record of the colour value of the original object. U. Nehring, 24, East 21st Street, Manhattan, New York.

In a further patent (No. 1,505, 1905) the same inventor makes similar alterations in focal length during exposure by application of a second lens. The auxiliary lens 4 is set so as to be held by the release 7 under the tension of the spring 8 and outside of the optical axis of the lens system. The object to be photographed is then focussed in the ordinary way, and when the exposure is being made the release 7 is operated and the lens 4 is caused to pass over the lens system and through its optical axis, and



thereby changes the focal distance or the equivalent focal distance of the same during the time of exposure. The auxiliary lens may be made of white optical glass or of tinted or coloured glass, so as to act like a ray-screen or colour-screen for producing orthochromatic or isochromatic effects on the sensitive surface. Means may also be provided for regulating the speed of the movement of the auxiliary lens, and an arrangement of the shutter release and the lens release may be made for operating the same simultaneously. The auxiliary lens may comprise a single lens or a lens system.

A PRINTING MACHINE.—No. 4,150, 1905. A lengthy specification (with drawings) of apparatus for printing a number of photographs from a negative. The claim is for a photographic printing apparatus, with a case having a source of light therein and provided with means for holding a negative and a sensitised surface, a platen, a platen frame movable with the platen, a hand lever, jointed connections between the hand lever and the platen frame for operating the platen, a vertically movable drum having projections of different length upon its periphery, means beneath the drum for retarding the descent thereof, a contact lever arranged within the path of the projections on the drum and connected with a switch to make and break an electric circuit to emit light to the negative, means operated by the platen frame for elevating the drum, a dog for holding the drum elevated, means carried by the platen frame to trip the dog to release the drum, means for adjusting the drum to bring one of the pro-

jections thereon into the path of the switch lever, and means co-operating with the last-named means for predetermining the period of contact between the switch lever and the projections on the drum. Hervey Heman McIntire, South Bend, St. Joseph, Indiana, U.S.A.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—
PIGMENT PRINTING PROCESS.—No. 12,867, 1905. Bühler.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
28.....	Hall Photographic Society	Outing to Selby.
28.....	Cricklewood Photo. Soc.	Outing to Chorley Wood.
28.....	Wallasey Amat. Photo. Soc.	Field Day.
29.....	Birmingham Photo. Society	Half-day Excursion to the Leasowes.
29.....	Manchester Amat. Photo. Soc.	Trip to Delamere.
29.....	Rowes Park and Dis. Ph. Soc.	Outing to Lei h-on-Sea.
29.....	Glasgow Southern Ph. Assn.	Trip to Garthland Estate.
29.....	Woolwich Photographic Soc.	Outing to Waltham.
29.....	Southampton Camera Club	{ "Architectural" Photography. Mr. T. M. Weaver.
August.		
1.....	Rotherham Photo. Society	{ "Natural History Photography."
2.....	North Middlesex Photo. Soc.	{ R. P. S. Lecture.
2.....	Cricklewood Photo. Society	{ Lantern Slide and Print Competitions.
3.....	Hull Photographic Society	{ "Defects and Faults in Negatives, and their Remedies." General Discussion. General Meeting at Society's Rooms

THE LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At a meeting held on July 20 Mr. Freshwater said he had tried stripping the film of a broken negative with hydrofluoric acid, as recommended at the last meeting, but it now showed a line all along the break as of frilling. The film had been in the water twenty-four hours, and had not dried since development. Messrs. Henderson and Teape were of opinion that had the negative been dried before stripping the mark would not have shown. Mr. Rapsom had tried to stop stretching of a stripped film by immersing it in spirit, the result being that the film finished smaller than originally. Mr. Henderson said that a solution of bichloride of mercury and alum would shrink a film to one-quarter of its original diameter.

PLYMOUTH PHOTOGRAPHIC SOCIETY'S third summer outing was at Burrator, some of the party also visiting Sheepstor and Meavy. The next outing is fixed for Saturday next, when Berry Pomeroy Castle will be visited, and members and friends entertained at tea by the vice-presidents, Messrs. F. Blanchard and H. S. Hill.

COMBINED Outing of the East London and South Essex Societies.—Sufficient promises of support having been received in response to the South Essex Camera Club circular re combined outing, the following arrangements have been made:—Meet at Grange Hill Station (for Hainault Retreat) at 3.10 p.m. on Saturday, September 16. A photographic group will be taken at 6.15 p.m. Tea at 6.30 p.m., followed by a social and musical evening. A silver medal is offered by the South Essex Camera Club for the best picture taken on this outing. The members of each society are requested to wear pieces of ribbon, of the colour allotted to them, as a buttonhole. Societies in the East London and South Essex district wishing to join should communicate with the secretary, T. Michell, 180, Browning Road, Manor Park, E., when full particulars will be sent them.

R. BANKS, photographer, of 126, Market Street, Manchester, has been favoured with a command from the King to supply his Majesty with an album of photographs of the recent Royal visit to Manchester.

Commercial & Legal Intelligence

At Hawick, on Wednesday of last week, A. H. Leach and Co. photographers, Brighouse, Yorkshire, applied for cessio against John Allan, of the firm of J. G. Tunny and Co., photographers, Hawick.—Mr. Allan stated that he had no capital when he started business; but he had borrowed money to the extent of £125.—Cessio was granted. The assets were over £8, and the liabilities over £200.

NOTTINGHAM Shopkeepers Defrauded.—The weakness of the majority of people for having their photographs taken has often been turned into capital by the unscrupulous, and a case at the Nottingham Guild-hall last week offered yet another proof of the susceptibilities of the public. Proceeding on well-tried lines, John Henry Newitt, described as a canvasser, of Carlton, induced a number of tradespeople to believe that he was a representative of the "Brunswick Art Company," who were making a "special offer to shopkeepers, giving away £25 in pictures in one week." For 1s. on account he would give them a ticket entitling them to one framed enlargement and six cabinets, and they could pay the balance of 1s. 6d. in weekly instalments, "when they got the pictures." Three tradespeople gave evidence as to purchasing tickets—nothing more or less than advertising business cards—on dates between July 4th and 7th. It was stated that prisoner had no connection whatever with the Brunswick Art Company.—Newitt, who has served in the army, said the cards and the photograph were given to him by a man in St. Peter's Square. He did not know that he was doing anything wrong.—He was sent to prison for seven days on each of the three charges.

DOUGLAS and Walls, Limited.—Registered July 1st, by W. E. Owens, 1, Newton Street, Liverpool. Capital, £2,000, in £1 shares. Objects: To adopt an agreement with W. B. Douglas and T. R. Walls; to acquire the business carried on at 19, Old Hall Street, and Irwell Chambers, Fazakerley Street, Liverpool, as Douglas and Walls; and to carry on the business of draughtsmen, engraving and architectural photographers, printers, drawing office material and general stationers, bookbinders, etc. Registered office, 19, Old Hall Street, Liverpool.

UNSTAMPED Weights.—J. G. Bagshaw, photographic dealer, St. Sepulchregate, Doncaster, was ordered to pay 16s. costs for having unstamped and unjust weights in his possession.

RE William Henry Hayward, late photographer, Streatham, S.W.—The first meeting of the creditors interested under this failure was held at the London Bankruptcy Court on July 18th. According to the debtor's statement he began business 19 years ago. In 1900 he entered into partnership with another person for the purpose of carrying on business as photographers at Streatham. He provided £2,000 capital for the business, while his partner brought into it a stock of negatives. The trading, however, never paid the expenses, and he was compelled to finance the business from time to time. He thought that in addition to the £2,000, which he found at the outset, he had put an additional £700 into the business. The business was a failure chiefly on account of another firm publishing a series of pictures at a rate cheaper than he and his partner could afford to publish them at. In June last year it was arranged that the partnership should be dissolved, but disputes subsequently arose as to the terms of the deed of dissolution, and eventually an action in Chancery was begun by his partner, who claimed £700. The debtor added that he did not consider himself insolvent. No statement of affairs was filed, but it appeared that the liabilities secured, and unsecured, amounted to £9,993 10s., and that the assets were valued at a sum sufficient to yield a surplus of £819 15s. 7d. The public examination was fixed for August 3.

FORGERY Charge Withdrawn.—Frederick Ahrlé, 46, a German subject, described as a photographer, of Cavendish Road, Harringay,

was charged before Mr. Fordham at the North London Police-court, last week, with forging and uttering a bill of acceptance, value £100. The evidence showed that the prisoner was the inventor and licensee of a metatype paper, and was managing director of a company formed to sell the article. His brother, Hermann Ahrlé, was also a director; and another gentleman who held a large number of shares and had advanced considerable sums for the business was Mr. Hugh Henry Francis Hyndman, of Seven Sisters' Road. The latter, who was prosecutor in the case, had advanced the prisoner several sums of money; and when he let him have the £15, he asked for security to cover the £95 he had advanced. The prisoner produced a bill for £100, purporting to be signed by Hermann Ahrlé, but this was alleged to be a forgery, and the present charge was made. After hearing the evidence the judge said, "The signature on the alleged forged bill is entirely dissimilar to the original signature of Hermann Ahrlé. So far as we have to go at present I certainly should not commit the prisoner for trial. In my opinion these proceedings are merely taken to squeeze money, and it is altogether a case that should never have been brought into court." Mr. Fordham marked the charge "Withdrawn" and returned the documents which had been put in.

Correspondence.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

We do not undertake responsibility for the opinions expressed by our correspondents.

THE CONVENTION ADDRESS—A CORRECTION.

To the Editors.

Gentlemen,—I notice in the text of my address that the name of Professor Wood is erroneously given as Professor Woods.

The mistake originated in the typing of my manuscript, and unfortunately escaped me when subsequently correcting the same.—Yours faithfully,
J. JOLY.

Chorlton, Temple Road, Dublin.

ORTHOCHROMATIC RATIOS OF PLATES.

To the Editors.

Gentlemen,—In your issues of July 14 and 21, under "New Materials," the "Marion Iso Plate" and the "Barnet Roll Film" were reviewed, and figures given for the ratio

blue sensitiveness
yellow sensitiveness

determined by Mr. C. E. K. Mees.

and I think I am right, this ratio has been obtained by determining the speeds behind liquid filters composed of a 1 cm. thickness of 1 per cent. copper ammonium sulphate solution for the blue, and 1 cm. thickness of a 4 per cent. solution of potassium chromate for the yellow (Eder's method), using a "screened acetylene light," would not be as well to state at once that this is not anything like the value of their relative sensitiveness to blue and yellow light as ascertained by these screens.

To obtain an approximately correct figure would be no great difficulty. If the relative brilliancy (regardless of colour) of the light transmitted by these two liquid filters were determined a factor could be obtained, and when the results obtained as before were multiplied by this factor we should then have a figure indicating something like the real "chromatic value" of the plate, and not its relative sensitiveness to two spectrum bands of arbitrarily accepted brilliancy.

And, of course, the lights transmitted by the two colour filters could be brought to equal brilliancy by some means or other, and then, of

course, the ratio of the plates' speeds behind the two filters would be the ratio required; but I think this would present more difficulties than the determination of a multiplying factor for the result.—Yours faithfully,

R. S. POTTER.

97, Belgrave Road, Ilford, E.

July 21, 1905.

[Our correspondent's objection, though not stated so fully as we could wish, is one which we must decline to admit. The question is one which deserves more lengthy treatment than we can give it in a footnote, and we will refer to it next week.—Eds., B.J.P.]

OUR PROGRESSIVE ALLIES.

To the Editors.

Gentlemen,—Recently, while the foremen of our departments were chatting together after the day's work, we thought it an opportune moment to apprise them of the fact that we had seriously thought of reducing their wages, and the wages of everybody else in the establishment, because of some very formidable circumstances which we found to be affecting our business. You should have seen their faces! Their relieved grin was almost as funny when we told them that an important customer in China had been obliged to place his orders for a large contract for postcards from half-tone blocks to a Japanese firm, who eagerly undertook it at the rate of 7s. per 1,000, including blocks.

On hearing of this from our would-be customer, we answered that our raw material would cost almost as much as that, and that we were sure it would interest Englishmen to know how the Japs did it. His reply is that while he is unable to discover any reliable facts about working hours of the Japanese photo-engraving or printing firms, yet he has been informed that photo-engravers and line workers (native Chinese) working about 16 hours a day get paid an equivalent of 4d.

On such a scale of wages as this or anything like it, our Japanese friends will certainly be able to pile up more profit—and a good deal more—on postcards at 7s. per 1,000 inclusive, than we could at twice that price.

We thought it would interest you to know of this little instance.

HOOD AND Co., Limited.

St. Bride Works, Middlesbrough,

July 18, 1905.

THE current monthly catalogue issued by the Tella Camera Co., of 110, Shaftesbury Avenue, London, W., contains as usual, some special bargains in second-hand and shop-soiled photographic goods. Photographers, both amateur and professional, will always find something they want in the Tella lists; and they should arrange to have copies sent them every month. They will be sent post free on application. This firm also makes a specialty of exchanging cameras, lenses, and apparatus generally for either new or second-hand apparatus; and an important feature of their business is supplying every description of photographic goods on weekly or monthly payments.

AN interesting exhibition, consisting of a selection from the photographs contributed towards the photographic survey of Sussex, was opened in the museum of the Technical Institute, Eastbourne, on Wednesday last. The exhibition remains open for three weeks, and no charge is made for admission.

ROTHERHAM Photographic Society.—The forthcoming exhibition of this society is announced to take place on October 18. This is the sixteenth annual exhibition of the society, and although there are open classes, the executive continue to adhere to the rule of "no entrance fees" (lantern slides excepted). Full particulars will be sent on application to the Hon. Secretary, H. C. Hemmingway, Tooker Road, Rotherham.

News and Notes.

MONOCHROMATIC Photographs of the Orion Nebula.—On obtaining a series of spectrograms of the Orion nebula with a small objective-prism quartz spectrograph, Professor Hartmann, writing in "Nature," states that he found that different parts of the nebula emit light of very different composition, whilst large areas, of characteristic forms, shine solely by the ultra-violet radiation at λ 3727. This variety of the light emitted by the several areas of the nebula led Professor Hartmann to employ colour screens in obtaining direct photographs with a Steinheil-reflector of 24 cm. aperture and 90 cm. focal length. Three screens were used; the first completely absorbed all wave-lengths shorter than λ 4800, but allowed $H\beta$ and the two chief nebular lines, N_1 and N_2 , to pass through almost without any diminution of intensity. The second screen freely transmitted all radiations between λ 3880 and λ 3740, but absorbed all others, whilst with the third the absorption commenced at λ 5050, increased rapidly to totality at $H\beta$, extended to λ 4000, and then quickly decreased; until at λ 3727 the transparency was very nearly complete. In this screen the two chief nebular lines were faintly transmitted, but it was an easy matter to eliminate their action by employing a plate of suitable sensitiveness. Combined, the first and third screens cut out $H\beta$ leaving only N_1 and N_2 effective. Marked differences of the intensities of several areas, as shown on the various photographs obtained with different screens, are plainly seen on the reproductions accompanying Professor Hartmann's paper. Evidently the radiation λ 3727 is extraordinarily intense in all parts of the nebula, whilst in some parts it is almost the sole radiation, producing strong photographic images where the eye sees nothing. The nebula G.C. 1180 surrounding the star ϵ Orionis is scarcely visible on the N_1 and N_2 photograph, but it is a prominent feature on that obtained with the ultra-violet light, and is fairly bright on the $H\beta$ plate. This differential action suggests to Professor Hartmann the presence of at least three gases in the Orion nebula, one of which emits the chief nebular radiations, the second hydrogen, and a third, which emits the radiation at λ 3727.

TAKING Moving Pictures Underground.—A series of interesting moving pictures were taken a short time ago by the American Mutoscope and Biograph Company in a section of the subway of the Interborough Rapid Transit Railroad of New York. A number of scenes were included of the stations when the passengers were leaving or boarding local trains, and the results were in every way successful. The light by which these photographs were taken was provided by a number of the Cooper-Hewitt lamps fixed on two flat cars in nine banks of eight lamps each. The lamp known as the "K" type, which is 45. in. long, was used, and the total candle-power of light amounted to 52,500 c.p. The banks of lamps were mounted diagonally across the foremost car, so that the light was thrown immediately in front of the camera, which was mounted on the next car. Each lamp was backed by a polished metal reflector, and the kicking coils by means of which the lamps are started are arranged underneath the frame. The manner of generating the current is worthy of note. A Westinghouse 40 horse-power 600-volt motor taking its current direct from the third rail was mounted on a truck and connected by belt to a 224-kw. Westinghouse 110-volt generator. The various auxiliary apparatus, such as volt-meters, rheostats, switches, etc., were conveniently mounted between the two machines. The work was entirely successful, and during the entire trip only one lamp went out. Some interesting photographs of the cameras and light installation are given in the current number of "The Electrical Engineer."

TRIED by the Camera.—Arthur Duffey, the American sprinter, when touring Australia and New Zealand in company with Shrubbs, was often suspected of "beating the pistol." This was because he was so quick off the mark. So in order (writes a Sydney correspondent of the "Dundee Advertiser") to satisfy disappointed competitors, the officials of the New South Wales Amateur Athletic Association made arrangements, quite unknown to Duffey, for a snapshot to be taken of the start of the 100 yards sprint. The result was convincing. The developed photograph shows the smoke of the pistol, with Duffey just springing off the mark, while the other contestants have not begun to rise from their stooping positions. The picture thus proves that Duffey did not start prematurely, although he wasted no time after the signal was given. It is moreover a striking proof of the perfection to which the American has brought the art of starting. The test was carried out so secretly that even the pressmen on the ground knew nothing of it, and the next morning's newspapers accused Duffey of anticipating the pistol. The fact has, indeed, only just leaked out.

COLOURING PRINTS.—Messrs. Peache and Co., makers of the "Cardium Colour Pats," write us, pointing out the suitability of these colours for painting prints, as described in the article on this branch of work, which concluded last week.

PHOTOGRAPHING Forts.—Dr. Franklin Clarke, an American medical man, has been arrested at Kingston (Jamaica), charged with taking photographs of the defences of Port Royal. Pictures of the principal forts were found on him.

SPY Mania at Plymouth.—While taking photographs from the top of Bull Point, near Plymouth, one day last week, a Bristol lay preacher was suddenly interrupted by an excited constable, who seized his camera, and, in spite of his protests, marched him off to the police station. When he arrived there he was closely questioned as to his antecedents and reasons for wishing to take photographs of Plymouth. The preacher's answers proving satisfactory, the authorities apologised for arresting him as a spy, and, in compensation for his detention, gave him permission to return to Bull Point on condition that he took only a snapshot of the bridge. A constable accompanied him to see that this condition was fulfilled.

"THE BROMIDE MONTHLY."—The familiar green-covered little booklet issued by the Rotary Photographic Company, of 12, New Union Street, Moorfields, now appears, with the addition of a subtitle "Photo Notes." The need of this more descriptive indication of the contents of the publication will be appreciated when it is seen that P.O.P., carbon, tissues, films, a process of tri-colour photography—all products of the Rotary Company—are dealt with in its pages, in addition to bromide work. A copy of "The Bromide Monthly and Photo Notes" will be sent free for 3d., or the annual subscription is 2s. 6d.

THE Northern Photographic Exhibition.—The two-thousandth visitor to the Northern Photographic Exhibition, at present being held in the Leeds City Art Gallery, has passed the turnstiles. His name is Mr. F. Gilbert Baker, of York, and he selected the guinea picture "Harvesting," by F. G. Issott. We are also informed by the hon. secretary that several inquiries have reached him from non-exhibitors for a copy of the exhibition catalogue, which, as we have previously mentioned, is a very fine production. These inquirers will be pleased to hear that 1s. 3d. will ensure them a copy by return of post from Mr. F. G. Issett, 62, Compton Road, Harehills, Leeds.

THE Altrincham Photographic Repairing Company, of Lower Grafton Street, Altrincham, have sent us particulars of the special

ilities they possess for the repair of anything and everything employed in photographic practice. For several years this firm has been making photographic specialties and sundries for the trade, and have now further extended their sphere of usefulness by organising a repairing department replete with the latest machinery and tools for dealing with shutters of every make and description, cameras, plate-holders, studio accessories, changing-boxes, printing frames, lens fittings, tripods, camera brass work, apparatus for amateur photography, etc. Photographers possessing damaged apparatus should write for particulars.

The New Zealand International Exhibition.—Particulars of a great international exhibition organised by the Government of New Zealand are to hand. It is to be held during the summer of 1906-7 (corresponding to our winter) at Christchurch, Canterbury. New Zealand, and all the nations of the world have been invited to participate. The object of the exhibition is educational, and it is intended to demonstrate the resources and possibilities of the colony as one of the world's food-producing factors, its vast mineral resources, and to draw attention to its splendid scenery, thermal wonders, and also the exceptional opportunities offered to sportsmen. Further, to bring under the notice of the more industrial nations of the world the great field the colony offers as an outlet for enterprise, and for the use and consumption of all manner of up-to-date appliances, manufactures, etc.

The Salon prospectus of the Photographic Society of India has been sent us. It is a striking little booklet, and contains particulars of the salon to be held from January 15 to 31, 1906, at the Club Rooms, 40, Chowringhee, Calcutta. The exhibition is conducted to work by the members of the society and amateur photographers resident in British India.

The September number of "The Optical Lantern and Cinematograph Journal" will be enlarged. New and important features will be introduced, but the price (3d. monthly) will remain the same.

A well-illustrated and brightly-written little guide to Ryde, Isle of Wight, has been sent us. The photographs from which the half-tone illustrations have been made are by Matthews and Son, photographers, of Ryde, and they give an excellent idea of the extent and attractions of this bracing watering-place. Any of our readers contemplating a holiday in the Garden Isle should apply to the secretary of the "Ryde Association for Advertising the Town and District," 33, St. John Street, Ryde, I.W., for a copy of the book.

Merk's Annual Report for 1904 reaches us from 16, Jewry Street, London, E.C., and we are glad to find it produced on the broad lines of its seventeen predecessors. Merk's Report, let it be said for the benefit of those who are not acquainted with it, is a thoroughly abstract of progress in therapeutics, and contains a brief account, with a reference to the original source, of every notable new fact in the application of drugs, whether these be the special products of the great Darmstadt firm, or an everyday preparation. The Report runs to 250 pages, and is sent free to medical men and others.

We hear from Bournemouth that Captain Day, V.D., of the 6th B.H.R. was recently entertained at a complimentary dinner at Hôtel Métropole, when his thirty-six years' service as a member of the Citizens' Army was suitably recognised. Mr. Day is a well-known photographer and an old subscriber to the B. J. An article on pictorial work appeared in the "Studio" recently.

The Sunderland Photographic Association will hold their second exhibition March 19 to 24. Further particulars will be announced later. W. E. Kieffer is the hon. sec., and his address is Stirling Street, Sunderland.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
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PHOTOGRAPHS REGISTERED:—

- E. Thompson, 19, Hounsfeld Road, Sheffield, Yorkshire. *Photograph of the King and Queen with the Marquess of Londonderry in Carriage at Sheffield, July 12, 1905.*
- T. Dann, 88A, Brighton Road, Redhill, Surrey. *Photograph of Tunnell Road, Reigate, A Peep at Reigate Priory, Batts Hill, Redhill, Reigate Castle Gateway Philanthropic Lane, Redhill, Church Walk, Reigate.*
- J. Bailey, 73, Shirley Road, Southampton. *Photograph of Capt. Chas. Barr, Defender of America Cup, and Winner of the Kaiser's Cup, 1905.*
- A. Simmons, 253, Westminster Bridge Road, London, S.E. *Two Photographs of Capt. W. F. McCann and Mr. W. H. Philp.*
- E. L. Pick, Earncliffe, Blundellands, Liverpool. *Two Photographs of S.S. "Irrawaddy" on the Rocks at the "Stack," Caldy-Man.*
- W. Brown, 9, Gilmour Street, Paisley. *Two Photographs of the Rev. A. G. Fleming.*
- H. Comer, Oxford Street, Oakengates, Shropshire. *Photograph of the Kangaroo Shot on the Wrekin on July 19, 1905.*

COPYRIGHT.—1. A party engaged a furnished house for a month; is it right for me to photograph the house and party in front without the owner's permission? 2. If I take a view and copy-right the negative, could another photographer take same view from same spot, and sell the copies?—W. H. R.

1. Certainly you can do so. 2. You cannot prevent another photographer from making and using a negative of the same scene.

A. J. HARRIS.—For France: "Photo-Revue, 118, Rue d'Assas, Paris. For Germany: "Photographische Chronik," Wilhelm Knapp, Halle a/S Saale, Germany.

N. BARRY.—"A." In our next.

WORKING UP.—My employment is to "work up" the negatives in weak places, such as putting in detail in shadows, highlights, strengthening, etc. I am familiar with using matt-varnish, and rubbing on blacklead to keep weak parts back, and reducing too dense portions with spirit; but 1. I should be glad to know if there is anything else which can be done. I have been told that ether is used for some purpose, but do not know what. Can you tell me this? 2. Also, in looking over some negatives done by others, I see some of the skies matt-varnished and blacklead to a density which I can by no means attain in the same way. Where there are many trees in a negative requiring blocking out, it is made solid with opaque to an inch or so of the foliage and then varnished and worked on with blacklead. The lead is put on so densely that the line where the opaque ends does not show, and then is softened down as it reaches the foliage. This gets a much softer effect than going round the tree tops with opaque. I have tried mixing the lead with gum, but this does not get the same effect either. The only way I know of is to rub on the lead as a powder, and in this way I cannot get it nearly dense enough? 3. Also can you tell me of any other liquid to be used for writing names on negatives than Indian ink; and 4. what sort of pen I should use? If you can help me in these matters, or with any

other hints I shall be very much favoured, as the work is new to me.—I. A.

1. Use tripoli powder with the spirit, which should be rectified (98 per cent., i.e., B. P. quality), or absolute alcohol. Ether can be used, but is inferior to rectified spirit. 2. First varnish the negative with collodion, and work over parts required with best electrotypers' plumbago applied on cotton wool. Then varnish with the following, viz.—seed lac, 2 oz.; sandrac, 2 oz.; oil of lavender, $\frac{1}{2}$ oz.; castor oil, 1 oz.; alcohol, 40 oz. Digest together. Allow to stand, then decant, and filter. Apply hot, bake well, and when cold matt the surface by applying powdered resin with gentle friction. Electrotypers' plumbago can then be applied with cotton wool (or preferably by means of an instrument called a tint stump) of such a density as to give complete opacity if desired, providing the sky itself is fairly dense to begin with. 3. Indian red, suitably diluted with water, or "Photo-pake" answers equally as well or better than Indian ink. 4. A fine red sable brush should be used for writing names on negatives. You will get a good deal of information on this kind of work from "Retouching," by Arthur Whiting. 1s.

A QUESTION OF NOTICE.—I am an assistant, working seven days a week and paid weekly on Saturdays. My employer on Monday gave me notice to leave, not specifying when. Can you inform me if the notice takes effect as from Saturday next, or am I bound to leave next Saturday.—ASSISTANT

You can claim a full seven days' notice, commencing from any day. That is, you can claim wages up to Monday next.

FLASHLIGHT.—I should be greatly obliged if you could give me any information on the construction of a flash or other artificial light for outdoor work, head and shoulders on victoria size ferrotype dry plates. I have no gas or electricity available, and want something to use when it is getting dusk.—W. ELLIOTT.

Any good blow-through flash lamp burning pure magnesium powder will answer your purpose. The Todd-Forrett lamp is a good example. It is obtainable from most dealers, and, in any case, a lamp of this sort will give more satisfaction than a home-made one. If it is desired to burn flash mixture, a lamp of the Maloni type or the "Tress" flash lamp will be found efficient. See our advertisement pages.

PHOTOGRAPHY IN SWITZERLAND.—Could you kindly inform me if it would be advisable on a holiday tour in Switzerland, to use isochromatic plates with a screen; and if the light there is much faster than in England? And (2) could you tell me of a good iso-flat-film; and one preferably that could be used for single transfer carbon printing?—SALVEPT

1. If Alpine photography is intended the light will be found appreciably better than in England. In the valley and on the lakes, however, similar conditions will apply as for exposure in this country. Isochromatic plates and a screen will, of course, give a more correct rendering of a subject in which snow, clouds, and dark green foliage predominate; but for snapshot work in the towns and villages a good rapid ordinary (non-iso) plate will be useful. 2. Kodak, Ltd., and Ilford, Ltd., both issue a good iso flat film. That of the former is the so-called "Kodoid" plate, that of the latter a stiff celluloid film, and there are several others on the market.

T. HARRIS.—You have misread our answer, the ammonium chloride is not washed out. When you have mixed the emulsion as we gave it, it is coated without any washing just as it is. It is neither pressed through canvas nor scored with a fork.

RETOUCHING (M. A.).—1. The quality of the retouching is not very good, but could be improved by your taking lessons. 2. The print is a very good example of carbon work.

RETOUCHING (Ambitious).—1. The preservation of the likeness on your best point, but the touch is mean, too insignificant and minutely stippled for such a subject, and your general effect is hard and unsympathetic. You also work too horizontally across the face—not allowing for the natural curves and undulations of the features. This means defective modelling which you should closely look to and improve upon. 2. As a general assistant you might ask from 30s. to 35s. per week, but it is difficult to quote probable salaries as we are not the employers. 3. Making yourself proficient in B. and W. finishing would greatly increase your value, and all operators and retouchers might well make this a side study, instead of sitting on the fence contented with their present knowledge, especially when competition is so keen and firms so exacting.

MOUNTING BROMIDE PRINTS.—I should be very much obliged for any hints you can give me re the mounting of bromide prints. I soak them for a few minutes, and lay them down in a pile on glass, blot off superfluous moisture, and apply starch paste, then lay them on mount and rub down under blotting paper. I find, however, that the prints are very liable to damage, from sticking to the blotting, which brings away pieces of the film. The hot weather is, no doubt, answerable for some of the trouble, although the same thing occurs, to some extent, at all times. I may add that I use alum in the fixing bath during this hot weather. Can you help me?—SIGMA.

Why not mount them dry? It is not only easier, but cockling of the mount is prevented. After washing, blot off the superfluous water with blotting paper and lay out to dry face upwards, or dry quickly by the aid of methylated spirit. When the prints are dry straighten them out by passing under the edge of a straight ruler and trim them. They can now be mounted by smearing a small quantity of mountant containing little moisture, such as Higgins, over the backs, and pressing into contact with the mount (which has previously been marked with pin-pricks exactly where print is to be placed). The mounted prints can now be placed under pressure, in a copying press, for instance, and will come out perfectly flat. An alternative method, much advocated by pictorial workers, and very suitable for many subjects, is to apply a very little strong adhesive, such as Seccotine, to the back of the print at the top edge only, or even at the two top corners. This is sufficient to firmly hold the print in position, and the fact that it is not stuck down all over is not regarded as detrimental to its appearance.

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EX CATHEDRA.

What is Carbon Surface?

Papers are now on the market prepared with silver salts, the results with which closely resemble carbon pictures or possess a "carbon" surface. One with a hypercritical turn of mind might well be inclined to ask the above query. What is a carbon surface? As a matter of fact it may be anything between that of the roughest of rough drawing papers, and that of the highest "enamelled" silver prints. If an ordinary carbon print be developed on a very rough drawing paper it will have the surface and texture of that paper. If on an ordinary surface drawing paper it will possess the surface of that paper. On an ordinary matt paper it will have a more or less matt surface, and if produced on the usual single transfer paper it will have a semi-glossy appearance. We have here been speaking of the single transfer method of working the carbon process, but turning now to double transfer, if the picture be produced on a matt surface—say ground opal glass—which, by the way, is now so largely used for the purpose—we get in the finished picture a matt surface; and if the glass is previously coated with collodion a rather less matt picture. If instead of employing a ground glass as the temporary support we take the ordinary flexible support of commerce we get a surface very similar to that of albumen paper, and it is this surface which is what is usually understood to be the typical "carbon surface." If the picture be developed on plain glass, previously coated with collodion, and then transferred in the usual way, it will have a surface equal to that of a P.O.P. print that has been squeezed on to a ferrotype plate and stripped off. But if prior to the stripping, and while the print is still moist, one or two thicknesses of double transfer paper be squeezed upon it and allowed to dry before stripping, à la Lambert's "chromatype" process, we get a surface equalling the

highest enamelled silver print. Indeed, with those who are *au fait* with the working of the carbon process, this is the simplest way of all of producing highly enamelled pictures. Seeing the great variety of surfaces there is in the carbon process, the query at the heading of this paragraph is not so very hypercritical after all. It is certainly a high compliment to carbon that we are witnessing the production of silver papers yielding prints which closely imitate the peculiarly subtle quality which characterises a carbon print.

Process Blocks.

We have often called attention to the opportunities which arise for the professional photographer to turn to his own benefit the increasing use of the half-tone block in commercial life. It may be taken for granted that the final destination of a very large proportion of work done away from the studio is the printed page, and there is no reason why the photographer should not contract for the whole job while he is about it. Photographs of a factory, of manufactured articles, of an hotel, or a man of business in his office are wanted in almost every case for circular or catalogue purposes, to which final form the half-tone block is the natural, because the cheapest, route. Of course, no one will counsel a photographer to add a photo-engraving shop to his establishment, but there are photo-engravers who make a specialty of photographers' orders, and place them in a position to secure this class of business.

Resittings.

Referring to an "Ex-Cathedra" note last week, a correspondent writes asking what is the London rule with regard to the number of resittings given before an extra charge is made for them? As the query is one that is not infrequently put to us we deal with it here instead of in the usual "Answers" column. Our correspondent, in effect, complains that sometimes customers are taken three or four times, allege the portraits are not good, but fail to return the unfixed proofs. He suspects the prints have been toned and finished by one of the family who he knows is an amateur photographer. In reply to his query, and others we at times receive, we may say there is no set rule with London photographers on the subject. Most photographers are anxious to give satisfaction to their customers with a view to further business. If the first sitting is not satisfactory, although the photographs may be good, they are pleased to give a second, or even a third; but, of course, there is a limit to all things. One thing might be enforced in the case of some sitters, namely, that all proofs whether toned or not must be returned, or paid for at the price of finished pictures, before the resitting can be given. This would ensure the return of the proofs. If the proofs were branded in the way we suggested last week, they could not be utilised

in the manner the correspondent suspects, and, as we have said, could give no possible offence to the customer. If the sitting is not paid for at the time and the proofs are kept, the customer can be sued in the County Court for their value as finished pictures. We have seen on some reputable photographers' prospectuses such words as "satisfaction guaranteed." With this the photographer places himself in a somewhat awkward position with regard to captious or unreasonable sitters. It implies that he must retake the portrait as many times as the sitter desires until he or she is satisfied with it, or he cannot recover payment for it. We have always looked upon these words as being quite a mistake on a photographer's prospectus.

Applied Knowledge.

There is a wonderful difference between the work of the man who is apt to apply his knowledge and the man who simply works by rule of thumb, and according to some note or hand-book he may have for reference. Let us recall a couple of instances of what we mean. The first is the case of an experienced enlarger and carbon worker, accustomed to the production of enlarged negatives by daylight in the camera. Circumstances arose in which it was necessary for him to use an artificial light enlarger, focussing on a white surface and fastening the plate in position with drawing pins on the easel. Plate after plate was exposed, and found foggy and flat, and the method of working was condemned as useless. A moment's reflection, a moment's comparison with ordinary dry plate conditions would have revealed the source of failure. Either the plate should have been backed, or the easel should have been covered with a black material, the focussing being done on a white card easily removed. The explanation is so simple that the difficulty appears ridiculous. There was a lack of fertility of resource, in a word a lack of thought. The second instance was that of an experienced worker, who, in developing with pyro-ammonia a plate in the dark room, noticed almost as soon as the developer was poured over the plate inky patches in the white porcelain dish. A second or two of thought and out went the developer and the plate was flooded with water. The thoughtful worker had applied his knowledge at once. Ferrous oxalate developer had been used in the room, and had been splashed into the dish. The pyro with the ferrous oxalate at once produced ink. We do not remember how it was the dish had not been washed, but we give the incident as we witnessed it in the worker's dark room.

Tracing Defects.

It is, of course, much more difficult to trace the reason of defects and failures when these are brought away from the place of production. A negative or batch of prints sent to us for diagnosis may show some defect which could be produced in many ways. Only a day or two ago some quarter plates shown to us possessed curious markings which at first sight looked like melting of the film due to the heated condition of the dark room atmosphere. On careful inspection it was found that this was not the cause. Examination with a glass suggested that the plates had been pressed together and the gelatine squashed. This, on inquiry, was found not to have occurred. Then it was ascertained that the plates had been placed after development in an alum bath and with a very hurried swirl into an acid fixing bath. This appeared to be the cause of the markings, though without making a number of tests with the same plates and solutions it is not possible to pronounce definitely. We recall the case of a firm of plate-makers, one of whose clients got mysterious markings on his negatives. A

chemist from the firm went down, and with fresh plates got the same markings. Plates developed at the factory showed no marks. It was eventually found that the warm solution of sodium sulphite and citric acid was poured into the pyro bottles, and on returning the then pyro solution to the stock bottle, the wax employed for luting in the pyro corks was softened, and carried into the stock bottle and this wax or grease was the cause of the trouble.

The Celluloid Hair-comb.

In another column is reported still another case in which the celluloid hair-comb has proved disastrous to its feminine wearer. The circumstances are almost exactly those of one of the German incidents of the same character which were mentioned in our pages some months ago. The lady, wearing the comb half embedded in her hair, was kneeling before the fire, when the comb caught fire and caused damage, assessed by a jury at £50. As we pointed out in connection with the previous cases, it is remarkable that celluloid accidents should be practically limited to hair-combs. Despite the enormous use which is made of celluloid in photography scarcely a single instance of an accident caused by it is known, and, indeed, in the case of a roll film the double coating of gelatine is a protection against accidental ignition.

A South African Exhibition.

Particulars to hand from South Africa tell us that great preparations are in progress for holding an International Photographic Exhibition at Cape Town in February next, and the Cape Town Photographic Society will spare no efforts or expense in making it a big success. Last year their exhibition was a notable one, and spoke volumes for the enthusiasm of our colonial friends. Now that the country is getting settled into a state of peaceful prosperity after the strenuous times of war, great things may be expected for the exhibition of 1906. The School of Art housed last year's show, and although the rooms were large and suitable, the exhibits were crowded for want of space, and the general effect suffered accordingly. The New City Hall has therefore been secured for next year, and three times the amount of space will be available, while a couple more large rooms can be added if necessary; all the space being thoroughly well lighted, both for day and evening work. The society is working in the right spirit of altruism, and with a loftiness of purpose as characteristic of pioneers as it is unfortunately conspicuous by its absence in most of the photographic associations of this country. The executive of the Cape Town Society intend their exhibition to be a big success, not financially, because they have not the population to draw on for an audience, and all exhibitions of every description held in the colony have been financial failures. With the certainty therefore of a big deficit in view this band of workers are prepared to dip their hands in their pockets for the furtherance of their favourite art, and for the sake of the educational benefits that will undoubtedly result from the opportunity of seeing good work from different parts of the world. What English society would venture to this extent? The conditions are different certainly, but still the right spirit is needed before an undertaking of this sort can be contemplated, and we wish the Cape Town Society and its exhibition all the success they deserve.

Picture Postcards of Convicts.

During the past week complaints and interviews have been published in the daily papers on the subject of the photographing of convicts in English penal establishments, for

the purpose of reproduction as picture postcards, and on Monday attention was called to the matter in the House of Commons. The entire question appears to be causing considerable perturbation in the minds of more than one correspondent. A writer to the "Daily Mail" asks, in reference to some of these snapshots of the convicts at work, taken at close range:—"1. Why do the authorities allow such photographs to be taken? 2. Why are shopkeepers allowed to publicly display photographs of men who are already paying the full penalty of their crimes? 3. Why do the Post Office authorities permit cards bearing what are clearly "improper" pictures to be sent through the post?" The public generally holds the comfortable belief that the identity of these men is completely lost from the moment they cross the threshold of prison, and that their doings are kept as secret as stringently enforced rules can make them. Investigation on the part of the "Daily News," however, dispels this belief, in spite of a communication from the Governor of Dartmoor Prison (where the pictures were taken), who states that "every precaution is taken against photographing convicts," and that he does not believe the statement that picture postcards of the men at work are on sale. An interview with the heads of the Campbell-Grey firm of Cheapside, who have issued "interiors" and "working scenes" of every important prison in the kingdom, discloses the fact that there is practically no restriction, except that photographers are precluded from obtaining special posings or groupings. But that condition is set forth in the permit, and beyond seeing that it is not infringed the governor of a prison is practically powerless to interfere. The whole thing rests with the Prison Commissioners, and they insert a further condition that proof sets of pictures shall be submitted before printing any series. In due course the proofs come back marked either "These pictures may be published" or "These pictures must not be published."

Convicts and the Camera.

The other side of the question is shown when we hear that not only do the convicts enjoy the operation of being photographed, but that in many cases the great difficulty has been to keep prisoners' faces "out of the camera." There is a clearly understood rule in all prisons that when photographers appear, no convict is required to remain at work, or even in his gang. Probably no man with a sense of shame or self-respect would care to appear in a picture which he knew would be published broadcast, but that a certain amount of unauthorised snap-shooting of the men at work, entering and leaving the prison and quarries, etc., is undoubtedly done is evidenced by numerous correspondents resident in the vicinity of the more notorious penal "castles," who have sent specimens of photographs taken "under the very eyes" of the chief officials. From a purely social point the question to determine is whether the publication of such photographs is in any form desirable. A leading sociologist sums up the situation in the "Daily News" when he says: "The present-day rage is to get to know what is done everywhere. A snapshotter would like to get in at a Cabinet Council, and most people concerned with photo work would pay big sums for a lot of the impossibles; but it is simply absurd to talk about infringing privacy or hurting these people in convict prisons by photographing them."

The Rotary Photographic Social Club.

On Saturday last another of those interesting functions in the progress of the English photographic trade was performed at Yiewsley, West Drayton, by the directors of the Rotary Photographic Company. The

tendency in these democratic times is for the employer to come into close touch with the employee, and the gift of a well-found social club to the workers in this flourishing concern amply demonstrates the policy of mutual give-and-take voiced by Mr. Bealtz, the chairman. The company has grown in England, from very small beginnings five years ago, to an extremely prominent organisation with over 300 employees, and there is no doubt that in a firm of this sort as much of its success depends on the whole-hearted support given by the employees as on the exercise of abilities necessary for the work in hand. The policy of the directors, therefore, has been to show that the interests of employer and employed are identical, and Saturday's function will go far to cement this feeling.

ORTHOCHROMATIC RATIOS OF PLATES.

THE letter which appeared under the above title in our issue of last week is not quite so explicit as one would wish, but as it calls attention to a subject which is becoming of increasing importance, we take the opportunity to answer what we imagine to be the objections to the system adopted.

Dealing first with the standard light, it is obvious that the nearer this latter can approach daylight in spectral composition, the more valuable will be the numbers obtained, because the conditions more nearly coincide with those of practical work. In their original paper dealing with the "screened acetylene light" Messrs. Mees and Sheppard state that it is approximately diffused daylight, and that plates tested by this light and daylight gave identical inertias or the same speed. The sole purpose of the "screening" is to correct the preponderance of red, yellow, and green in the acetylene light, and if this were not done a totally erroneous reading would be obtained, in proof of which we may use the *reductio ad absurdum* argument, and state that the readings obtained on ordinary and colour-sensitive plates by the so-called monochromatic sodium light would then be the true speeds of the plates.

The method adopted by Mr. Kenneth Mees is that proposed by Dr. Eder, and we must confess that we cannot see how our correspondent can support his contention that "this is not anything like the real value of their relative sensitiveness to blue and yellow light as transmitted by these screens."

We reproduce herewith the two diagrams given by Dr. Eder of the absorption curves of these filters, the wave lengths of light being abscissae, and the extinction coefficients being drawn as ordinates.

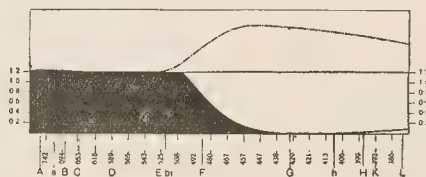


Fig. 1.

Fig. 1 shows the absorption of the blue filter, naturally represented by black, and above is shown by the dotted curve the spectrum sensitiveness of an ordinary plate to sunlight, a prismatic spectrograph being used. If now the dotted curve be folded down over the absorption curve of the filter, there will be found almost complete coincidence.

Fig. 2 shows the absorption of the yellow filter,

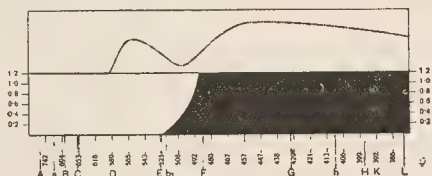


Fig. 2.

and above is the characteristic curve for an erythrosine sensitised plate. It will be seen that here also the absorption of the yellow filter coincides very closely with the blue and violet sensitiveness of the plate—that is, with its “ordinary” sensitiveness—and it transmits all light from E practically undiminished.

To put the matter very baldly, Eder’s blue screen determines the “ordinary” sensitiveness of the plate; that is, it determines the sensitiveness of the emulsion were it not orthochromatised, and the yellow filter tells us what has been added on to this.

We are not quite clear as to what our correspondent means by “the relative brilliancy (regardless of colour) of the light transmitted by these two liquid filters.” If

he refers to the absorption or extinction co-efficients of the filters, then Dr. Eder has given these (*Beiträge zur Photochemie und Spectralanalyse III. Abtheilung, p. 127*) for every eight wave lengths, to which we must refer him for we cannot see the general practical value of the and therefore refrain from reprinting them.

If, however, our correspondent refers to visual luminosity—and we gather that he does mean this from his penultimate paragraph—the proposition is absurd. To obtain equal brilliancy we must either enormously reduce the yellow or enormously exalt the blue, and having done this, we should have to correct the results by a complicated calculation to bring the factors obtained into line with the conditions of practical work. Whereas now, knowing,

the ratio of $\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$ any practical worker who

also knows the ratio of $\frac{\text{visual luminosity}}{\text{photographic luminosity}}$ can at once

adjust a colour filter to give his ideal negative. Without being unduly egotistical we may safely claim that we have been the first of any photographic journal to give actual test results by a generally accepted system and until some one will settle once for all the debatable point of colour luminosity versus colour contrast we are convinced that the system we have adopted of telling in definite terms what is added to the ordinary plate by “orthochromatising” is the most satisfactory.

ON THE DISPLAY OF PICTURES.

A REALLY good indoor exhibition is essential to photographers of all grades. Showcases or window displays should induce people to look round and inquire prices, but however good they are, they will be quite wasted unless the showroom is tidy. Specimens should always look fresh, and the premises smart, if business is to be persuaded.

Decorating Materials.

The reception and exhibition rooms (frequently one and the same) should be decorated in the most tasteful manner one’s banking account will allow, and as the last requisite is somewhat elastic, nothing but general details can be given. The modern method of using deep frieze, picture rail, and self-coloured wall covering makes an excellent background for pictures. When it can, the used art-canvas is the material par excellence for walls, on account of its perfect matte surface. Any large area of wall space can be broken up by using stained wood uprights. A dark green paper or canvas looks well, but we consider dark brown paper as satisfactory as anything. The colour harmonises perfectly with oak moulding, and does not clash with gilt frames.

Specimens for the Reception-room.

As for specimens, every gallery should, of course, have a few at least of its best pictures enlarged for the walls, the process depending a great deal on the class of people catered for. With a good receptionist, money spent on these specimens will soon bring a good return. A beautiful face or attractive pose framed up in good style pulls orders. If you cannot do better, bromides will pass, but good carbons look best, and add distinction to the establishment. We like good, rough carbon prints—sepia or red—on etching papers, but, unfortunately, the great Public (capital P) will not look at them, and as all your efforts are towards one end—that is, to please them—their peculiarly stubborn likes and dislikes must be studied. Even yet the great majority will not look at anything rougher than the most delicate matte. Their highest appreciation is showered on the beautiful smooth things on opal that are “so clear” and show “that beautiful lace.”

Processes and the Sitter.

To make a slight detour, how on earth can the great majority of professionals be expected to work up to art standards when their clientèle insist on having nothing but what they call clearness? How, again, can one show skin texture when the sitter demands to be retouched out of all recognition? The question of tone values, too. Why, if you chance to show them good tonality for concentrated indoor lighting, one immediately hears the remark that they are not niggers. All this is, perhaps, beside the point, but it is no fancy picture simply results of reception-room experience with well-educated and, presumably, artistic customers, and is introduced merely to point out the necessity of not going too high for your public but show them what they want, and let art go hang.

The Finishing of Specimens.

Whatever process the specimens are executed in, the finish must be of the best. If you put the work out to tradelargers it is just as well to tell them exactly what you want. Many photographers of the cheaper class have peculiar ideas on working up, and think gummed-up shadows and Chinese-white high-lights in the best of taste. This being the case, it is only natural that at times photographers who know better get this style of work sent to them, and blame the enlargers for what indirectly is not their fault.

Mounts and Frames.

The method of mounting and framing to be selected requires care and consideration. Usually there are several factors to be taken into account, but if the walls have been treated in a subdued fashion, in professional work only the print itself need be consulted. Warm-toned prints are easier to frame effectively than cold plats, or bromides, and may be framed with mounts or close up. The latter prints should usually be mounted. For most work of any size, framing close up is the handiest, especially if the picture happens to be a large head. Full lengths, perhaps, are better with mounts.

As a general rule, we prefer the mount to harmonise with the print, and usually with the frame also. Especially is this

the case with black and white prints, which should only be mounted on white or black or any of the numerous shades of grey between. We consider any *positive* colour near a grey tint an abomination. Warm-toned prints may harmonise or contrast, but usually mounting in harmony is to be recommended. Framing is a question best left to the discretion of the photographer. Mouldings may be divided into oaks, gilt, and composition. The latter description are not good, and should be avoided. Oaks are the most generally useful, as they can be stained any colour and made to suit any prints.

Gilt Frames.

Gilt frames are still asked for at times, and even yet many people consider them the height of taste. Were it not for this, we should recommend them to be banished from the showroom. The advantages of oak over gold are not only in the question of appearance, but also in cost and utility. Whereas an oak frame improves with age, gilt ones soon deteriorate and look tacky.

With a little tact one can usually switch a customer off these gaudy and photograph-killing frames, but sometimes gentle persuasion is of no avail, so the customer must be unmoved, and it behoves the photographer to do so with as little damage to his own work as possible. Now, although old leaf is death to most monochrome work, there are a few things it will suit fairly well, and those few things are:—For framing close up, sepia carbon on opal; for framing with mount, any carbon but black. The mount in this last case must be cream or vellum, to carry out colour of frame. Framing close up in gilt is particularly difficult, and after many experiments we think nothing but a sepia print will do (preferably a large head, and printed solid, not vignette). The smooth surface of the opal appears to agree with the superne character of the frame.

The actual arrangement on wall depends to a great extent on the space at one's disposal.

Arrangement of Wall Specimens

The hanging of the frames on the wall should receive the greatest attention. As only one room is to be used, and that, presumably, is papered in an unobtrusive and neutral fashion,

the wall paper, as mentioned before, need not be studied.

The frames, mounting, and prints on each wall should be well varied in colour, shapes, and texture, but not so much as to clash with one another. Avoid symmetrical arrangements, as a rule. At times a symmetrical whole with unsymmetrical parts is not bad. Do not get the tops and bottoms of a line of pictures in a straight line; neither, in most cases, should the sides of two or more frames form a straight line.

Avoid Overcrowding.

This is advice all professionals should take to heart. All the best reception-rooms I have been into lately have only three or four beautiful and, in many cases, marvellous specimens on each wall. The effect is most artistic, and gives one a very different idea to that of chaos so often associated with the usual professional display. Remember, too, that although variety is required, it should be variety in unity. Positive colours with positive colours, strong prints with dark backgrounds, with other strong points. Not a red-chalk cheek by jowl with a weak platinotype, or a "Rembrandt" effect next to a print of "sketchy" handling with a white ground.

Concentrate the Interest.

If you have large walls, then it is as well to concentrate attention on each lot of prints by dividing the walls into large panels, by using hangings of art silk or canvas, wood uprights, or stencil designs, between each section.

If you go in for gilt frames, keep them separate and strictly to themselves. Nothing looks worse than oak and gold frames together. It is better to sky large heads and big pictures, keeping the small, delicate stuff on the line. Whenever possible, have the light in picture coming from same direction as the room is lighted from. The actual hanging with the modern picture-rail and hooks is easy. When nails are to be used, use "French" nails for the light frames, as they damage the wall less than the brass-headed variety. These latter are, of course, used for heavy work. Large pictures, especially those on opal, should be wired up or fitted with screw plates. Cord and rings are safe enough usually. When used, get drab cord, or some similar to the colour of paper.

"PROVINCIAL PRO."

OLD-FASHIONED NOVELTIES.

THERE is very little that is new under the sun. I was recently in a small village in the Midlands, and the only photographer had a sign and samples of "Midgets—the latest novelty." No doubt they achieved his purpose; they would be something new to his customers, and they would bring business. Occasionally a man does introduce a new idea, or make a real advance in photography; but usually novelty means merely a slight change of fashion or the re-introduction of some method already well known to the profession.

For the Individual.

The average man is not primarily an altruist. He is in business, first of all, for his own ends, and the betterment of the profession at large is only a minor question with him. Indeed, there still lingers, I am sorry to say, that old feeling of jealousy, which looked on the man "over the way" as an interloper, and felt that success could only be achieved at his expense. This feeling is not as strong as it was, and it will more and more fade under the healthy influence of the P.P.A. But the old struggle will remain, and it behoves each individual to do his best for the promotion of his own business. And so, although old-fashioned novelties may not be a help to photographers at large, they may help many individuals who are looking for something to give business a flip during a quiet season. It may seem rather unnecessary to repeat what

all photographers ought to know; but it is a fact that many of them know very little indeed beyond the workings of their own studio.

A Case in Point.

During the same visit to the Midlands I had a long chat with a photographer, who complained bitterly of the tightness of things. When I left him it was his intention to introduce a novelty, which he had learned from me. And that novelty was, of all things, reversed or Russian vignettes! And now for the folly of the man. He subscribed to the JOURNAL, because his father had done so before him, but his magazines lay unopened on a shelf. From some he had split the wrappers, but there were many in just the condition that the postman had brought them. If he had read them week by week he might not have introduced reversed vignettes, but he would in a short time have come across at least a dozen ideas, any one of which would have met his needs.

A Few Ideas.

Just to show that I am not exaggerating, I will mention a few of the simplest ideas, such as any man may at once see for himself. Most of my readers will smile at them, but every one is an idea, old as the hills, at which some photographer has jumped when I have first mentioned it to him. First, there is the mirror; after a run of full face bust pictures,

interspersed with an occasional "Rembrandt," try a picture of a lady looking into a mirror, by which a side face and a full face (reflection) may be obtained. Then older still—older than photography itself—there is the silhouette. Silhouettes always attract when placed in a show case, but they do not bring much business, especially in a cheap trade. But "semi-silhouettes," in which a certain amount of light is reflected back on to the figure, are worth running as a temporary novelty. Transparencies are a novelty which seem strangely neglected, for there is nothing more beautiful in its softness and richness of gradation than a good transparency. Everybody knows, or should know, that a beautifully soft effect may be obtained in portraiture by placing a thin sheet of mica or celluloid between the negative and the paper during a part of the printing. But why need I refer more to these everyday affairs, when there are so many similar hints in the back numbers of this magazine?

The Novelty of Difference.

The time is passed when there were no mounts except bevelled edge ones, intended for insertion into albums. Thousands of photographs are made nowadays which never see the inside of an album. And so photographers have varied the style of their trimming and mounting in a way undreamed of twenty years ago. How often we are shown "the latest thing in mounts." Some new pattern is placed on the market almost every week, and the fashion varies from year to year. And the mounts are for all varieties of trimming. It may be a circle, or a long narrow oblong, or a pronounced oval. Almost anything, in short, except the old and somewhat too square sizes. In some businesses masks of various weird patterns have been successfully used. More than one worker has made a market for passepartouts, the glass being selected from discarded negatives, and the rough edge of it hidden by the neat binding strip. And yet there are some photographers who still stick to the old line mounts and sizes exclusively: If it were a matter of considerable capital outlay there would be some excuse for this, but a very few shillings will suffice for a good selection of mounts—and brains must do the rest.

Locality and Weather.

When we visit the seaside we are offered portraits—usually tintypes—of ourselves, with some local view, including surf and a lighthouse, as a background. The idea of specialising

is sometimes a good one. I know one photographer who does a large trade among the servants in large houses. Now, I would have thought that the servants would wish to be taken in their best clothes, but he knew better. His reception-room is filled with samples of pretty women in snowy aprons and caps. If the uniform is not reproduced too chalky it looks well in a picture, and gives a certain amount of dignity to a portrait which otherwise might be commonplace. And the girls come in their uniforms to be photographed. The photographer told me the idea did not go well with the men. It is a good idea for some places. I once saw a show case filled with portraits of police constables. Near a big racing centre photographs of unmistakable "horsey" men might attract; along the river a display of men and girls in boating attire might draw some holiday trade where the conventional show-case would pass unnoticed. There are possibilities, too, in suggestions of season. Who does not know the snow picture, for which nothing is required beyond an out-door costume, an umbrella, a little cotton wool, and some spatter.

The Cruz of the Question.

The whole question hinges on the personality of the photographer. There are men who cannot rise to the occasion. There are many round men in photographically square holes. Alas, that it is so! "The way out" might be pointed by an angel, but unless the man availed himself of the offered opportunity the direction would be useless. The man must get there on his own feet. There are studios in existence which seem to have no single reason for success, and until the man uses his brains and abilities they will continue to court failure. Capital is not money saved in the bank; it is energy set to work to achieve results. Money is merely a convenient form of exchange; and if the right man has it, he can make good use of it, but if he has not got it he does the best he can without it. The photographer who is waiting for something to turn up is wasting the capital of his own energy. It does not need cash to put a little life into a stagnant business. Cash will not furbish up the show-case or remove a faded specimen; but a few minutes' work will do so. And energy steadily applied will improve the whole building, and will improve the quality and variety of the work. For there is brain energy as well as muscular, and a little quiet thinking out of a thing will often point the way to results. ALEXANDER BRADFORD.

THE WEEK IN HISTORY.

From Wet to Dry Collodion.

TO-DAY fifty-one years ago G. R. Muirhead, of Glasgow, described his experiments on preserving the collodion-plate for a lengthened period between sensitising and exposure. In this work he had been anticipated by M. Gaudin, whose labours I have already referred to several times, but he was probably unaware of what Gaudin had done when he, on August 4, 1854, wrote to the "Journal of the Photographic Society":—"I have been making a few experiments on the collodion process, and have found light acts almost as energetically on a dry surface as on a wet, and that if a plate be washed well in water (after immersion in the silver bath) to remove all the free nitrate, and allowed to dry, it will remain unaltered for a lengthened period, provided it be kept from light or any deleterious gases, such as ammonia, etc. When wished a picture can be taken on this plate, but before development must be dipped in the silver bath, and a photograph will not develop without the presence of free nitrate of silver."

Gold Toning Sixty-five Years Ago

On August 10, 1840, a paper was communicated to the French Academy of Sciences, in which a gold toning bath was introduced

into photography. This took place on almost exactly the first birthday of the art, for Daguerre's process was made known only on August 20 of the previous year. M. H. Fizeau, who worked out this method of gilding daguerrotypes, may thus be truthfully described as the father of toning processes, and, unlike all later photographs as the daguerrotype was, the process which he devised survived for many years; in fact, the present combined bath is a variant of Fizeau's original hyposulphite of gold, which was not, however, endowed with fixing properties. His description of the preparation of the bath may interest my readers. My translation is from the "Comptes Rendus" of 1840:—"One gramme of gold chloride is dissolved in half a litre of pure water, and three grammes of hyposulphite in another half-litre. The gold solution is then poured, little by little, and with constant stirring, into that of the soda. The mixture is slightly yellowish at first, but soon becomes perfectly clear. It appears to contain a double hyposulphite of gold and soda, with some common salt, which takes no part in the process."

Before treating a picture with this gold salt the surface of the plate must be made perfectly clean, and any kind of grease

particular removed. It should, therefore, be washed with more than ordinary care, the following method giving the most uniform success: The two surfaces and the edges of the iodised plate are dusted, and a few drops of alcohol poured on the dusted side. As soon as the alcohol has wetted the whole surface the plate is plunged in a dish of water and then placed in a solution of hyposulphite. The solution should be replenished for each exposure, and should contain one part of salt in fifteen of water. After washing is done in the usual way, except that more than customary care is needed to exclude dust. The object of the alcohol is simply to allow of the water running evenly over the surface of the plate, thus avoiding stains. A plate having been washed with these precautions it is a very simple matter to treat it with the "sel d'or." It is placed on the iron threads

of the dark slide, and sufficient of the gold solution poured over it to cover the surface completely. Heat is then applied below from a lamp, and the picture is then seen to clear up and assume great vigour within a minute or two. When this effect is visible the liquid is poured off and the plate washed and dried.

By this process silver is dissolved, and gold is deposited on the silver and on the mercury. With very different results, however. The silver, which, by its peculiar surface, forms the shadows of the picture, assumes a brown colour from the thin film of gold which covers it, and so the shadows are intensified. The mercury, however, by its division into infinitely minute globules, forms the light, and, its brilliancy being increased by amalgamation with the gold, the high lights of the picture experience a remarkable intensification. HISTORIOUS.

PHOTOGRAPHY AND NATURE.

"The camera is mightier than the gun" is a modern-day aphorism that has been given us by the endeavours of a few earnest workers, who have probably done as much as all the pictorialists put together in indicating the present position of photography as an educational factor. We owe to the Keartons, Pike, Reid, Duncan, Snell, Kirk, Bentley, King, and others the knowledge that one can be an ardent sportsman, and yet not take life. The desire of the sportsman-naturalist photographer is not to kill, but to perpetuate. By the aid of one of the most wonderful of modern discoveries we are one and enabled to peer into the lives, habits, and circumstances of the humblest specimens of the Creator's handiwork who people the land, and can study at our leisure all there is to learn about them in a manner that would have been impossible twenty years ago, or less.

Three New Nature Books.

These thoughts have been inspired by a perusal of three books, recently published, that lie before us:—

"Home-life in Bird-land." By Oliver G. Pike. London: The Religious Tract Society. 6s.

"Wild Flowers, Month by Month. In their Natural Haunts." By Edward Step, F.L.S. London: F. Warne and Co. 6s.

"Wild Birds at Home." By Charles Kirk. London: Brimley Hanson and Ince, Ltd. 6d.

The Camera as an Illustrator.

Natural-history work with a camera forms an epoch not only in the photographic world, but in the art of illustrating as well. Previous to the advent of the naturalist photographer, "natural histories" and sportsmen's books were embellished with drawings more or less inaccurate. These to a great extent have now been superseded by photographs from life, while a number of nature books similar to those mentioned above have been called into existence by the mere force of circumstances. The increasing popularity of this interesting phase of photography is probably inducing every year a larger number of people to take up the use of the camera purely for their own sake. Mr. Pike has made for himself a name in the world of nature-photography second only to the Kearton Brothers, and in his latest book this enthusiastic naturalist, so amply endowed with the gift of patient observation and great skill in the difficult art of bird-photography, has given us in "Home Life in Bird-Land" a fascinating account of the results of his researches into the ways of his feathered friends. He betrays an unaffected delight in his work that is contagious, and his descriptions of the birds he knows well go hand in glove with the beautifully reproduced evidences of his skill and patience with which the volume is embellished.

Bird Land.

The whole of the country is "bird-land" to Mr. Pike, and whether it be on the mountain-top or on the marsh, it matters

not to him. In fruitful meadows, on cold bleak moors, over fresh-running streams in dense, darkened woods, or among the eternal snows of the great silent Alps has he met his feathered friends, and in his own way portrayed them and learnt to know their ways and habits, so that he is here able to describe them so delightfully.

The Bird-Photographer at Work.

The book teems with amusingly written accounts of the incidents and accidents that occur in the pursuit of bird photography. Mr. Pike, when stalking a watchful little grebe, tells us:—"As I sit in my tree-shelter a hundred little flies are around; and, in spite of a pipe of strong tobacco, they refuse to let me alone. They are biting my face and hands most vigorously, but this is just one of the little inconveniences a bird photographer has to bear. It is but one, however, for when I went to my camera a few minutes ago, I found a spider had commenced to build its interesting web in front of the lens." Again, when seeking for the home of the tufted duck in a large osier bed, the approach to which was a series of deep ditches full of black slime, the photographer, after long waiting in a cramped position, exposed a plate. Then, "when this was accomplished, one of those little incidents happened which, if they afflicted anyone but a bird photographer, might help to turn the hair grey; my slide in some way opened, and my plate was spoilt. At this point I heard a cry behind. My companion had slipped while jumping from one osier bed to another, and was clinging with hands and knees to the osier, which, gradually bending with his weight, was lowering him into the unpleasant black slush beneath."

The Sparrow.

Mr. Pike has a good word to say for the sparrow, and regards the little brown bird as a most misrepresented individual. He asks the question, "Is the sparrow a criminal?" and answers it very effectively in the negative. He decries the work of sparrow clubs in no unmeasured terms, and, with the true instinct of the naturalist, proves what he says about his little friend to be true, and asks us to respect him for the vast amount of good he does, to forgive him for his few destructive habits, and never grudge him a fair wage for genuine services rendered.

Some Practical Hints.

As regards the practical side of the work, our author describes in the last chapter his "bird-land" camera, which is of the long extension reflex type, with focal plane shutter and lens working at $f/4.5$. A telephoto attachment can be used with this occasionally, and with this outfit it is not necessary to get so close to the shy sitters. In photographing a bird the size of a rook one may even be twenty yards away and still secure a fair-sized portrait. Mr. Pike says:—"It is always better, I think, when photographing a sitting bird, to stop the lens down and give a

longer exposure, and I have also found, in the case of restless birds, that it is of advantage to have a shutter which makes a slight 'click' when open, for, however disposed the bird may be to move about, on hearing the opening of the shutter it will remain still to listen. Thus the shutter may be kept open as long as the bird stands still, or until the necessary exposure is given." Space will not permit of further extracts from this delightful book, which will be warmly welcomed, we have no doubt, not only by the special class of naturalists, but by all who love birds and their haunts.

Flower Photography.

A different type of nature photography is treated of by Mr. Step in Vol. 1 of his "Wild Flowers Month by Month," and although not so exciting or exacting as bird photography, is nevertheless quite as interesting, and, moreover, calls for an equal amount of skill and enthusiasm. And Mr. Step is an enthusiast. He revels in his descriptions of the beauties of the wild flowers he pictures so cleverly, and although the present volume only deals with the months of March, April, May, and June, he manages to fill 200 closely-printed pages with word pictures of the flora that blossoms during that period. In the chapter "April in the Lanes" he says:—"Dandelion in full beauty is the first thing to strike our attention here, one of the most beautiful flowers that grow; but alas! so common that few see its beauty. The incapacity for seeing beauty in common things is a great deprivation. If we could only get one of those purblind individuals to sit between us on this stone-heap and 'hold him with our glittering eye,' as did the Ancient Mariner with the wedding guest, we might in an hour's chat show him something of the perfect form and cunning workmanship, such as no artificer in the precious metal could excel, bestowed on this condemned plant. We would pluck one of these flower-stalks and show him how a slender column to support a massive capital may be contrived of little solid material, and yet be strong enough to bear the

strain at the top, to bend before the wind without breaking. We would show him how the beauty of the capital as a whole was not achieved by sacrificing beauty and exquisite finish in the parts whereof it is composed; and we would compel him to understand the marvel of that "clock" or "puff," and the important work it performs in a perfect manner."

The photo-botanist will find a plethora of good things between the covers of this book, the illustrations of which are as good as they are lavish. Not much in the way of practical hints for flower photography is given, but the value of photography to the botanist is acknowledged by the author at every turn. He suggests a stand camera and good lens for the work, as the possessor of a hand camera cannot hope to accomplish much in the direction of wild-flower photography. Comparatively long exposures are necessitated by the yellow, red, and green of his subjects, and by the dim light of woods. In the open, upon colonies of plants, the hand camera may be useful; but at close quarters, on the individual plant, it will rarely give good results. Orthochromatic plates are absolutely necessary, and a yellow screen of medium tint should be used. Altogether, this book can be regarded as opening up new ground for photographers, who will not fail to derive considerable instruction and pleasure from a careful perusal of its contents.

"Wild Birds at Home."

The third nature-book that we have to consider is unlike the other two, inasmuch as it is composed entirely of pictures, is much smaller in size, and costs but 6d. This last fact is, perhaps, more astonishing than the wonder that will be created on inspecting the really beautiful illustrations. These fully bear out the title of the book—"Wild Birds at Home"—and, as specimens of nature-photography and high-class printing, would be hard to beat. They are all by Charles Kirk, and some of them are very beautiful little pictures, apart from their undoubted value as nature-photographs.

ONE-PLATE COLOUR PHOTOGRAPHY.

HERR SCHINZEL describes, in the current number of the "Photographisches Wochenblatt," the following process for producing photographs in natural colours, which, he states, differs from all previous processes, in that separate component pictures are not required, but that with one plate a single exposure is made, and on this one plate the multi-coloured image is produced.

The plate is coated with a number of coloured gelatino-bromide films, which are separated by films of plain gelatine. The individual films are so coloured that a part of the incident light is absorbed in each film, and by the addition of suitable sensitisers the absorption of the coloured rays is made as perfect as possible. For example, in using three films, the top one will be coloured yellow or orange, and obviously be sensitised for the blue violet rays; the middle one will be coloured blue or blue-green, and be sensitised for reddish orange; whilst the bottom one will be coloured red and sensitised for yellowish green. If a plate thus prepared is exposed on any subject, a part of the rays will be absorbed by each film, and by development and fixing the corresponding component parts of the picture will be produced.*

The development of the polychromatic picture is founded on the catalytic property of metallic silver. If a developed and fixed plate is immersed in a 2 per cent. aqueous solution of hydrogen peroxide, this will be decomposed where there is metallic silver, and oxygen set free. If, now, such dyes have been chosen for colouring the gelatino-bromide films, that they, by oxidation, are easily converted into colourless compounds, they will be bleached out where there is metallic silver. It is easy to conceive that after the removal of the silver, coloured pictures will be obtained, which will be not complementary to, but according to, the colours of Nature.

Moreover, it is not essential that the oxidation products of the dyes should be colourless. It will be quite enough if the power of the pigments to stain the gelatine is destroyed by the oxidation, and that they become soluble in water. Hence it would be possible to use comparatively stable dyes, so that the coloured images would bleach with difficulty in sun or daylight.

The polychrome image can be printed from the plate on to a sheet of white paper, prepared in the same way, but the picture will appear less brilliant than when observed as a transparency.

As regards the practical working of the process, it should be noted that the gelatino-bromide of silver films must be "wasserecht" stained—that is to say, that the dyes must not be soluble in water—and that they must not be affected by development and fixation, or, if this the case, they must be reformed before the treatment with the peroxide. At the same time, any sensitisers that may be used which will not bleach, and whose colour does not agree with that of the films, can be removed.

The films of plain gelatine between the individual coloured films have the effect of preventing the action of the nascent oxygen developed in one film from acting on the others, and of confining the gas as far as possible to the requisite coloured film. For this last reason the top film is also coated with a transparent gelatine film.

It is advisable, before treating the gelatine with peroxide, to harden it, but not so that the diffusion of the peroxide solution is rendered too difficult. It is well known that peroxide has the property of dissolving metallic silver, and that the oxidation would be brought to a premature stop. This disadvantage is obviated by the addition of a small quantity of soda to the peroxide solution. As, however, many dyes are altered by the alkalinity of this solution, it is necessary to regenerate them by immersion in an acid solution

*The preparation of the plates here described naturally recalls the "three-colour plate" of Dr. Smith, of Zurich (see B.J.P., May 5, 1905).—Eds. B.J.P.

Briefly, the essential advantages of this process are that only one exposure is made, and the printable and more or less true-to-nature picture is produced on the negative plate. The preparation of the pictures is extremely simple, no more solutions are necessary than in the production of pictures on bromide paper—namely, developer, fixing, and instead of the toning bath the peroxide solution—for if the latter, when the oxidation process has continued long enough, is acidified, the solution of the silver is effected.

This method represents, therefore, a direct process of colour

photography suitable for instantaneous work, and one in which the printable image is produced on the original plate in body colours.

We learn that this process is patented in all civilised countries, and that further details are promised, which, we are sure, will be anxiously awaited. Nevertheless, it is well not to be over-sanguine in regard to the possibilities of such a process in practice. It seems that a composite plate such as that which Herr Schinzel proposes using is necessarily very slow, and instantaneous exposures will be possible only under the very best conditions.

PHOTOGRAPHS UPON COINS, SPOONS, AND PLATES.

That branch of the art of photography by which photographs are produced upon watch cases and dials, can be applied to many other articles for ornamental purposes. An excellent and very profitable business can be made by the production of these miniature photographs for souvenir and other purposes; a specialty might be made of this work to advantage in many places.

Souvenir Photography.

The cost of material is very small; still determination and carefulness in practice are the essential points to be attended to. The line of souvenir photography is almost unlimited, pictures upon the exteriors of glass bottomed tankards, upon the sides of china cups, china plates, the interiors of the bowls of spoons, and upon one side of silver coins, form only a few of the items that come under heading of souvenir work. Orders are sometimes given for as many as one hundred special prints upon silver quarters to be used as presents to guests and friends in connection with a silver wedding, the date upon the reverse side of the coin indicating the twenty-fifth year of married life, the souvenir being as pretty as it is novel. Just how this class of work is to be carried out successfully and in a thoroughly practical manner is described in an article by A. J. Jarman in the current number of "Wilson's."

Camera Accessories.

The author says:—In the first place, pictures of this kind are to be made by the carbon process, by the single transfer process. Of course in this case the negative must be made in reverse. To attempt this work by double transfer is almost impracticable, but by single transfer every operation is simplified and brought down to a simple and effective operation. It will be necessary to secure a small stock of material for general work, which must be kept on hand. If it is intended to carry on this class of business as a specialty, it will be necessary to procure a prism with attachment to the hood of the camera, this is to enable a reverse negative to be taken of the objects desired. A lens of the rectilinear type of about ten to fifteen inches focus is the best suited. The camera need not be larger than is necessary to take a $6\frac{1}{2} \times 8\frac{1}{2}$ plate, but it must possess considerable length of bellows, capable of extending to about three feet, and closing up to the smallest possible space.

When the prism is used the camera is placed at right angle to the object to be copied. The operator will soon become accustomed to the method of working. The plate holder or dark slide should be suitable for working the wet plate process, because such a holder enables either wet plates or dry plates to be used; in every case the shadows in the negative must be clean and clear, otherwise the print when developed upon the metal base will look too dull.

Chemicals to Order.

Materials required:—One pound of Heinrich's soft gelatine; salicylic acid, one ounce; strong ammonia, one pound; bichromate of potash, one pound; chrome alum, one pound; common alum (crystallized), one pound; carbonate of ammonia, half-pound; white granulated sugar, one pound; half a dozen wide-mouth bottles; one

pound of alkaline or crystalline lacquer; half a pound of thinner, one small frying oven, one small gas stove, a one-pound can of potash lye, half a dozen trays for developing and fixing—enamelled iron will do—in sizes from 4×5 to 10×12 , half a pound of glycerine, one six-inch squeegee, one yard of thin indiarubber cloth, one or two dozen pieces of carbon tissue 8×10 , two or three small glass funnels (6 to 16 ozs.), three glass graduates (2 oz., 4 oz., 16 oz.), one oatmeal kettle two pints (the capacity applies to the inner vessel).

Sensitising Formulæ.

This list, although long, is not expensive, five or six dollars will cover everything. Should it be desired to purchase the carbon tissue by the roll, the following colours will be found most suitable for the greatest bulk of the work: standard brown, engraving black, and portrait brown. The following solutions for sensitising will be found to work well.

No. 1.

Bichromate of potash (cp.).....	1 ounce.
Filtered water	25 ounces.
Strong ammonia	10 drops.

As soon as the crystals of bichromate are dissolved, filter into a clean, wide-mouth amber bottle.

No. 2.

Bichromate of potash (cp.).....	1 ounce.
Carbonate of ammonia	20 grains.
Filtered water	25 ounces.

As soon as the crystals are completely dissolved the following must be added:—

Salicylic acid	20 grains.
Hot water	2 ounces.
Glycerine	15 drops.

The solutions must be well mixed by the use of a strip of clean glass, and filtered as in the case of No. 1.

Working from Ordinary Photographs.

Carbon tissue sensitised in this solution will keep longer than if sensitised in No. 1. In every other respect they act the same. To produce the carbon print upon coins proceed as follows:—Having obtained the photographs to be copied, which should be of equal size, and printed upon the same kind of paper or the result will not be satisfactory, cut each print to suitable sized ellipse, draw a circle upon a sheet of white cardboard, and arrange the two prints within the circle, the tops inclining towards each other. A wreath of leaves with the flower forget-me-not, may be entwined around the inner part of the circle, with a floral addition to the spaces between portraits if desired. The portraits should face each other. The painting of this ornamentation may be done with india ink. The arrangement being now completed, several negatives are made, the circle upon the cardboard being a guide so as to enable the reduction to be made within the diameter of the coin. Assuming that there are one hundred silver quarters to be treated, then ten negatives should be made. If a gelatine dry plate is used it is a good plan

to take a 5 x 7 plate (a slow plate is best suited). Make a diamond cut down the centre of the length and two cuts across the plate in the dark-room so as to give six small plates. Having arranged the focus, test a plate for time of exposure, and bear this in mind—these miniature negatives must always be snappy, slightly hard, with clear shadows. Such negatives produce the effect desired for a metallic base. The negatives being made, the coins must be prepared. That side of the coin where the picture is to be transferred must be ground off to secure a flat surface. This is done by any worker in silver, and polished so as to give a clean surface. As soon as the coins have been all ground and polished, they must be cleaned by placing them in a solution of potash lye to remove all grease and dirt, taking care not to scratch the surface. This is best accomplished by placing upon the thumb and fingers of the left hand a set of indiarubber finger tips, then by pressing into a piece of vulcanised indiarubber tube a tuft of absorbent cotton so as to use this as a mop. The coins are taken one at a time, laid upon a piece of celluloid, and wiped with the mop so as to remove any greasy matter. The coin must now be rinsed in running water and placed upon its edge upon a strip of thick white blotting-board to dry. When they have all been cleaned they must be matted upon the polished surface, by soaking in a dilute solution of nitric acid (1 in 20) for a few minutes and then scouring with a fine brass wire scratch-brush, or a satin surface may be produced by having them all treated by an electro-plater who understands this class of work. Be sure to direct that each coin must be wrapped in soft tissue paper, separately; this is to ensure their not becoming scratched.

The next operation will be to prepare the gelatine substratum, and to sensitise the carbon tissue; either engraving black or portrait brown will be best suited for transfer to silver coins.

Sensitising the Tissue.

Pour into a clean tray the bichromate solution, take a piece of the tissue, say 8 x 10, dust the surface then with the thumb and forefinger of each hand take the tissue by the top corners, dip it completely beneath the solution, see that no air bubbles rest upon the surface—if there are any remove them with a soft camel's-hair brush, by stroking the surface over first lengthwise then crosswise. Allow the tissue to soak face up for one minute and a half, then turn it face down to soak for the same time. Then remove it and place it face down upon a clean sheet of glass 11 x 14. Place a piece of the thin indiarubber cloth upon the back of the tissue, then holding one end down apply the squeegee with moderate pressure, stroking several times from the spot that is held. Remove the cloth and wipe the excess of bichromate solution from the back of the tissue with a piece of clean rag. Lift each top corner of the tissue, insert a wooden clip. Lift the tissue off the glass plate carefully, and hang it to dry in a room free from dust. Drying will be complete in about four hours. Of course these operations must be conducted away from active light. Prepare a number of pieces of tissue in the same way, and when dry place them in a printing frame in which a piece of stout glass has been placed covered with a sheet of black paper; the tissue will keep well for several days by this means, away from light and air. The substratum must now be made up as follows:—

Heinrich's soft gelatine	1 ounce.
Filtered water	20 ounces.
White sugar	$\frac{1}{2}$ ounce.

Place this material in the inner vessel of a double kettle. When well soaked place some water in the outer vessel, then place upon a gas stove until the water in the outer vessel boils. Stir the gelatine until it is completely dissolved. Add five grains of chrome alum dissolved in one ounce of hot water, stir this in with the gelatine, then add gradually one ounce of rectified alcohol a few drops at a time. The boiling must not be continued after the gelatine

has become dissolved. A common tumbler may now be used to filter the gelatine solution into, by washing out a piece of cheese cloth and holding it over the top of the tumbler folded into two thicknesses, and allowed to hang down slightly in bag form. Pour some of the gelatine solution through the cloth filling the tumbler about two-thirds full. Now take each coin, wash it in running water until all greasiness disappears, using a piece of absorbent cotton if necessary. Drain the water off, then apply a small quantity of the gelatine solution. Drain the coin, and stand it upon blotting paper to dry as in the first instance, shifting the coins once so that they do not stick to the paper at the edge. As soon as dry they are ready to receive the image. The reduced negative must now be adjusted upon a piece of 4 x 5 clean glass, held in place by a strip of gummed paper, with a circle cut out of a piece of black paper placed upon the film side of the negative, so as to admit of a disc of the sensitised tissue being placed therein of the size of the coin or just a little less in diameter. The cut-out must be marked at the top with a T, the disc of tissue being marked also; this will indicate the top of the picture when the printed tissue is placed upon the coin. All the negatives required for the work must be fitted up in the same manner, each upon a 4 x 5 glass.

Printing and Development.

In printing these miniatures, assuming that all the negatives are uniform in density, all that will be required will be to employ another negative of about the same density as a test, by placing a small strip of ordinary printing-out paper upon it, and exposing it at the same time, so that when the silver print is about one-third printed the carbons will have reached the right depth also. The printing frames must now be taken into a room lighted by yellow light. There should be a sink in this room to enable the operations of developing, etc., to be carried on. The gelatine solution must now be warmed in the double kettle, and a small quantity filtered into a tumbler, and allowed to become nearly cold. Stand this near at hand ready for use. Remove the pieces of carbon tissue from the printing frames, lay them face down in a shallow cardboard box, take two or three of them and place in a tray of clean cold water. Meantime, place the required number of prepared coins into another small tray of water. When they are well wetted, remove one of them; dip the coin into the gelatine solution; remove one of the printed carbon tissue discs; place it upon the gelatinised surface (be sure it is in the right position); place a small piece of this indiarubber cloth upon the back of the tissue and carefully rub it down with a stiff indiarubber ink eraser, which answers the purpose as well as a squeegee. Treat all the exposed discs in the same manner. Allow them to stand fifteen minutes. Now place them in a dish of warm water (an enamelled iron pan answers the purpose). Be sure the water is not hot, because this would blister the print. In the course of a minute or two the colouring matter of the tissue will be seen to ooze from the edges of the coin. Place both hands in the water, holding the coin between the thumb and finger of one hand, then remove the paper support of the tissue with the thumb and finger of the other hand. Swish the coin to and fro beneath the water. The image will soon make its appearance. Treat all the coins in the same manner. Sometimes the paper support of the tissue comes off the coins without assistance and floats upon the water. Pick these out of the tray, then proceed to wash all the coins beneath the warm water.

Photographs on Spoons and Bowls.

Sometimes very handsomely decorated silver spoons are used as souvenirs, the bowl being gilt and satin printed. A photograph is placed upon the interior of the bowl. The operation is identical with the transfer of a carbon print upon a coin, only in this case a template must be cut out of a piece of thin cardboard to the exact size required for the bowl, also to be used as a gauge to cut the

use by. Each piece of tissue is cut to a true oval (not an ellipse). The photograph used in this case is usually a small head and bust of a lady or gentleman, carefully vignetted; this is accomplished by placing the miniature negative upon a 4 x 5 piece of clean glass, lining it with a few strips of gummed paper, then a true oval is cut out of a piece of black or orange-coloured paper, and fixed with gum upon the surface of the negative; the vignetting is done by rubbing in upon the front of the glass plate with a stubby brush. As soon as the negative thus prepared is thoroughly dry it is ready for the printing operation, which is identical with that for the coins, the head of the figure being usually placed at the largest end of the oval, so no mistake is likely to occur as to position when placing the print upon the inner surface of the bowl. Assuming that half a dozen spoons are to be treated, the prints must be made in the same way as described, but the material to be used to cause the print to adhere to the bowl differs from that used for the coin. The syrup is made of:—

White granulated sugar	4 ounces.
Hot water	8 ounces.

Allow this syrup to become cold, when it is ready for use. The spoons are cleaned by dipping them into a warm solution of potash; rub them very lightly with a tuft of absorbent cotton; wash them in a stream of water; dip the bowl into the syrup. Now, having one of the oval exposed pieces of carbon tissue ready, allow it to soak in clean water until it lies flat; then place it in the spoon bowl with its face to the metal; now press it into position by the thumb or the tip of the forefinger; then place the bowl down upon a piece of chamois leather, holding the handle with one hand; stroke the tissue from the centre to the outside with either the thumb or forefinger, in the same way as using a squeegee. Allow the spoons treated to stand for a quarter of an hour, then immerse them in a tray of warm water. In a short time the paper support of the tissue will release itself and float off. All that is necessary to complete the development is to lave the spoon backward and forward in the warm water, by holding the handle. The print will soon be developed. It is then carefully washed in running water, treated in the alum bath, washed, and dried. When dry it must be coated with the transparent varnish, just the same as coin photographs, and dried.

The effect of these beautiful little pictures will be astonishing, and as souvenirs will prove a very attractive object. Never use chrome alum in the alum bath, because this makes the gelatine film far too hard; in fact, this is the true cause of cracking and peeling of the picture. A certain amount of pliability is necessary for any carbon print that is transferred to metal, so that if the film is hardened too much this pliability is lost and the picture suffers in consequence.

Fixing, Washing, and Drying.

If the exposure has been right, the images will develop quickly and stand out beautifully upon the silver base. Each coin must now be washed in a soft stream of running water from the tap, then placed in an alum bath composed of:—

Powdered white alum	1 ounce.
Water	50 ounces.

Filter this solution, and as each print is developed and washed place it in the alum bath. Treat them all in the same manner, allowing them to remain in the alum solution three minutes. Now remove and place them in a tray of clean water. Allow a gentle stream of water to flow over them for five minutes, then remove and place them upon a strip of blotting paper to absorb the excess of water. Now change them to another strip of blotting paper to dry. Changing them in the above manner is necessary to prevent the fibre from the blotting paper creeping upon the surface. As soon as the prints are quite dry they must be coated with a thinned lacquer known as alkaline or crystalline, sometimes called banana oil varnish. All these various names are given to what is really celluloid varnish. When each print has been coated the excess of varnish must be absorbed by using a small piece of torn blotting paper, by touching the liquid that drains when holding the coin vertically. As soon as this varnishing is completed place the coin on edge upon a clean strip of wood in a tin oven, which can be easily made out of a biscuit tin; heating the tin by means of a small gas stove with only a very small jet beneath. The oven is best placed a few inches above the stove, or the prints may be allowed to dry spontaneously. Upon examination it will be found that these miniature carbon prints are perfect in every detail, and well protected against damp, showing up as they do in a very beautiful manner, forming a novel and handsome souvenir.

A LETTER TO A MIDDLE-CLASS PROFESSIONAL.

MR. J.—I have just been looking over some of your latest work, and I am writing you with regard to it.

It may have struck you that, whereas you are pretty successful with the sitter, there is a general appearance of—shall we say?—incompleteness connected with it. Now this is the case with many good men, and the reasons for it are practically always the same. Of course, it may be caused by your type of client, but in this case it is not what I mean and do not intend to discuss, though, of course, we all know that the common, or middle-class sitter is much more difficult to handle than the upper ten.

Perhaps you have at times wondered to yourself—"What makes the difference between my work and so and so's? My lighting, posing, and retouching is as good, yet my stuff has an indefinable appearance of inferiority."

In some cases the mere finishing (mounting, etc.) will account for the difference; but acknowledging, for the sake of argument, that this is equal to the other fellow's, then, believe me, it is the background. The background, though requiring little thought from many professionals, has at least as much to do with the general result—i.e., not likeness—

as lighting, or even pose. Mind you, I mean looking at the photograph as one who does not know the sitter.

A recent portrait of yours constrains me to make these remarks—in fact, it may be taken as the cause of this letter. The portrait itself is good, when you have found it, but the background, which simply jumps at you, is awful, and seems to consist mainly of blobs of white and serpentine line. On looking into it, I see it is an abortion, intended to represent a pillar and curtain, distant landscape, flowers and flower-pot, like nothing seen on earth or over it. In fact, it is one of the things that even yet, in spite of the late H. P. Robinson's teaching, still finds a place in the half-tone catalogues of all dealers.

You are evidently making the usual mistake of thinking that the background does not matter much. They are so cheap, so easy to place in position, and of so little trouble compared with getting pose and expression, that you think that, as they are of such minor importance, they may as well be pretty in themselves. No greater mistake could be made; the background has everything to do with it, though in a negative way—it must be seen, but not noticed. The whole use of the ground is to throw up the head so that it

becomes the chief feature of interest. With a poor ground, the eye keeps wandering from the head to the ground, and there is no sense of rest and no focus of interest.

Moreover, a good background is no dearer in cost than a poor one; only selection and a knowledge of the necessity of subordination are needed. Once obtained, a good ground is a great economy, for putting aside the fact that no one thing so easily gives a common appearance to a photograph as a bad background, a good ground is much more useful. You can use it for almost anything, and, being unobtrusive, the frequency with which it is used will not be noticed, for the figure will so occupy attention that no thought is given to the ground. This is as it should be. The figure is seen at once and noted, whilst the background is quite secondary.

On the other hand, with a cheap ground that is all light spots and masses that irritate and distract the eye, if it be used at all frequently, it must be noticed, for the background throws itself at you, and is often more pronounced than the figure it is supposed to set off.

You will be thinking that I am writing an immense amount of cackle, but have not yet given you any practical advice. Well, the whole of my advice is "unobtrusiveness." Get that in your ground and you are right.

Perhaps the best grounds for general use are the plain-graded ones, and these have the undoubted advantage, as the English background painter can paint them without any great blunder, and you are almost sure to get them good. The simplest grounds of this description are graded from a dark tint gradually to a lighter one, and may be graded from light side of studio to dark, or from top to bottom, having either light or dark side of ground in position required. The more usual is across. With light side of ground nearest skylight you get breadth, with dark side to skylight you get more relief. If you have them graded top to bottom, it is better to have the darker side at bottom, thus hiding the lower and less important parts of body. Be careful, however, that light part of ground is not of same tone as the face of your sitter.

These grounds can be used for anything—heads, three-quarters, full lengths, or groups. With them, though the effect is practically that of a plain ground, you avoid the inlaid appearance liable to occur with these latter.

The cloud ground is as useful as above, but slightly more difficult to obtain good, the clouds frequently being too pronounced. With these it is only necessary to get correct part of ground to throw up the face. Usually a little light is placed behind shadow of side of head.

Plain grounds, either dark or very light, scarcely ever middle tone, are used extensively by the best houses, chiefly on account of their simplicity and utter lack of anything to distract the attention. They are an index of the reaction that has set in against what are known as scenic grounds, against which I am chiefly warning you, and of which more anon.

I refrain from advising these plain grounds to you, for they may not suit your clientèle; and, as I said before, they are liable to make the figure appear inlaid. I was particularly struck at last year's Royal Academy exhibition by the absolute failure of the painters to cope with this problem, and if they cannot do it with the aid of colour, the mediocre camera-man must climb down. Properly used, however, no other grounds are so thoroughly successful or so distinctive. Dark-green and black are the more useful colours for the dark grounds, whilst perfectly white and very light-grey grounds are the best light tints.

These grounds have the advantage of being capable of home manufacture. Extra wide (6 ft.) art serge makes a good head or three-quarter length ground. For ladies and children in light

dress, a length of 8-ft. wide sheeting makes a good ground. The disadvantage is need of careful exposure and development. The ground must come out dead-white, whilst the dress (if white) is the fraction of a tone darker at its highest light, and the light side of face yet another fraction darker in tone than the ground. When selecting a light-grey ground, however, it is usually chosen so that a white dress is lighter in tone, with the face-tone slightly darker than the ground. Of course, these grounds are of no use for men, nor children or women in dark frocks; for though a white dress looks well against a dark ground, the contrary—a dark dress and light ground—does not hold good, for the light tones of the chief point of interest—"the face"—are not contrasted with the ground sufficiently to compete with the strong contrast between dress and ground.

I have left scenic grounds to the last, for though the most used by the incapable, they are in reality the least useful and least artistic of any, and, moreover, are difficult to obtain good.

It is against cheap scenic grounds that my preliminary tirade was directed. Unfortunately it is apparently impossible to get a good English background of this description, the only ones having any claim for excellence coming from one or two houses in America.

The chief fault of these grounds is superabundance of detail, introducing complexity of interest. The worst grounds add bad drawing and impossible perspective, together with painted representation of accessories. Accessories of any sort are bad enough, but the painted ones, such as windows, looking-glasses, fireplaces, etc., are a thousandfold more abominable than the usual, but solid, shams.

The great necessity is to have a ground with broad effects, little detail, and good perspective, and atmosphere to give distance.

A good ground with these attributes is then extremely useful, for the public frequently ask for this type of ground, but whenever possible my advice is to use a graded or plain ground, and stick to it. If you must have a scenic ground, see the ground itself before purchasing, and get a good one. Probably you will find this latter advice easier in the case of exterior rather than interior effects, for difficult as it is to get good exteriors, interiors are even worse, for you must remember that the sitter should be taken amidst usual surroundings. Since this is usually against a wall paper of flowered design—an utter impossibility as a ground—we can fall back on our plain and graded ground, but the "artist" insists on giving us the ancient pillar-and-curtain conservatory and such-like obsolete abominations. The only decent or even possible interior I have yet seen was painted to represent a panelled wall, and, in the absence of a better, the suggestion may be valuable.—Yours,

STUDIOSUS.

PROCESS Blocks for Photographers.—In reference to the note on another page reminding professionals of the business in half-tone blocks from their photographs, the work of one firm making a specialty of this kind of business has recently come before our notice—viz., that of Messrs. E. Hamel and Co., Nottingham—who do a varied business in screen and line blocks, and are a firm who may be entrusted with work demanding special care.

ADMIRERS of Miss Constance Ellis's pictorial work, and we include ourselves among the keenest of this number, will be glad to peruse an article in the August "Girls' Realm," in which Miss Ellis chats of her photography, and shows some of her successful figure studies in the making.

We learn that the Hartlepool Photographic and Sketching Society and the West Hartlepool Amateur Photographic Society have now become one body under the title of the former

A DEVELOPER FOR STUDIO NEGATIVES.

the current number of "Photographic Scraps" C. Harold Smith discusses the good qualities of the Ilford Zenith plate for studio portraiture. He says:—"As regards development, for studio work the Ilford pyro-soda is the standard developer. There are, however, occasions when the exposure is known to have been very short, and a pyro-metol developer may be preferred. With pyro-metol the clearance of the image is much quicker, and in practical result there is more shadow-detail for the same density of high lights. The plate develops quickly with it, and does not need to be and should not be overdeveloped. This developer does not, however, afford the immense latitude of the pyro-soda, and it should never be used where overexposure has been possible. A most convenient method to the man who uses the Ilford pyro-soda as a general rule, is to keep a solution of metol separately to add to it; or rather, to make up the developer with metol taking the place of a part of the pyro. The following is the metol solution:—

Water	20 ozs.
Metol	50 grains.
Sodium sulphite	1 oz.

(Dissolve in the order named.)

should be used thus:—

Ilford No. 1 pyro solution	1 part
Metol solution	1 part.
Ilford No. 2 soda solution	2 parts.

The No. 1 pyro solution for studio work should always be made up with 1 oz. of stock solution to the pint, and the bromide be omitted in the No. 2 soda solution, whether for use as pyro-soda, or pyro-metol-soda.

Regularity, and therefore quality, of result can only be obtained by using fresh developer for each plate, whatever the developer. A developer used a second time has taken into itself some bromide from the first plate; the image takes some two or three times longer to develop, and in proportion to this is fully developed much sooner. The 'multiplying factor' is lower. There is also less detail in the shadows, very noticeable in portraiture."

OPENING OF THE ROTARY PHOTOGRAPHIC COMPANY'S SOCIAL CLUB.

On Saturday last a party of guests and friends of the Rotary Photographic Company journeyed to West Drayton, where the works of the company are situated, to be present at the inauguration of a social club and grounds for the use of the employees.

A large house by the side of a delightful little river flowing into the Thames has been fitted up for the purposes of a social club for the employees living at Yiewsley. Billiard and music rooms have been provided and furnished by the directors, and, for the benefit of the employees in the London office of the company, several completely furnished rooms have been provided for their free use at week-ends. In addition to the orchard and grounds surrounding the club, a capital sports field has been provided, in which on Saturday races were held, and swimming matches took place in the river, followed by a concert dance.

The premises include a dining room to seat fifty, general and reading rooms, and baths, with special accommodation for the girls and young men employed.

The formal opening was performed by Mrs. Haenel, wife of the managing director. A golden key had been subscribed for this purpose by the employees, and will doubtless be kept as a valued souvenir of an interesting event in the annals of the company.

Should the condition of business allow of it, a start will be made next year in the provision of cottages for the workers. The directors are also forming a lending library in connection with the club, and

the lot of the Rotary Company's employees at the works should be a very happy one.

After tea had been served on the lawn of the newly opened club, the guests were conducted over the works and shown evidences of the immense output of the firm in the way of picture postcards.

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issott, 62, Compton Road, Harehills, Leeds.

August 7.—Andover. Hon. Secretary, W. I. Gradidge, Jubilee House, Andover.

August 24 to September 21.—Berwick-upon-Tweed Arts Club. Hon. Secretary Pictorial Photography Section, H. Hancocks, 38, Ravensdowne, Berwick-upon-Tweed.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, K.C.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 17-18-19.—Isle of Wight Photographic Society. Hon. Sec., V. Howard Burgess, 53, Pyle Street, Newport, I. of W.

October 18-21.—Rotherham Photographic Society. Hon. Secretary, H. C. Hemmingway, Tooker Road, Rotherham.

October 19-21.—Grangemouth Amateur Photographic Association. Hon. Secretary, Robert Marshall, 3, Park Terrace, Grangemouth.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November.—Bristol and Clifton Arts and Crafts Society. Secretary, R. H. Parr, 5, Grove Buildings, Blackboy Hill, Bristol.

November, December, January.—Second American Photographic Salon. H. Snowden Ward, 6, Farringdon Avenue, London, E.C.; Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

November 3, 4, 5.—Metherwell Young Men's Institute C.C. Hon. Secretaries, James Dunlop, Myrtlebank, Metherwell, and Archibald Matthews, 24, Enfield Place, Ladywell, Metherwell.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern Amateur Photographic Association.

November 25-December 2.—Glasgow Eastern A.Ph.A. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarnock Street, Parkhead, Glasgow.

December.—Muirkirk A.Ph.A. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargent, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. MacLachlan, Blairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph. A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 19-24, 1906. Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

FORTHCOMING COMPETITIONS.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour; (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

For selling a celluloid comb instead of a bone one, a firm of drapers in Kilburn had to pay £50 damages to a lady of West Hampstead on Monday last. The lady stated that she bought the comb on the understanding that it was bone. Some days afterwards, as she was drying a pet dog in front of the fire, the comb in her hair suddenly burst into flame, with the result that a quantity of her hair was burned off, and that she became partially bald. To a sympathetic jury, Miss Carter showed a great mass of the hair which had been burned from her head, with the remains of the comb in it. At the earnest request of her counsel she also reluctantly removed her hat, and showed the jury "the place that had not healed." She said she bought a set of combs on exchange. For the defence, one shop assistant said that she knew the difference between bone and celluloid, and could not possibly have made a mistake. Another said that she detected the difference by rubbing the combs on her skirt, and if there was a smell of camphor she knew they were celluloid. An analytical chemist explained that celluloid was a mixture of highly inflammable materials. In some shops, he said, it was the custom to mark celluloid goods by stamping them. Judge Selfe expressed the opinion that it was stretching the point rather too much to hold the draper responsible for damages in such a case; but the jury took a different view.

MR. O. MOLLER is now the Hon. Secretary of the Sunderland Camera Club. His address is 1, Thornhill Gardens, Sunderland. The Blaydon and District Camera Club has also got a new Secretary in Mr. J. Parker, of 7, Evelyn Terrace, Blaydon-on-Tyne.

Photo-Mechanical Notes.

Artistry in Process Engraving.

THE exhibition of photo-mechanical reproduction processes which has just reopened at Manchester did not aspire to be judged as the product of a distinct art—or, at least, those most intimately associated with photo-mechanical work would not wish to set the chemical engraving by the side of the work of the old engravers. For the whole tendency of process engraving has been towards abolishing character of any kind. Commercially, a reproduction process which is automatic from first to last is perfect, and although there is no such process, and probably never will be, the aim of the process-engraver has been to make his business a factory of blocks and plates, in which the work can be turned out with the least intelligence on the part of the workmen. In a commercial sense, considering present conditions, that course is almost the only possible one, but its effect on process as a craft, let alone an art, is inevitably disastrous. Hence it is not surprising to find an art critic writing of process:—

"I have never longed to possess a good, bad, or indifferent print of any process block. I have never felt that I could cherish an impression of a process engraving as a thing intrinsically valuable; none of the exhibits at South Kensington made me feel it and I have an obstinate, deep-rooted conviction that I never shall feel it."

Analysing this repugnance, he finds it to come from the lack of character. Mezzotint, etching, wood engraving, and lithography each modified the original, so that it is something more than a simple reproduction. The impressions have a kind of personality of their own. But process engraving—it is heavy, lifeless, and tedious. We are glad to find that some of the photogravures at South Kensington could be excepted from this denunciation:—

"Messrs. Walker and Cockerell's and Messrs. Allen and Co.'s photogravures of pictures by Turner, Romney, and Gainsborough (Nos. 114, 115, 116, 117, 101, and 102) are as much reinterpretations of the originals as the work of a line-engraver or mezzotinter would be. The employment of photography makes them more accurate with regard to line and spacing, but the defects of photography make the translation of tones less accurate and less intelligent than an engraver relying only on his visual faculties would have made them. The surface quality of the prints is far from unpleasant, though there is a general tendency to make them too heavy and too dark. Messrs. T. and R. Annan have wisely recognised the limitations of the process, and have turned their attentions to the production of a sympathetic and agreeable surface of print. Their photogravures of paintings by Sir James Guthrie (110), Mr. J. S. Sargent (111), and Sir Henry Raeburn (112) have a rich velvety quality which is very pleasant to the eye. It is true that this charm of tone is got at the expense of accuracy of reproduction (this is especially the case with Mr. Sargent's pictures), but Messrs. Annan have here shown sound judgment, for charm is more important than accuracy in a work of art."

Considering what few process houses there are which have artistic aims before them, and considering also how utterly commercial, often debased, are the applications of the great bulk of the photo-engraver's work, it must be a long day before one or other of the photo-mechanical methods becomes a craft in the best sense of that term.

But there is another side to the question which the critic appears to overlook, and that is the rôle which process plays as a reproducer in facsimile of the artist's work. The "characters" of etchings and wood-engravings represent qualities of tones and textures which are altogether admirable. But the work of a great artist interpreted by one or other of these processes becomes something else. An old master engraved on wood by Timothy

is still a beautiful work of art, but it is virtually a new work. We do not see why a process reproduction should not enjoy the less a gratification to the artistic mind because it reproduces literally the artist's work. Mr. Pennell, whom no one accuses of partiality to photographic processes, has not dissipated his appreciation of that power in the process block which is the artist, the whole artist, and nothing but the artist—quality which should surely add, and not detract, from the value of a reproduction.

Sir William Abney on British "Process."

The recent exhibition at South Kensington was opened on Tuesday last week in the large hall of the Manchester Municipal School of Technology, when Sir William Abney delivered a short address. In his examples on the walls, he said, showed the degree of perfection to which the various processes of photography and engraving had been brought, and there were some exhibits of very great interest. Until quite recently people used to send to Germany if they wanted anything done well in this particular department. They said they could get it done better there than in this country. They disputed that idea, and attributed its existence to prejudice. To put the matter to the test, he got the Society of Arts to offer a prize for the best reproduction of the picture named "The King of the Wedding Garment." The result justified his opinion, the photographs of England excelled those of Germany. Sir William Abney gave a technical description of the processes used in the production of the various exhibits, and particularly of the way in which the colours were shown in the pictures. He had, he said, the advantage of seeing the exhibition in London, and believed it would be valuable to persons engaged in colour printing and to those who were simply amateurs in the work. The visitor would have an opportunity of inspecting some of the best work done on the Continent, in England and America. Sir William Abney, in acknowledging a number of thanks, advised his hearers to give up their ordinary cameras and go in for the three-colour cameras.

The exhibition was criticised in our pages when it opened at South Kensington (THE BRITISH JOURNAL OF PHOTOGRAPHY, Nos. 17 and 24), but we may remind visitors to it in Manchester to overlook the exhibit of the Photography and Printing Crafts Department of the School of Technology, of which the head is Mr. Charles W. Gamble. This department includes work in pure photography, photo-engraving, and various photo-mechanical methods, photographic technology, and letterpress printing. The stages in the photo-mechanical methods of relief, surface, and intaglio are shown by the objects in the cases.

Super-sensitive Bitumen.

A query of a correspondent last week has brought us several letters pointing out the advantage from a photo-engraving point of view of a more sensitive bitumen preparation, and the following notes are therefore penned with the hope of their proving of use to those engaged on the problem of a sensitive bitumen.

The following is the substance of the paper referred to by "A." by M. Colens, and appears in the "Bulletin" of the Belgian Photographic Association, 1891, p. 622.

Chromate and bitumen are combined into one mixture by means of a very easy ink, which combination is further mentioned as "bichromate bitumen." A polished zinc plate is coated with this mixture, and, after being exposed to light, is placed in a solution of collodion, left to dry (of course, in the dark), and exposed under negative for three, four, or five minutes, according to the light. The zinc plate is then heated, a film of greasy ink applied to it, and it is then washed in clean water for one or two minutes with the aid of a brush or tuft of wool. It is then dusted with the finest talc powder, and the excess dusted off; the bitumen is fixed by the action of the ink and the bichromate, and the plate left to cool. It

is then ready for etching, which is done in three stages, with inking up between each.

The above is the only reference we can find to a bichromated bitumen formula, except the following, published about 1895, in the "Photographische Chronik." Here the bitumen is an addition to a gum solution, but we must express ourselves dubious of the practical value of the formula:—

White gum arabic	60 gms.
Water	300 ccs.
Chromic acid .....	.7 gm.
Potass. bichromate (saturated solution)	30 ccs.

Extremely finely powdered bitumen is added until the solution is of fair consistency, but still flows easily. The plate is coated, whirled, and dried at a gentle heat, and exposed and developed in a broth of white sawdust, in which it is kept in agitation, being afterwards dried and burnt in. Etching is done with 1:3 iron perchloride solution.

Those who are experimenting with bitumen should also study the methods employed for preparing a bitumen which *per se* is of greater sensitiveness than the crude natural product. The following are the chief of these:—

- (1) Solution in chloroform and precipitation with three to five times the volume of ether.
- (2) Washing the raw powdered asphalt with ether, and using the dry residue as basis of the sensitive coating.
- (3) Solution of the powdered raw bitumen in as little turpentine as possible, and precipitation with several times its volume of ether.

Herr E. Valenta, however, some years ago, worked out a method of producing a highly sensitive bitumen based on the introduction of a further proportion of sulphur. The working details, as given by him, are:—100 gms. of Syrian asphalt (bitumen) are dissolved in 100 gms. of pseudocumol, in which 12 gms. of flowers of sulphur has just been dissolved, and the whole digested under an inverted condenser. The deep brown solution evolves hydrogen sulphide gas, but after about three or four hours the evolution of the latter ceases, and the cumol is distilled off. The residue, prepared as a 1:25 solution in benzole, is employed to coat the plates.

A MONSTER camera for process work has just been completed by the Camera Construction Company, Limited, of Hackney. It takes plates from whole plate to 40 in. by 40 in., and thus claims to be the largest practicable process camera yet made. A number of improvements are embodied in its construction, in particular the gearing of the focussing screens, which are both central, although the actuating handles cannot foul each other. The large dark slide is made without springs on the door of the slide, thus obviating distortion of the plate.

AN instance of very smart photography (says the "Aldershot Gazette") was forthcoming at the Bisley meeting last week, when his Majesty the King paid a visit to the camp. Mr. West, photographer, of Aldershot, had a tent on the ground, and succeeded in taking a first-class picture of the King and the Duke of Sparta on arrival at Bisley Station. Such excellent use was made of the negative, that before his Majesty had reached the thousand yards range, Mr. West's staff had printed the plate on picture postcards, and they were speedily selling by hundreds. Other up-to-date features were the printing of all notable events at the meeting as the day progressed, as well as photographing the King's prize-winner, Armourer-Sergt. Comber, and selling the picture before the camp broke up.

THE Newry Agricultural Society held their exhibition on August 8 and 9. A photographic section is included, and cash prizes are offered; the district in which the show is held is very rich in typical Irish scenery. It is near Warrenpoint and Rostrevor, and on the other side is Carlingford, with its numerous old ruins of castles and abbey. All communications connected with the show should be addressed to the Secretary, Mr. J. M. King, The Mall, Newry, Ireland.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between July 17-22, 1905:—

APPARATUS.—No. 14,659. Improvements in or relating to photography and the apparatus required therefor. Ernest Henry Saniter, Strafford Villa, Moorgate, Rotherham, Yorks.

CAMERA.—No. 14,954. New or improved photographic camera or apparatus for use with film racks, applicable, also, to other sensitive surfaces. James Alfred Sinclair, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

CINEMATOGRAPHY.—No. 15,003. Improvements in cinematographic apparatus. Henry William Joy, 3, Brown Street, Market Street, Manchester.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

REFLEX CAMERA.—No. 18,815, 1904. The invention relates to reflecting cameras, and has for its object to enable the dark slide to be brought nearer to the lens than is usual in this type of camera, and yet to enable the whole of the picture to be seen on the focussing screen, whether a short or long focus lens is used. The invention further relates to means for releasing the shutter immediately after the focussing screen is covered by the mirror, and to means for rendering it impossible to use the focussing screen in a vertical position when the plate-carrier is in a horizontal position, or vice versa. In carrying the invention into effect the mirror is mounted so that its rear and upper end may, when the mirror is released, first move upwards and backwards from the lens carrier, and, when the mirror has nearly come into contact with the focussing screen, it may move forwards. By receiving this motion, the front lower edge of the mirror is moved in a hollow curve, thereby enabling it to pass the lens-carrier even when the latter is in its rearmost position and when the said front edge of the mirror is carried well forward. The construction of the parts require the eight drawings contained in the specification for its proper explanation. George Russel Nichols, 25, South Norwood Hill, South Norwood, Surrey.

SHUTTER.—No. 18,454, 1904. The forty claims in this specification require the reproduction of the numerous diagrams of the shutter, but the following describes the general claim for novelty:—The invention relates to shutters for photographic cameras, and particularly to that class known as iris diaphragm shutters, embodying a number of pivoted overlapping leaves, and it has for its object to provide a suitable operating mechanism whereby the leaves may be operated for making either time, bulb, or instantaneous exposures, and also for governing the relative movement of the leaves so that the opening formed upon any of the above-mentioned exposures may be stopped or varied in size as the operator may desire. Kodak, Limited, 57-61, Clerkenwell Road, London.

THE Optical Convention will probably meet for the second time next summer, but it is improbable that its activities will be as ambitious as those of June last. The exhibition, which was a large undertaking will not be repeated yearly; but it is thought that the Convention may meet as often as once a year, and confine itself to the reading and discussion of papers.

New Books.

REIGATE AND REDHILL.—A second edition of the Homeland Association's guide to this picturesque part of Surrey has been issued after extensive revisions; 6d. net with ordnance map.

MOUNTAIN PHOTOGRAPHY.—The little German book by Emil Terschak is at once an incentive and a guide to this most healthy and inviting branch of photography, and the second edition, which Herr Gustav Schmidt sends us, has been revised and embellished with additional illustrations. The German title of the work is "Die Photographie im Hochgebirg," and the published price is M2.50.

A **HANDBOOK** on "Colloidon Emulsion" is in preparation by Mr. H. O. Klein, of Penrose and Co., and will deal with this process, as applied to photo-mechanical work in half-tone and three-colour. It is to be issued at 5s.

New Materials.

Chromo-Sulphon. Sold by Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, E.C.

The above is colouring matter in powder for addition to the developing solution, which latter with "chromo-sulphon" as a constituent, may be employed in ordinary day or artificial light. That it is suited for this scheme of "daylight development" we can positively state, for the developer is highly absorbent of the actinic rays, and the plate on removal from it loses every trace of yellow colour in the ordinary course of washing. We have heard little of the dyed developer lately, but whenever the practice becomes talked about, as it periodically has been during the past fifty years, "chromo-sulphon" may be named as a suitable reagent. A three-ounce bottle of the powder costs 9d.

CATALOGUES AND TRADE NOTICES.

"**WATKIN'S Exposure Notes.**"—The sixth edition of this useful little exposure note-book has been published. A new feature has been introduced. The ruled pages are now available either for exposure or for development notes. This is accomplished by printing development "headings" at the foot of each page. The ordinary headings, i.e., "Place and Subject, No. of Slide, Plate, Stop, Light, and Exposure," are at the top, and the entire page can be used for these data if necessary. The development "headings" read upwards and the same divisions of the page can be used or not, as may be convenient. Useful tables and formulæ are also included, and the little book is particularly neat and compact. It is sold at 1s., and is published by the Watkins Meter Company, Hereford.

A new list of Goerz lenses is just issued from the London House 4 and 5, Holborn Circus, W.C. It contains specifications of the performances of the various famous series of Goerz anastigmats and is embellished with bromide and half-tone supplements demonstrating the great optical perfection of the lenses. A series of distinctive names has been adopted for the anastigmats, and the list conveniently summarises the salient features of these—Dagor, Syntor, Pantar, etc. The list, which is altogether a handsome production, and contains a number of notes on the qualities of lenses effective for various purposes, is offered free.

A new collodion paper is now appearing on the market from Messrs. A. E. Staley and Co., 19, Thavies Inn, London, E.C., and is distinctive from the fact that for the raw stock on which it is coated a source of supply other than the Rives factory has been drawn upon—and successfully as far as our experience goes. The paper tones well in the platinum bath, lies flat in the baths, and gives rich brown and black tones. Samples and prices are obtainable from Messrs. Staley.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
	Watford Camera Club.....	Outing to Moor Mill and Netherwyld Farm.
	Orickewold Photo. Society	Trip to Barnet Gate.
	North Middlesex Photo. Soc.	Outing to Godalming.
	Wallasey Amat. Photo. Soc.	Members' Evening.
	Everton Camera Club	Ten Minutes' Papers of Interest to Beginners.
	Devonport Camera Club	Trip to Cranmere Pool.
	Hull Photographic Society	Outing to Westella.

Commercial & Legal Intelligence

At the North and West London Police Court, John Samuel Francis, of Grovedale Road, Holloway, was charged, on a warrant, for obtaining, by means of a false pretence, 2s. 6d. from John William Gray, of Union Square, Islington, with intent to defraud. The prosecutor, a photographer, had employed the prisoner to canvass on commission for orders. It was alleged that he had taken in bogus orders, and received commission on them. The prisoner denied that they were bogus orders, and the prosecutor replied that in some cases there were no such numbers in the streets as those written on the orders. The prisoner was remanded.

At the Louth Police Court, Reginald Innes, photographer, of Freeman Street, pleaded guilty to Sunday trading, and was fined 7s. 6d., inclusive of costs. The shop, said the constable, was next door to a chapel.

MATTHEW KEDDIE MACKENZIE and Miss Margaret Gemmel (Mackenzie, trading as Mackenzie and Co.), photographic dealers and photographers, both of 50, Grove Road, Eastbourne, attended at the Eastbourne Bankruptcy Court on Tuesday of last week to undergo their public examination in bankruptcy, before the deputy-registrar (Mr. J. B. Compton Coles). The case was adjourned.

The Progress Photographic Company, the style under which Mr. George Garett Charles conducted the publishing, wholesale, and export photographic department of his establishment at his premises known as the Progress Steam Works, in Eden Street, N.W., were completely gutted by fire on July 25, the entire set of buildings (five in number), stock, plant, etc., being entirely burned down. The losses are considerable. We are desirous to intimate that any communications, until the works are rebuilt should be addressed to Mr. Garett Charles's Studio, 49, Acacia Road, Regent's Park, N.W.

THE PROPOSED POISONS BILL.—It is stated on good authority that there is now no probability of there being introduced during this Session of Parliament the Bill with reference to the sale of poisons, which had been undertaken on behalf of the Government, by the Lord President of the Privy Council. The shareholders in "Drug Stores" limited companies will not grieve much over this we imagine.

READERS of "Pearson's Magazine" for August will, perhaps, be specially interested in one article, descriptive of the adventures and air-breadth escapes of one of the Editors of THE BRITISH JOURNAL OF PHOTOGRAPHY. These perils were incurred, we hasten to say, not in the precincts of 24, Wellington Street, but where Atlantic breakers make rude sport of life and limb, on the stormy coasts of Cornwall and the Scillies. The writer of the article has a good deal of interest to say on the wave photography of F. J. Mortimer, though, perhaps, those who have not been down to the Scillonian sea with a camera, will credit him with introducing more sensationalism into his description of the sport than it deserves. Such critics are asked to reserve judgment until they have hunted big waves.

News and Notes.

THE Royal Meteorological Society.—The Council of the Royal Meteorological Society are desirous of advancing the general knowledge of meteorology, and of promoting an intelligent public interest in the science. They think that these ends can be most readily attained by means of lectures delivered in connection with scientific societies and institutions in various parts of the country. The Council have now appointed a lecturer, who is prepared to deliver lectures on meteorological subjects—e.g., how to observe the weather, weather forecasting, climate, rainfall, thunderstorms, meteorology in relation to agriculture, health, etc. The lectures will be illustrated by lantern slides from the large collection in the possession of the society. Societies and institutions wishing such lectures will be expected to pay a moderate fee and to defray travelling expenses. The Council are willing to arrange for exhibiting at the gatherings of local scientific societies, institutions, or schools, a collection of photographs, drawings, diagrams, and charts, illustrating meteorological phenomena, and of various patterns of instruments used for meteorological observations. They would also, if desired, lend and fit up a complete climatological station for exhibition, showing the necessary instruments in position and ready for use. The cost of transit and the expenses of a member of the staff in fitting up and superintending the exhibit would be borne by the society or institution inviting the co-operation of the Royal Meteorological Society. The Council are further prepared to lend sets of lantern slides, illustrating meteorological phenomena and instruments at a small charge. Further details on the subject may be obtained from the Assistant Secretary, Royal Meteorological Society, 70, Victoria Street, S.W.

PICTURE POSTCARDS.—A return which has just been issued by the Postal Union for the year 1903 contains some interesting items, especially with regard to the extent to which postcards have ingratiated themselves with the public. It appears from this return that in the matter of postcards the German Empire heads the list with no fewer than 1,161 millions posted there during that year. Even the United States, whose population is about one-half in excess of that of Germany, can boast of only 770½ millions of those missives. Great Britain comes next with 613 millions. Japan, which previously used next to Germany most postcards, is now fourth on the list with 487½ millions. The inhabitants of Germany alone, therefore are now availing themselves of nearly as many postcards as the United States and Japan together. Other countries are greatly left behind in the race; not one of them reaches the number of 300 millions. Individually there came, in millions, upon Austria, 291; the East Indies (British India), 254; and Russia, 114. All the rest show a number of less than 100 millions—namely, Belgium, 63; Denmark, 6; France, 70; Spain, 13; Hungary, 88; Italy, 85; the Netherlands, 59; Norway, 5; Portugal, 11; Sweden, 43; Switzerland, 53. As to letters, however, the United States is far ahead of all other countries. The total number of letters posted there during 1903 was 4,109 millions. Great Britain follows in its wake with 2,597 millions, and then Germany with 1,648 millions. The said three countries together have, therefore, each posted upwards of one milliard of letters. France counts for over half a milliard—namely, 844 millions of letters. With less than half a milliard are Austria with 464, Belgium with 104, Spain with 136, Hungary with 127, the East Indies with 258, Japan with 208, Norway with 32, the Netherlands with 86, Russia with 349, Switzerland with 94, and Sweden with 81 millions.

Le Dernier Cri in the lay press on photography! "Simplex," in a Midland journal, disembowels a reducer from the "Photographic News" of 1868, and offers it as "quite reliable and effective for gelatine papers." It is a solution of potassium cyanide, and we are afraid it has no particular claim to disinterment.

Correspondence.

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE ALLEGED "FORGERY CHARGE."

To the Editors.

Gentlemen,—With reference to our publication of the above charge brought against me, and now withdrawn, I beg to state that no one regrets more than myself that further evidence in this case had not been gone into. It would have been conclusively proved that the charge was altogether a false and vindictive one. It was not a question of forgery at all; it was merely a question whether I had or had not the right to sign my brother's name. I certainly produced evidence that by the existence of two powers of attorney, one a general one, that I had the right to act as I did. I have signed a great number of share certificates, transfers, and agreements in the same manner as I signed the Bill in question without taking any trouble to imitate my brother's signature in particular. Without any desire to run my own brother down, let it be said that had it been forgery he would have shown me little mercy! The prosecutor, Mr. H. H. F. Hyndman, insisted on my signing a document (now in court) which would have given him absolute control of the whole business, and which I refused to sign, as well as the secretary of the company, whereupon Mr. Hyndman swore at me, and our friendship was at an end. Needless to say, that on Thursday last my solicitor already issued and served a writ on my behalf on the prosecutor, claiming damages for malicious prosecution and wrongful imprisonment which I have suffered. Surely it must be quite obvious to any business man that if my name was considered good enough to figure prominently as managing director, inventor and patentee of a valuable process, in the prospectus of a company with a capital of £120,000, as issued on July 8 last, of which £60,000 is to be raised from the public, and as a large shareholder, my own name would have been good enough for one of my co-directors (the prosecutor) on a bill for £100, without any need to forge my brother's name or intent to defraud! It is no doubt for this reason that the magistrate found as he did. I shall thank you if in fairness to me you will give a little space in your esteemed paper for this.—I am, etc.,

F. ARBLE,

Managing Director, Metotype Co., Ltd.

82, Cavendish Road, Harringay,
July 30, 1905.

THE FREE ENLARGEMENT IN SOUTH AMERICA.

To the Editors.

Gentlemen,—You will see by the newspaper I mail to-day that Tanqueray and Co. are advertising their "free portrait" in the newspapers of this city. They have been sending circulars by post for some time back to private families. A gentleman some eight months ago showed me a circular and acknowledged that he had been "done" by this firm,—I am, dear Sirs, yours truly, an old subscriber,

J. FITZ-PATRICK.

Calle Rincón, 176, Montevideo,
July 8, 1905.

[The advertisement is in the style with which we are unfortunately familiar, and we hope that our correspondent will be able to convince his public of the fraudulent character of the business.—EBS., B.J.P.]

QUALIFICATION BY EXAM?

To the Editors.

Gentlemen,—Your remarks in the last week's B.J. on certificates and examinations are what I can cordially endorse, for I have had good reason to do so, having once taken on a man who according to the certificate ought to have been able to have done pretty nearly everything, and so he could if he had a year to do it in, and all the stock of a photographic factory to mess about with. But for turning out work on a pretty close time limit and with a narrow margin of wasters, give me a chap who has it in him, and who has had reasonably good training in a well-ordered establishment. In all the instruction in photography which is given I would like to see more attention paid to the practical requirements of a professional business. It is not often that one has trouble which needs a man on the place with a knowledge of chemistry, but every day and all the time we need that quality in our assistants, which is half technical and half commercial, and which is never found in the scientific dabbler who can frequently score brilliantly in an examination. I enclose my card, and remain yours truly,

OLD PROPRIETOR.

July 31, 1905.

FRENCH COPYRIGHT LAW.

To the Editors.

Gentlemen,—I have been much interested in the two cases of copyright law in France which have recently appeared in your columns, the latter under "Ex Cathedra" last week. It would seem that photographic copyright law is one of the things that they do not do better in France. Apparently a photographer has to establish his position in public estimation before he can claim any protection under an act which is framed in the interests of artists only, and does not benefit the photographer until he has proved his title to be classed among artists. It is scarcely necessary to point out the unfairness of this law to the young photographer who has still to make his name. Your artist has copyright because he is an artist, but the struggling photographer, forsooth, must wait until the public distinguishes between his work and that of the man on the other side of the road, who remains "only a photographer." It would be interesting to know, for the satisfaction of some of us who have fancied that French law meant justice, whether a painter must likewise produce proof of his artistry before he can claim protection in his works, but from my reading of the French Law of Copyright I take it that he has no need to do so. I hope the day is far distant when such invidious distinctions will be made in this country,—Yours truly,

ANGLO-SAXON.

Plymouth, July 30, 1905.

J. H. DALLMEYER, LIMITED, makers of the famous "Dallmeyer Lenses," hitherto represented in America by Anthony and Scovill, are stated by "The Photographer" to have entered the American market direct, and to have engaged the services of Mr. F. G. Burgess, late of the Rotograph Company, and previously the travelling salesman of C. P. Goerz. It is the intention of the firm to ultimately open offices in New York City, though for the present Mr. Burgess intends to make a trip throughout the United States and Canada.

"JOHANNES JAEGER, LIMITED," of Stockholm, have, from July 1, taken over the photographic studio and art publishing business, founded in 1860 by the court photographer, Jaeger, and, since 1890, under the management of Mr. Wolfenstein. The managing director for the new company is Mr. Albin Roosval, editor of "Fotografiska Tidskrift."

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

J. Lawrence, "Cambridge," Farnborough, Hants. Photograph of King Edward VII. Saluting.
 V. Catling, 19, Bertram Road, Bush Hill Park, Enfield. Photograph, Group of 1st V.B. Middlesex Regiment (D.C.O.), "P" Company.
 J. Cromack, Harlesea House, Belvedere Road, Scarborough. Photograph of the Rev. T. E. Lindsay, M.A.
 Fyatt, 8, Monmouth Place, Bath. Photograph of the Old City Watchman's Box at Bath.
 Jorgan, 7 and 9, Lammas Street, Carmarthen. Photographs of A. E. Davies, Esq., M.P., and W. Llewellyn Williams, Esq., R.C.
 O. Scott, "Heathersett," Campton Terrace, Leamington Spa. Photograph of Twenty-four Cattle and Tree Struck by Lightning on July 9, 1905, in the Earl of Warwick's Park, Warwick, with Owner of Cattle and Insurance Agent Inspecting the Disaster.
 J. Barton, 74, Stratford Road, Acton, London, W. Photograph of Groups of Clergy Staff, All Saints' Church, Acton, and Mothers' Meetings (Clergy and Helpers), All Saints, Acton.
 J. John Vaughan, 134, Great Horton Road, Bradford, Yorks. Photograph of Col. G. H. Muller, V.D., 2nd V.B. (P.W.O.), West Yorks Regt.
 A. Osborne, 16, Arwenack Street, Falmouth. Photograph, Outside Burton's (Royal) Old Curiosity Shop, Falmouth, showing two men in the Borough of Penryn Stocks.
 Small, 43, Norton Road, Stourbridge. Photograph entitled "Lady Artists in Dudley Castle."
 I. De Ath, 32, Bank Street, Ashford, Kent. Photograph of High Street Ashford.
 Photograph of St. Mary's Church, Ashford.
 Smith, The Studio, New Road, Grays, Essex. Photograph of the new training ship, Ezmouth, off Grays.

REDEGAR.—1. Mr. C. F. Cross, 4, New Court, Lincoln's Inn, W.C. There is no fixed scale of charges. 2. We do not know the address. If we can be of any service to you we shall be pleased. Perhaps you would like to give us a call.

UNMOUNTED BITUMEN.—Re reply to correspondent "A" in current issue. It is more than probable I am under a misapprehension, as you say, but I have upon several occasions read of sensitive bitumen or asphalt used for etching without being able to find out the sensitiser. I understood, however, that it was bichromate, as parts were washed away as in the carbon process, but could not understand how the bichromate was rendered soluble for mixing with the bitumen. The enclosed cutting, taken from an old "Annual" of, I think, 1891, prompted me also to follow the matter up, as I am much interested in it. However, I should be grateful, as a reader for eighteen years, for any information as to an easy method of sensitising bitumen for etching, or information as to any book which treats of the subject.—A.

This matter is referred to under "Photo-Mechanical Notes."

QUESTIONS ON PHOTOGRAPHIC CHEMISTRY.—I should be much obliged if you could inform me, through your "Answers to Correspondents," what the standard works are on photographic chemistry, and publisher's name.—T. E. H.

"The Chemistry of Photography," by R. Meldola. MacMillan.

"Chemistry for Photographers," by C. F. Townsend. Dawbarn and Ward. 1s.

NEW BOOKS.—I wish to take popular views in different towns in the counties of Sussex, Surrey, and Kent. Would you be kind enough to tell me if there is any book published giving the most important views in each town that are saleable and

popular in each particular district? It would be a great help and saving of time to me if there is a book of this description.—VIEW FINDER.

Your request certainly does not lack candour, but we should have thought a prospective publisher of views would know of the material at present on the market. Most of the large photograph publishers issue sets of views or of postcards, or you will find a selection of the best views in most of the guide books to the various localities in the "Homeland" guides, for example.

EN AVANT (and Others).—In our next.

RETOUCHING, ETC.—Can you kindly tell me (1) how to fill in holes and scratches in negatives so that there will not be the slightest trace of them in the finished print? The negatives are varnished, but the holes and scratches are right through the film, leaving nothing but bare glass. Brush with water colour, also the scrapings of old negatives in acetic acid, have been well tried, but without success. Neither method allowed of the exact density at the first application; while if a second coat of colour was applied it disturbed the one underneath, or else showed on the finished print. (2) Is there any simple method of taking a quick proof at night other than by the bromide development method? I am in diggings, and find proofing by the bromide method to cause inconvenience to my landlady, although the negatives have to be perfect to print from in the morning.—WORRIED.

(1) It is a matter of skill and practice, and you cannot expect to become proficient at once. Brush and colour is the usual method, and perhaps it will be necessary for you to touch out the scratches, etc., more deeply than the surrounding negative, and then to work up a print from the negative in which these markings will be slightly lighter and comparatively easy to match. A second negative is finally made from the print.

(2) We can only suggest one or other of the "gaslight" papers, such as Velox.

COPYRIGHT.—Last Sunday I took an order to photograph an interior of a bar of public house. On submitting the proofs (untoned) they were objected to, saying they were not satisfactory. Leaving the house with the promise of taking them again, I went into another public and showed the proofs to landlord, who thought them excellent. On arriving home I received a letter from my clients expressing their non-approval of showing them (some busybody having told them), and wishing me to destroy them. Whose property are they? They have not paid for them. How would you act in the case?—F. L.

The copyright belongs to the landlord who gave you the order. If he does not pay for the work you have done you can sue for the money. But you cannot make use of the negatives without rendering yourself liable to action.

RETOUCHING (General Assistant).—It is impossible to state your probable salary upon the evidence of a single print of an easy subject, and we wish inquirers would make a note of this reply. Three unretouched prints and three retouched should be sent. Let one be of an aged person with character and wrinkles for preference; the next a young man or woman; and the third a child study. All to be toned and fixed and made on glossy paper to show the detail. These would display the ability to differentiate the treatment between youth and age, and would serve us as a fair guide; but even then the query as to salary is almost useless, and we would rather not reply to it. So much depends upon the personality of the applicant, the years of service, and class of experience, and the feeling of the employer in the matter. Our replies to indifferent workers may

set a value upon those of a higher grade that would be unfair, and tend to lower the general rate of wages. Your retouching for mere fineness is very good, but you remove the shadows unduly, and so flatten your effect.

A. L.—(Asnières).—We are obliged to you for your notes.

RESITTINGS (Country Photo).—The subject of your letter is dealt with in "Ex Cathedra."

FROSTING FOR GLASS.—In page 718 of 1905 "Almanac," Mr. H. N. King recommends "Vitrolite" as a frosting for glass, and mentions that it may be obtained from "the well-known" firm of Walter Carson and Sons, but gives no address. I should be much obliged if you will kindly give me the address.

—W. H. R. K.

Grove Works, Lombard Road, Battersea, S.W.

FIXING TROUBLES.—I have had considerable trouble with my hypo bath lately, my negatives will not fix some days, even when left in hypo bath for half an hour or even more, one edge or corner remaining unfixed and blistering. Until this has happened I have been in the habit of developing a batch of negatives while the last batch fixed, and have never had to wait for the first batch to fix; but now it means a great loss of time as well as many spoilt negatives. I make the hypo very strong. I can only put it down to one of the following reasons:—1, hypo being too strong; 2, hot weather; 3, poor hypo; 4, faulty plates. Any advice you can offer will be greatly esteemed, as I am at my wit's end what to do.—

WORRIED.

It is quite possible that the first cause is the real one. It is a pity you do not tell us the strength of your bath, but it should not be more than 8 oz. to the pint, better 6 or 4 oz. The hot weather may have had something to do with it, by causing the bath to become stronger by evaporation. You should keep it covered when not in use, or pour off the bath into a jar. Nos 3 and 4 are improbable. Try working with a bath 6 oz. per pint, and let us know if your troubles do not disappear.

FINGER PRINTS.—I should be greatly obliged if, through the medium of your paper, you would inform me the best way to photograph finger prints on glass and wood, etc.; if special treatment, plates, developer, exposure, etc.? I should think it would be interesting to most photographers. I have some to do but am quite ignorant how to get about it.—N. BARRY.

We have had no experience in this work, and can only suggest that the impression should be intensified by dusting some impalpable powder, such as bitumen, over it. The surplus having been dusted off, that adhering to the impression could be fixed by heat. In the case of finger prints being made, we may quote from Dr. Francis Galton's directions as follows:—Ink a piece of glass plate with printer's ink by means of a printer's roller, applying the ink very uniformly and thinly. The coat of ink should be so thin that when the inked plate is held between the eye and the light, its tint should be of a smoky yellow, very far from black. Press the finger first on this inked glass and then on a porcelain palette, such as is used by painters in water-colours. The extreme whiteness of the palette contrasts well with the impression upon it, and makes photography easy.

S. HORTON.—Will you kindly give me your opinion on the following questions? I give an order to a publishing firm for postcards of the town and districts, and to save them the trouble and expense of making negatives, I sell them prints from my own negatives at 2s. each. The postcards are to bear my name,

and as I do not want the whole batch at once, they agree to let me have half of the order at first, and to hold the remainder until I require them. I now find that they are selling these cards to a rival firm in the town. Have I any redress? These prints were not copyrighted at the time, but some of them have been copyrighted since.

We do not quite understand the matter from your letter where you say you sold the prints to the firm to execute an order for you. If you gave an order on the terms you say they had no right to sell the photographs to your rival unless, indeed, you did not take the prints they held in stock for you within a reasonable time. You can prevent your rival from selling the photographs you have made copyright, and obtain damages for their sale from the time of registration, if you can prove you have sustained any.

RETOUCHING (Reply to C. F.).—1. Your retouching is second-class only, but might easily become first-class with a little effort and under direction. Balance shadows under eyes to better effect, and grade out to face line with nicer definition—increase your high lights, but do not leave them lonely or too marked. 2. For your retouching only you would not receive more than 30s. per week; but much depends upon your speed, which you do not state. 3. With regard to your operating, it is fair, but you are using a villainous background that plays havoc with the head—which should be kept clear for such a subject.

DEATH OF WALTER E. WOODBURY.—We see announced, in the American papers, the death of Mr. Walter E. Woodbury from fever contracted in Panama, where, at the time of his death, Mr. Woodbury was acting as assistant editor of a daily paper. Mr. Woodbury was well known in photographic circles in Europe and America. He was in Germany at the time of the rise of gelatine printing-out paper, and is credited with the coining of the word "Aristotype." He wrote the first handbook on gelatine printing-out processes. During his career in America Mr. Woodbury was with the Velox Company, and for some years edited the "Photographic Times" and the "American Annual of Photography" for the Scovill and Adams Company.

THE employees of Art Printers, Limited, Bristol, had their annual outing on Saturday, July 29. The party drove to Badminton by char-a-banc; a stop was made at Chipping Sodbury, and lunch was taken at the Portcullis Hotel. On arriving at Badminton the party visited his Grace the Duke of Beaufort's kennels, stables, and grounds, after which cricket and tennis were indulged in, and the party left at 7.15 for the drive home, which was very pleasant, songs being rendered in first class style, and received most heartily.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

The British Journal of Photography.

The Oldest Photographic Journal in the World.

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Places Abroad (One Year) ... 13s. 0d.

It may also be obtained from all Booksellers, Photographic Dealers and Railway Bookstalls.

THE BRITISH JOURNAL OF PHOTOGRAPHY.

No. 2362. VOL. LII.

FRIDAY, AUGUST 11, 1905.

PRICE TWOPENCE.

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EX CATHEDRA.

Tanquerey It would seem as if M. Tanquerey, of the Société Artistique des Portraits, was not finding the European market quite responsive to his cajolleries. The last we heard of him was from a correspondent in Ceylon, and this week our reader in Johannesburg informs us that all the firms were receiving the time-worn offer of the free argument. We trust our estimable friend of the Rue Turin is not falling on bad times, that the "free argument" fraud is beginning to lose its freshness, and that he may be forced to seek some other vocation for which the chief qualification is an unbounded confidence in the gullibility of the human race. It would naturally be as if these forebodings proved to be true, and if, as seems to be the case, we have ourselves in some measure contributed to the present circumstances. We can assure Tanquerey it has always been a pleasure to us to make business known.

Rising Price of Platinum. The price of platinum has undergone a good deal of fluctuation, but has steadily risen of late years, notwithstanding an increase in the production of the precious metal. The chief source is the Perm district of Russia, where some firms are engaged in platinum mining. According to a report in the "Chemische Industrie" on the present condition of the business, the production rose spasmodically in 1901 from 310.7 to 389 pounds (the pound equals 15.43236 ounces). But this advance has not been maintained, and, for one thing, the ore has proved slightly poorer in platinum, and, for another, that under the peculiar conditions of the business, mine owners have no inducement to increase the supply, and, therefore, as the Russian mines are by far the most important source of platinum for the whole world, there is no reason to anticipate any

reduction in the cost of a material of such importance in photography. Excepting revolutionary changes which the modern scientific alchemist may produce, the immediate prospect is for platinum to become dearer rather than cheaper.

* * *

Who Took the Photograph? We read in the Manchester papers that the Queen has been presented with a photograph, specially taken for the purpose, of the recently-established child's cot in the Northern Hospital. But we do not see any mention of the photographer to whom the work was entrusted. In an event of this kind, which is of some considerable public interest, it might reasonably be expected that the name of the firm undertaking the work would appear. It probably would in the case of a jeweller or a confectioner doing anything on such an occasion, and though the question may seem a paltry one, small news items of this description keep a photographer's name before the public, and it is to his interest to endeavour to obtain such acknowledgment of his work in the Press. Usually it will not be difficult to achieve this end through the parties from whom he receives his commission, or from the newspaper people.

* * *

Pirie MacDonald. Among the Transatlantic visitors to London has been Mr. Pirie MacDonald, "Photographer of Men," New York, an interview with whom appears on another page. Mr. MacDonald is a conspicuous member of the group of twenty or twenty-five individualist photographers of New York. He is a "photographer of men" only, and strictly adheres to that self-description in the pursuit of his profession. Your American worker with ideas and personality is more often than not a first-rate man of business, and one does not want to know Mr. MacDonald very long to discover that the alert, clear-cut business faculty is merged with the artistic half-philosophical cast of mind which aims at character studies of sitters as distinguished from facial delineation. How a man advertises is no bad guide to his grasp of a business, and here we have a photographer of men announcing his studio in the ladies' papers, on the practical basis that man comes never to a studio, but is driven there by his sister, wife, or sweetheart. And the matter of the advertisement is just that which rivets attention. There is Pirie shown putting all his weight to close the door of his studio. Over the fanlight is inscribed "Pirie MacDonald, Photographer of Men," but through the slit of the door is visible a surging tide of women struggling for entrance. To take another. A dude of the dudes, flabby and effeminate, is shown in course of sudden ejection from the studio, and, as before, the letterpress

reads only: "Pirie MacDonald, Photographer of—MEN!" Mr. MacDonald recently organised, and became the first president of, the Professional Photographers' Society of New York, a body with aims allied to those of the P.P.A., and already proving a considerable strength to the professional photographers in New York State.

* * *

The Outdoor Portrait Photographers, of all men, Life.

ought to see to it that their hours of leisure are spent as much as possible in the open air. Even a photographer who does not actually spend much time in his dark room gets none too much fresh air in the course of the working day, and some form of outdoor sport, which braces mind and body, is an essential to his well being and an actual business asset. There are precedents in the profession which argue for the truth of what we are saying. One West End photographer at least can be seen every morning taking his early dive into the Serpentine, and he finds the practice a sure means of keeping up to concert pitch. Golf has several distinguished exponents, and among other advocates of active outdoor exercise we might name a well-known Hull photographer who is captain of a cycling club, and does good, not to himself only, but to others whom he introduces to the byways of the East Riding. Our advice to the photographer is to guard his leisure from the claims of business, and to set apart as much of his free time as he can for exercise in the open air. His work and his business will be all the better for it.

* * *

The Portrait and the Sitter.

When a number of negatives are taken at a single sitting, the photographer usually feels that there is one which embodies his conception of the subject better than the others, and is the one which he would prefer the sitter to take. Very possibly the choice of the sitter and the sitter's friends will be quite different, as their decision is based on likeness above all things—a fact, of course, which the photographer should keep ever before him. Nevertheless, it may often be desirable to "force the client's hand"—to borrow a phrase from the card prestidigitateur—and there are ways and means which may be adopted to bring the choice on the favoured portrait. The latter can be printed "just so" in every respect, while others are kept a little under or over printed. The portrait to be "forced" is produced in perfect finish, immaculate in point of surface and mounting, while the others may be let fall a little below the standard, or sent as avowedly rough proofs. Unknown to the customer, a particular print, embodying some distinctive feature of the photographer's work, may be made acceptable above its fellows.

PRINTING PROCESSES.—X.

ALBUMEN PAPER.

The sensitising of albumen paper was fully described on page 563 *ante*, but paper so prepared will not keep more than a day or two, and therefore it is best to use up all of it on the day of sensitising. The addition of citric or of tartaric acid to the silver bath enhances the keeping qualities of the paper, but the acid retards toning, and introduces difficulty in obtaining deep, rich tones. The whiteness of the paper may, however, be retained for some days by storing it between sheets of pure blotting paper saturated with a solution of carbonate of soda and afterwards dried. If the pads of the printing frames be similarly treated, prints not finished one day may be completed on the next without deterioration.

The conditions under which the paper is printed have an influence on the toning of the print, particularly at this season of the year. If the printing frames and their pads become abnormally dry, as they may do if stored, when out of use, in a very hot and dry place, the prints when taken out of the frames will have a rusty brown colour, be mealy in appearance, and also refuse to tone to anything beyond a dirty brown. For this reason the frames, when not actually in use, are best kept in a room of normal dryness. In the last article it was mentioned that fuming with ammonia finds more favour in America than here. This may be because the atmosphere of this country is always in a moister condition than that of the States.

In printing, the prints should be made somewhat darker than they are to be when finished—the deeper the tones desired the darker should be the printing. It should be kept in mind that some toning baths reduce more than others. Prior to toning, the prints must be washed for ten minutes or so in three or four changes of water to remove the free nitrate of silver. The first and second waters should be saved, as they contain a good quantity of silver, especially when the paper is sensitised on a strong silver bath. After the last water ceases to be milky the prints are ready for toning. The toning baths that may be used for albumen paper are almost innumerable; any of those given for P.O.P. on page 524 may be employed. The one most in favour with those who employ albumen paper is the acetate bath; indeed, it is probably more used for the purpose than all the other toning solutions put together. Here is the formula for it:—

Acetate of soda	30 gr.
Water	8 oz.
Chloride of gold	1 gr.

This must be made up at least twenty-four hours before it is to be used, otherwise it is liable to yield mealy prints. This bath can be used over and over again if more gold be added as it becomes exhausted, but the gold must be added some eighteen or twenty hours before it is again employed. Very occasionally a little more acetate will be required. The bottle containing the bath should not be exposed long to the light, otherwise the gold will become reduced. This bath is admirably adapted for producing the tones that were known some years ago as the Payne Jennings red by stopping the toning at an early stage. With deeper toning it gives rich purple browns, and, with strong negatives and deeper printing, purple blacks may be obtained. It may as well be mentioned here that the tone yielded by any bath is largely dependent upon the negative. If deep, rich tones are desired, the negative must be of a vigorous character, so that the deepest shadows become strongly bronzed in the printing. Thin and feeble negatives are useless for deep-toned prints. A good bath for cold tones is the following:—

Carbonate of soda	4 gr.
Water	8 to 10 oz.
Chloride of gold	1 gr.

This bath should be made up shortly before use, as it will not keep for more than an hour or two. Here is a bath that found much favour some years ago with those who liked cold tones. It is known as the lime bath:—

Boiling water	8 oz.
Chloride of gold	1 gr.
Chalk or whiting	30 gr.
Saturated solution of chloride of lime ...	2 minims

When cold, the solution is decanted from the chalk sediment, and it is then ready for use.

With this bath considerable over-printing is necessary, the chlorine has a reducing action on the image. Here is another form of lime bath that is preferable to the above, inasmuch as it has practically no reducing action on the print, therefore little or no over-printing required. Furthermore, a stock solution of it may be kept. The formula is as follows:—In a 10 oz. bottle put a few ounces of distilled water and add 15 gr. of chloride of gold. Drop in a piece of blue litmus paper, which will be turned red. Add lime water (not chloride of lime) till the blue colour of the paper is just restored. Then add 2 dr. of fused chloride of calcium, and make up the bulk to 7½ oz. of water. For use, take half an ounce of this to 8 oz. of water. This bath, like the acetate, can be used over and over again by the addition of more of the stock solution, and that may, if necessary, be added while the prints are toning without injury to them. The stock solution as well as the used bath should be kept away from the light, to avoid spontaneous precipitation of the gold.

Another good toning bath, that is much liked by me, is:—

Borax	20 gr.
Water	8 oz.
Chloride of gold	1 gr.

This yields good purple-brown tones.

There are many other baths, as well as modifications of those given, that can be used for albumen papers, but the above are the most popular ones. It may be well to point out here that all of them will yield good warm brown tones, if the toning is arrested at an early stage, then the colours with all of them will be very much alike. It is in the deeper tones that the effects given by the different baths are most noticeable. In toning albumen prints the colour must be judged by looking on them, and not

through them, as with P.O.P., and the toning should be stopped as soon as the desired tint is reached, or a little before. It should also be mentioned that with highly albumenised papers, such as the double albumenised, deep blacks or purple-blacks are much more difficult to obtain—whatever bath may be used—than with less albumenised ones.

After toning, the prints are washed in one or two waters and, if many are dealt with at a time, it is well to put them, when removed from the bath, in a very dilute solution of salt, to stop further toning action. After another rinse in water, the prints are fixed in:—

Hypo-sulphite of soda	8 oz.
Water	40 oz.

In this they should remain for fifteen minutes, being kept in motion all the while by turning them over and over. If they are allowed to stick together stains will be the result. After fixing, the prints must be well washed in several changes of water, being kept in motion all the while. If the prints are washed in a dish, the best way is to keep them turning about, by hand, in the water for six or seven minutes, and then pour it off and rear the dish up on end, with the prints sticking to the bottom, to drain for two or three minutes. The dish is then refilled with water and the operations repeated. In this way the washing of quite a large number of prints may be thoroughly done in an hour or a little more—that is, if the fixing has been complete, i.e., the hypo salts of silver converted into the freely soluble state. Warm water may be used to facilitate the removal of the hypo without injury to the pictures, and this practice is frequently adopted. At the fixing and washing stages, with some papers, blisters may arise. This subject, as well as the manipulation of ready-sensitised papers, will be dealt with in the next and concluding article on albumen printing.

“PHOTOGRAPHER OF MEN.”

is characteristic of the American photographers, of those, that who are at the head of their profession, that they should come over to Europe to look after business, or to seek ideas for the New world, in the ancient picture-galleries of this country and the continent. Among the visitors who have just left London was Pirie MacDonald, “Photographer of Men,” of Wall Street, New York City, with whom a representative of the BRITISH JOURNAL OF PHOTOGRAPHY obtained an interview, embodied in the notes which follow. Another well-known New York photographer who has just over here is Core, also of New York. Like Mr. MacDonald, he is a specialist and an individualist; and some account of how he has associated his name throughout America with the photography of children will appear next week.

He was not always a photographer of men only. A few years ago he had a snug business in Albany, New York, where he made portraits of anyone who came along, from babies upwards. In those days he was known throughout the American fraternity as a great supporter of the Photographers' Association of America. He was always much in evidence when any hard work needed to be done for the benefit of the profession. It would be unjust to any excellent men to say that he was the heart and soul of the annual meetings—but he was one of the many “hearts and souls.” When, however, it came to exhibiting, he was *facile princeps*. In all classes of portraiture, from miniature upwards, he was used to securing the premier place in the exhibitions.

Pirie MacDonald was everywhere known as a good photographer, and a prince of good fellows.

A Prophet at Home.

So much for his fellow craftsmen. In his own city of Albany he proved that a prophet might have honour in his own country. It is one thing to produce exhibition winners, and quite another to produce everyday work worthy to rank with exceptional efforts. But wherever one went in Albany homes there were photographs dotted about which were unmistakable. The ordinary output of the studio was as distinctive as its exhibition pictures.

From a business or social standpoint what could possibly be better? Mr. MacDonald photographed and cycled, and debated, and lived the strenuous life of a man overflowing with vitality. But there came a day when he squared his broad shoulders, and set his firm jaw, and declared he would have a chance. He sighed for a new world to conquer. His friends have wasted much brain energy in devising some plausible reason for this change. There is a legend to the effect that an irate female customer stunned him with his own lens, and that since that fatal day his nerves have given way at the swish of a skirt. But there is no scar to substantiate the lens story, and the man's nerves are equal to all emergencies. It was sheer love of tackling and overcoming new conditions which sent him from the Albany studio into the swirl of New York.

A Photographer of Men

New York is a city—photographically—of individuals and of specialists. Few people open there successfully unless they do

distinctive work. The rank and file who do "the usual thing" are not of much account. Pirie Macdonald did not do as others have done—he did not open on Fifth Avenue. He made men his specialty, and he went where they foregathered. His studio is high above the street—Wall Street—in a many-storied business building, in the heart of the busiest hive of wealthy men that the world knows. And the results have justified the enterprise.

He Takes a Holiday.

New York has an annual "hot season." For several months in the summer all who can do so flock to Europe or the seaside, or to the mountains. This summer Pirie has come to England, and we ran him to earth for a few minutes just before he sailed for home. We were anxious to learn a little first hand about his work, and he was ready to talk on any subject except that one. He would warm to photography in general as a topic. He has no pessimism about the "fatal facility" of camera work. Only those who have gone through the mill know how the mere chemical and mechanical difficulties of the past have chilled artistic enthusiasm. Photography is no mechanical tool, but a medium whereby an artist may express himself. The younger generation, or at any rate the successful part of it, is becoming less and less artisan. Photographers, while continuing to make pleasing combinations of line and texture, are becoming closer students of character. Undiscerning folks may talk of nature-rubbish. There are enough of harsh sounds in nature; but the harmony of music is not nature—it is art.

About Prices.

"Prices? Well, English photographers have not much to complain of in that respect. Certainly some American photographers get prices which are away up; but so do some English photographers. The men on this side who get a guinea a dozen for cabinets are doing similar work to that which may be obtained for five dollars a dozen in New York. And, after all, there is the other side to high prices. They are of little use unless accompanied by a sufficient volume of business. And in this vital detail the advantage may be with the Englishman."

"But we hear a good deal about go-ahead American business methods. How do we rank?"

Pirie Macdonald laughed. "Don't you believe it. There are good business men on both sides, but some of your most successful men are eye-openers to us. There is not much they do not know. The most noticeable difference is in individuality. I could select the photographs of a dozen successful British firms, and, if the names were trimmed from the mounts, would defy anyone to apportion the prints to their respective studios.

In America a man may be doing the most orthodox of home 'old-line' photography and yet his work is distinctive. The successful photographer in England keeps a firm hold of the business end. He holds the cheque-book and employs capable men to do the practical work. In America he is more likely to handle the camera and be the practical overseer, with his palette help at the desk.

"In New York we have perhaps twenty-five or thirty photographers who are doing essentially individual work. Yes, may be that we have a different class of sitters."

A Difference.

"In England you may hear little of an individualist, for the tendency is to become exclusive and to cultivate a select private clientele. But all American workers keep before the public. And your English sitters are more amenable to the photographer. They place themselves in his hands and accept the results he offers as being what his trained judgment considers the best. In America they form more definite ideas of what they want and if the result does not come up to expectations they are not slow to say so.

"I have seen some of the bulkiest work that I have ever come across, here in London. My specialty, as you know, is men. Well, I have seen some portraits of men that have made me envious. They were mostly 10 by 12 heads. They were—lastingly full, rich, strong, soft, at once. And there was flesh—flesh such as few photographers have conceived. Loose in texture, but nothing in them that was outré; nothing that the normal Philistine could object to. Some of our workers develop what we call the 'freak' mania. But these pictures were the sanest of photography, free from tricks and affectations. Such work would go strong in America—would make a big hit. But here the photographer tells me, nobody wants it. I wonder whether you could guess where I found these photographs?"

L'Adieu.

"You are a great believer in the convention spirit. Do you know that we now have a successful P.P.A. on this side?"

He glanced at his watch. "Ah! You must not draw me out of the question of fraternity. Time's up, don't you know."

"Well, at least, you may leave your formula for success."

Pirie laughed. "Work is the formula. But tell the boys not to come to the States to study American hustle—there are several instances of it in your London studios and they need go no further. But if they come over we will try to give them a good time."

THE WEEK IN HISTORY.

Daguerre's English Patent.

For practical purposes photography is almost exactly sixty-six years old, for 1839 saw the birth of photographic processes which could be put into actual use. During the early part of that year, Daguerre had been busy with his negotiations with the French Government, so that although his process was perfected in January or February, if not earlier, it was not until the last week in August that his *modus operandi* was made known. On June 15, as I have already mentioned in the WEEK IN HISTORY, the French Chamber passed the Bill by which he and Isidore Niepce were granted annuities for freely making known their process to the whole world. However, on Monday next, August 14, exactly sixty-six years will have elapsed since application was made in England for patent rights. The preamble to this first photographic patent runs as follows:—

"This invention relates to photogenic drawing or the spontaneous reproduction of images, pictures, or representations of

nature by the action of light; that is, by the process or methods now well known under the name of Daguerreotype. I believe it to be the invention or discovery of Messrs. Louis Joseph Jacques Mande Daguerre and Joseph Isidore Niepce, jr., both of the kingdom of France, from whom the French Government have purchased the invention for the benefit of that country. This invention or discovery was fully communicated to me by a certain foreigner, residing in France, on about the fifteenth day of July in the year One Thousand Eight Hundred and Thirty-Nine, with instructions immediately to petition her Majesty to grant her Royal Letters Patent for the exclusive use of the same within these kingdoms."

Daguerre's patent was set aside by Sir Thomas Wilde in 1847.

Emulsion Washing by Precipitation.

It is just twenty-eight years ago—on Thursday next August 17th—that Mr. F. Wratten, of Wratten and Wainwright, worked out a method of washing gelatine emulsions—or rather his process was first made known on this date in the BRITISH

JOURNAL OF PHOTOGRAPHY. The method was to add alcohol in considerable quantity to the unwashed emulsion, whereby the gelatine and silver bromide were precipitated together, and the alcohol and included water formed a mixture, in which were dissolved nitrates and other salts formed by double decomposition when the emulsion was mixed. This clear liquid collected at

the top, and was eventually poured off. At this time a ready-made emulsion, to be liquefied by the photographer for his own use, was kept in view as much as a ready-prepared plate, and it was for this purpose that the method was put forward quite as prominently as for the coating of plates.

HISTORICUS.

PERSULPHATE EFFECTS WITH FARMER'S REDUCER.

(A communication to the Photographic Society of Philadelphia.)

THE objection hitherto to the so-called Farmer's reducer has been to the tendency of the agent employed to destroy the detail of the shadow parts of the negative while acting upon the high lights; hence the Lumière Bros. introduced the persulphate of ammonia as an agent which would act harmoniously upon the film—that is, would attack the high lights (the dense deposits of the film) in preference to the thin portions. The persulphate undoubtedly is a valuable chemical and in the majority of cases will be found to work effectively; but frequently it is refractory, apparently not acting at all in the line of reduction. Besides, it requires considerable manipulation to insure success and preservation of the negative from subsequent action.

High-light Reduction with Farmer's Reducer.

The writer has found that the ordinary Farmer's solution, the mixture of ferricyanide of potassium and hypo, may be made to act harmoniously upon the film, that is, to preserve the shadows while it reduces the high-lights. Its harmonious action depends principally upon its constitution and mode of application.

Everyone is aware how much more readily a plate will reduce and indeed how much better is the relation of high-lights to shadows when the plate is reduced with the Farmer's solution immediately on removal from the fixing bath after development, than it can be after being thoroughly washed free of the hypo and dried. Indeed it is the practice of many practical workers to immediately reduce the plate after examination from the hypo bath.

Now the reason why the plate (unwashed from hypo) reduces

more harmoniously as regards light and shade when placed in the Farmer's reducer is on account of the hypo on the film having the preponderance. So that if one wishes to secure shadows, the rational way to proceed is to constitute the reducer so that there may be considerable excess of hypo over the ferricyanide of potassium (the red prussiate of potash), for when the ferricyanide of potassium is in excess, the shadows invariably suffer.

The Method—Ferricyanide in Acid Hypo Solution.

The method employed by the writer (who prefers the Farmer's solution to the persulphate) is to reduce immediately after fixing, when possible, making the film acid with acetic or citric acid and then to place merely in a 5 per cent. solution of ferricyanide of potassium—lifting the plate after a few minutes' action to note the progress, for the action must not be allowed to continue too long or the shadows will pay for it.

When it is necessary to reduce a plate which has been thoroughly washed from hypo, the plan is first of all to soak the film in a bath of weak acid, say a 10 per cent. solution, for 5 or 10 minutes, and then transfer to a bath of hypo for another 5 or 10 minutes, and finally subject it to the action of the ordinary Farmer's solution, that is, one constituted with twice or three times the amount of hypo over the ferricyanide solution and made acid by addition of acetic or citric acid sufficient to redden litmus paper.

Intense plates may thus be reduced as effectually as with persulphate and with less trouble of manipulation.

JOHN BARTLETT.

PROCESS WORK IN AMERICA.

I.

AMERICAN process methods do not differ very much from European practice in a general way, and anyone making a tour of inspection round an American photo-engraving shop will be disappointed if it is expected that anything very wonderful will be seen. Here in England, and also on the Continent, we work processes which we originally derived from America, and we employ American-made screens and machinery to a large extent. Such difference as now exists between English and American shops lies, for the most part, in the fact that whereas American workers have changed very little the methods we learnt from them ten years ago, European workers have elaborated both the processes and the apparatus.

A Lack of Progress.

The majority of American photo-engravers seem to know very little of what is going on outside their own country, for they read very little about their craft. As one of their own writers puts it, "The rank and file, 95 per cent. of them, never think of reading anything technical regarding process work; they simply 'plug' along from day to day in a purely mechanical way, grinding out their quota of work without thought as to why or what, and with only a mind for quitting-time or pay-day. Once out of the shop, process is out of mind, and the days slip by without improvement. In a business so full of possibilities, the great bulk of workers are but

day labourers, bricklayers, and hod carriers." The employer is perhaps, equally to blame. In a great many firms the principals are men who have not worked practically in the business, and only know the technical part in a general way. Work has to be got out so quickly, and competition is so keen, that there is no time to experiment with new processes. Certain processes have been found to yield uniform results, and everyone else uses the same, so there is no thought of changing. There is hardly any originality displayed in the equipment and lay-out of the shops, and they are apparently pretty much the same as they have been at any time during the past ten years, except that they have grown larger, and the plant has been duplicated. After you have been shown through one or two representative shops you find little to interest you in the others, as they are all so absolutely alike.

American Process Apparatus.

I certainly did not see in American photo-engraving shops any evidences of that extreme eagerness to "scrap" old plant when it has obviously become worn out or obsolete, as we have so often heard is the regular practice on the other side. If it were so there would have to be a very complete "clean out" in the majority of the photo-engraving studios in the United States. The cameras and stands were for the most part of a rickety, even ramshackle, descrip-

tion, and often the operator has to stick wedges in badly fitting parts to ensure some degree of parallelism. The American operator, or his employer, does not seem able to get away from the idea that the camera is only a "box," and "any old thing" will do so long as you have a decent lens, forgetting that all the good qualities of the expensive lens are neutralised by the imperfections of the camera and stand. The latter is generally a cheap and flimsy construction, roughly put together, with no pretensions to accuracy. Frequently I hear, "We buy the 'lumber,' and have it put together by a carpenter on the premises when the studio is being fitted up." When the stand begins to show signs of decrepitude, as a good many of them already do, it is "fixed up" with wire nails and bits of string. The dark slide, or plate holder as it is called, is usually of the pattern in which the screen is carried along with the plate. If it has a screen-distancing mechanism it is generally a poor makeshift, and so clogged up and rotted with silver nitrate solution that it is impossible to move it. There is just beginning a tendency to adopt the European plan of holding the screen in an adjustable mechanism at the back of the camera, and there are two or three American-made cameras which somewhat distantly resemble European ones. The American makers do not, however, seem to be able to get away from the idea that a process camera must be cheap to be acceptable to American firms, and the result is that they cannot afford to produce a camera with any great degree of accuracy or durability. I am afraid such cameras give the operators a very unfavourable opinion of the European plan of process camera construction. To import European cameras is, however, out of the question on account of the high initial cost, the expense of shipment, and heavy duty, amounting, I believe, to 45 per cent. of the value.

The Skylight Studio.

Daylight is used whenever possible, and almost every photo-engraving shop has its big skylight studio. The photo-engraving shops are generally located on the top floors of tall blocks of offices or warehouses, and in some cases occupy superstructures on the roof. It is not unusual to find the photo-engraving studio on the 13th to 15th floor of some of the older "skyscrapers." That height, however, is somewhat out of date in New York, where a 21st floor is now to be found in several of the buildings; and they talk about putting an extra storey on some of them. The wonder is that the photo-engravers do not have trouble from vibration, for these buildings shake quite perceptibly. However, various forms of spring stands are used, and this probably overcomes the difficulty.

The Gill Engraving Company in New York have held the record hitherto for the largest skylight studio in the States, but in Chicago I found two concerns were having immense skylights constructed, and one of them, on the roof of the great printing house of R. R. Donnelley Sons and Company, was destined to eclipse everything hitherto done. The studio is 85 feet square, and furnishes accommodation for twenty cameras; it is divided down the centre by a row of eleven dark rooms, and there are nine more dark rooms on the south side. These dark rooms are most substantially constructed, and are lofty and well ventilated. A notable feature is that instead of being constructed of matchboard partitioning, a light kind of corrugated and galvanized steel is used. I noticed this in several other studios. The illumination is obtained from the outside, and the windows can be thrown open when the developing is completed. The half-tone work is to be done in the south part of this studio, the glass roof of which slopes towards the mid-day sun. The north division is to be used for colour work, the photographing of commercial objects being done direct from the goods.

Electric Lighting.

Whilst daylight is largely used, arc lamps are always available

for dull days, and in a few cases where it has not been possible to get skylights, the arc is used exclusively. The "enclosed arc" is rapidly superseding the open arc, but I do not think that as good lamps of the former type are in use in America as in England. I believe our lamps are faster, by reason of the longer arc they draw due to the higher voltage they work on. Again, the use of flame carbons for colour work to reduce the exposures through the filters is quite unknown. The mercury vapour lamp was everywhere in evidence, and was well spoken of both for printing and negative making.

Direct Half-tone Work.

It is quite a general practice to make half-tone and colour reproductions direct from the goods, and it was in this line that I noticed the most marked departure from English methods. There are firms in England who make a feature of photographing commercial articles, and even have a studio set apart for it, but in America it always seemed to me that a very large portion of the business was devoted to this kind of work. In several cases there were immense lifts in connection with the commercial studio, by which large machines, motor cars, or similar bulky affairs, could be brought into the studio complete. In the Binner-Wells Company's studio in Chicago, they make a specialty of reproducing cut glass ware and have a special process for preventing reflections by dulling the surface of the glass without impairing the brilliancy of the high-light effects. They also make a feature of reproducing jewellery and other small objects by laying the things out on the horizontal board of the vertical copying stand. The camera is mounted parallel to the board and is provided with a prism, the face of which is turned towards the board, and the whole stand is run under the skylight where direct sunlight can fall upon it. They get very brilliant effects with splendid detail and no heavy shadows. They have given the appropriate name of "sunlight half-tone" to the results. The half-tone negative is made direct from the objects there being no intermediate stage of producing an ordinary negative, making a print and working it up. They told me they were attempting a "high light" method by which the screen in the background would be eliminated.

Colour Work and Collodion Emulsion.

In the studios of the American Three-Colour Company in Chicago, such objects as ties, scarves, etc., were mounted on a large board and the three-colour negatives made therefrom on dry plates. They had not, however, got to the European practice of making direct half-tone with collodion emulsion. This was not for want of trying. They had had experienced men from Europe, but none had so far succeeded in making a commercial success of the process. The same tale was told me in many other concerns, and collodion emulsion was rather under a cloud in America in consequence. The firms could not make out the reason of this ill-success; they thought there must be "something in the air," or in other words the climate was not suited for it. It could hardly be the fault of the men, seeing that some of the European operators had also failed. They thought the dealer who supplied the emulsion did not give them the same kind as that used in Europe, but batches of emulsion were imported from Europe with no better result. The process was accordingly being looked upon as somewhat of a mystery, and one employer expressed the opinion that it could only be worked by operators who were trained chemists; such as he thought were employed in German studios. Notwithstanding, there are a few firms working collodion emulsion successfully, and this deepens the mystery.

The opinion I formed was that the trouble, when it was not due to badly cleaned glass, dirty holders, and the generally sloppy conditions which prevail in the majority of American process dark rooms, was owing to a lack of appreciation as to the result to be

ed at. The operators were disappointed because they could not the precise black and clear cut dot of the wet plate half-tone negative, and the metal printer objects to print anything else. In, the American operator has got the idea that it is a mistake to expose on white paper for the shadow dots, and his reluctance to do it leads to the weakness of his shadow prints. Now, this "washing" with white is regarded in Europe as a valuable aid to production of good negatives, and so long as it is not overdone there can be no possible harm to the gradation of the negative. Done at the commencement of the exposure it overcomes the inertia of the

plate, and it does no more than build up the centre or nucleus of the dot, so that the deposit of silver can be carried on by the regular process of exposure on the original. I showed an operator a sample collodion emulsion negative brought from England, and he immediately exclaimed: "If I could get a negative like that I should be well satisfied." To sum up it seems that where they have failed is through attempting to apply wet plate methods to emulsion.

WILLIAM GAMBLE.

[The conclusion of Mr. Gamble's "Notes on American Process Work," may appear in our issue of August 25.—Eds., B.J.P.]

CONTROLLING EXPOSURE AND DEVELOPMENT IN BROMIDE ENLARGEMENTS.

(A Paper read before the Photographic Society of New South Wales.)

EDITORIAL NOTE.

Systems of exposure of development papers by rule have been frequently advocated, and have, we know, been found of considerable service by their exponents, yet little or no progress has been made towards the wider adoption of such a method in practical work. Indeed, very little has been done to simplify the experimental work—which is a necessary preface to such a system—since Mr. V. C. Riffled's paper on "The Principles Involved in Enlarging," appeared in our pages eleven years ago. Thus, while we are bound to recognise the trial and error method as one which answers the requirements of practical men, we cannot but feel a sneaking disposition to help forward the system by calculation, and, to this end, reprint here the major portion of a paper which deals at length with the practical aspect of the question. For the report of Mr. N. C. Beck's paper we have to acknowledge our Sydney contemporary "The Australasian Photographic Review."—Eds., B.J.P.]

In exposure the factors which have to be considered are:—

1. Strength of the light.
2. Stop or diaphragm.
3. Degree of enlargement.
4. Focal length of the lens.
5. Speed of the paper.
6. Opacity of the negative.
7. Gradation of the negative.

We can easily allow for the first five factors except when enlarging by artificial light, when it is impossible to allow for the strength of the light.

Gauging the Strength of the Light in Daylight Enlarging.

We can accurately allow for the light by measuring it with an actinometer—that is, a meter in which sensitive paper darkens to a standard tint and the strength of the light is inversely proportional to the time of darkening. Some people may object, that in daylight the light may be altering in intensity, even during exposure; but I have adopted the complete solution suggested by that great photographic benefactor, Mr. Alfred Watkins, of using such an aperture that the correct exposure for the enlargement is identical with the time taken by the paper to darken to the standard tint in the actinometer. So if we hold the actinometer facing the light, illuminating the negative, and uncover the actinometer and the negative at the same time, and then cover the negative when the paper has darkened to the tint, the actinometer will allow for any light variation.

Now, the first thing we have to do is to adopt our standards with which we make our comparisons.

A Standard Negative.

My standard negative is one of medium density or opacity, and of standard contrast; a fairly plucky negative which will give a perfect

range of contrast when printed by contact on bromide paper and developed in an unrestrained developer to the limit of development. Its opacity therefore equals 1.0, one. I will give later on means of comparing the opacities of negatives.

Paper Speed Numbers.

The speed numbers which I have adopted are half those on the Watkins's speed card, because my standard negative is of medium density, while Watkins's is a "decidedly dense" negative, which might be rated as opacity 2.

The following is the table of speeds as I have found them:—

Barnet—Platino matte	12
Empire	3
Kodak—Royal, creme, crayon, and white, platino matte rapid	25
Pearl	3
Wellington—Platino matte	12

I find that these values do not agree with the Watkins numbers, but I have just re-tested them, and find them exactly as given.

Actinometer.

I use the Imperial, or the Watkins's actinometer, for determining the light intensity, as the speeds of the papers are about the same. The Wynne paper I find is of a different speed from the Watkins or Imperial, and so allowance has to be made; the speed of the Imperial paper is very constant, and the colour match quite perfect.

Technique.

1. Place the negative in the enlarging apparatus and focus to the desired size, moving lens and easel as usual.
2. Measure the distance from the surface of the easel to the lens diaphragm with a tape in inches.
3. Divide the speed number of the paper to be used (given in above table) by the estimated density of the negative. Call this A. Opposite this A number in the following table find the corresponding f number:—

A Nos.	f Nos.
100	f64
50	f45
25	f32
12	f22
6	f16
3	f11
1½	f8
¾	f5.6

4. Suppose the A number is 50, then the f number is f45. Now if we used an aperture on the lens which had this value, the correct exposure would be identical with the actinometer time, but the stops marked on the lens have different values, according to the

degree of enlargement. To find the stop marked on the lens, which has this f value, we employ the following equation:—

$$\text{Required stop on lens} = \frac{f \text{ value} \times \text{focal length of lens}}{\text{distance from easel to stop.}}$$

Use this stop on the lens.

5. Close the lens or cover up the negative, then pin up the bromide paper (for this a yellow lens-cap is very useful). Now expose the actinometer outside to the light illuminating the negative, and at the same instant open the lens or uncover the negative, and when the actinometer paper has darkened to the standard tint, close the lens.

If you are using an enlarging camera, after inserting the bromide paper and covering the negative or closing the lens, the camera is carried out into daylight and the negative pointed to the sky (do not let the sun shine on the negative). Now hold the meter, facing the sky (also out of direct sunlight), and expose as before.

Two Practical Examples.

1. Opacity of negative = $\frac{1}{2}$ (a thin negative)
Paper Wellington = 12.

$$\therefore A \text{ no.} = \frac{\text{Paper}}{\text{Neg.}} = \frac{12}{\frac{1}{2}} = 24$$

$\therefore f/\text{no.} = 32$ from table.

Lens, Ross Homocentric, focus, 7 in.

Distance from stop of lens to easel = 21 inches.

$$\therefore \text{stop required} = \frac{f/\text{no.} \times \text{focal length of lens}}{\text{stop to easel}} = \frac{32 \times 7}{21} = f/10.6.$$

Thus use the stop at the lens marked $f/10.6$

2. Opacity of negative = 2

Paper Kodak royal = 25

$$\therefore A \text{ no.} = \frac{25}{2} = 12.5$$

$$\therefore f/\text{no.} = 22$$

Lens, Ross Homocentric, 7 in. focus

Stop to easel = 28 inches

$$\therefore \text{required stop on lens} = \frac{22 \times 7}{28} = f/5.5$$

Now, my lens does not work at $f/5.5$. Hence, I will halve the diameter of the stop, using $f/11$, and let the actinometer darken four times, or if it is a fairly clear day and the light is constant. I give four times the actinometer time. When we use an aperture of half the diameter, we must give four times the exposure; e.g., $f/16$ needs four times the exposure of $f/8$, for the area of the stop varies with the square of the diameter.

Allowing for the Opacity of Negatives.

We will consider the one factor which is difficult to allow for—viz., the opacity of the negative. At the outset the classification of opacities is probably different for enlarging than for contact printing; it is certainly so if there is much fog present.

In contact printing, after the light has passed through the negative, it immediately comes in contact with the sensitive paper which catches it. But in enlarging the conditions are different (see diagram). The light that strikes a part of the negative that has a deposit of silver on it does not pass wholly straight through, but some of it is reflected at an angle by the grains of silver, and does not reach the lens, and is so lost; hence, the light passing through is of less intensity than if all of it went straight on to the lens. On the contrary, in the transparent portion of the negative the light is not interfered with in the slightest. When fog is present, there is much diffusion. Thus we find the optical conditions are quite different.

A negative which gives perfect gradation with an unrestrained developer in contact printing, when using artificial light, is too hard for enlarging by the same light. Messrs. Hurter and Driffield

have estimated that a contact printing density of 0.8 corresponds with an enlarging density of 1.4. We can get over this hardness by using a more active or blue light—viz., daylight. The colour and strength of the light certainly affecting the steepness of gradation in the result. A strong light and a blue light tend to reduce contrasts; a weak one and a yellow light to increase them.

There are, however, two good methods for allowing for the opacity.

First Method.

Select a number of negatives of varying opacity or density, to act as pilot negatives, from very thin negatives of density $\frac{1}{4}$ (say) to dense negatives of density 4; let them be clean, i.e., free from fog. Now, find out from the method below their exact opacities for enlarging. We then take our unknown negative and see visually which pilot negative is nearest to it in density, or between which two negatives it happens to lie, and so find out its opacity very exactly. The more pilot negatives the easier the comparison. It is important that the negatives are perfectly free from stain, or, if stained, equally so. It is better to use a non-staining developer, or to use a properly compounded acid fixing bath.

Second Method.

Focus the image in the enlarging apparatus so that it is the same size as the negative (or smaller, if convenient). Now, use as a trial slip a piece of paper embracing the whole image; you can then gauge your gradations perfectly, and can see the general effect.



This would be impossible with only a portion of the picture. Of course, in arriving at the exposure for the trial slip we gauge the opacity of the negative as closely as we can visually—i.e., compare with the standard negative, and use the foregoing exposure system—most likely it will be very nearly correct in the first exposure. In developing this slip we must develop to the limit, using (say) rodinal with no bromide (rodinal 30 minims, water 1 oz.), or very little bromide. Any developer will do as long as it does not stain and is not restrained. If the resulting print, when viewed by gaslight or subdued daylight after having been fixed, is too dark, we have over-exposed; if it is too light, we have under-exposed. In this way we find out our opacity number, then proceed to enlarge to the desired size.

Technical Details.

There are one or two practical details which call for mention:—

The question may be raised: "How can you get out of the dark-room to hold the actinometer near the negative, to test the light falling on the negative, seeing that you must have your paper pinned up ready for exposure, and having to give the exposure from the outside, you cannot admit light by opening the door?"

1. You may have your dark-room opening into another room, which you can temporarily darken—as I have done.
2. You may get some one else to hold the actinometer outside and make the exposure for you.
3. You might have a little box opening on to the reflector near the camera, with a yellow glass window at the side, through which you might observe the darkening of the meter.
4. You can choose a day which is tolerably clear, and expose about

middle of the day, when the light is constant. Make the cinometer test, timing it with a watch, and go inside and pin up bromide paper, and give this time. Of course, there must be no rapidly moving clouds, with periods of shade and sunshine. 5. You may use an enlarging camera and carry it out and expose as before described.

All this technical explanation sounds very complicated when compared with the trial and error plan, and, indeed, it has taken some time to explain. But it is not so; in fact, it takes much less time, it may take $\frac{1}{2}$ minute to estimate density of negative, $1\frac{1}{2}$ minutes make our calculation; total, 2 minutes. The rest, pinning up, exposing, etc., is the same in both. Now, it takes longer than 2 minutes to expose and develop the trial slip, and then we have the great difficulty of estimating from a small portion of the image whether exposure is right or not. The only thing we must be sure

not to do is to under-expose, remembering that with the following system of development slight over-exposure is of no consequence whatever. Even if we are not aware that we have exposed, we can safely give twice the correct exposure, and even more, and we can be quite sure that our exposure lies somewhere within this limit. It is well to keep a notebook for full data, exposures, magnification, paper, etc.

For those who are content to use a fixed focus enlarging camera, a fixed stop, and one brand of paper, the only factors which have to be considered are the opacity of the negative and the strength of the light, hence the exposure problem is somewhat simplified.

It is well in practice to use only one brand of bromide paper, as you get to know its idiosyncrasies. N. C. BECK.

[The concluding portions of the paper must be held over until our next issue.—Eds. B.J.P.]

PAINTERS AS JUDGES OF PHOTOGRAPHS.

We often see the question raised, "Who is the right person to judge pictorial photographs?" and, of course, this question implies the further one, "Is it better to have a painter's views on art applied to a photograph, or should such judging be confined to photographers only?" A writer in the "County Gentleman," one of our contemporaries which presents each week a well-edited page of photographic notes, discusses the pros and cons of these vexed questions some length.

A Photographer on Technique.

Undoubtedly the photographer is the right man to judge on questions of photographic technique, just as the painter is the right man to consult to find out if a picture is well painted. But in a pictorial photograph something more is aimed at than an exhibition of technical excellence, and this something else this pictorial quality needs to be appreciated at its proper value.

The Dangers of the Painter.

There is one danger inherent in the painter's appreciation of a photograph that I saw well described in an article a short time ago. There are certain effects that are produced by a painter laboriously and carefully—gradation in a sky, for example—that may quite possibly be produced by a lens correctly in a moment. The painter may well over-value a result which to him would have been difficult, whereas to the lens it is easy.

Judgment by Aim.

But I think it is fair to remember that this is, after all, still a question of technique. A painter, in judging pictorial photographs, ought to lay aside altogether all thoughts as to how the picture has been produced, and should simply estimate the pictorial quality of the result before him. It seems to me that such expressions as "faking," "dodging," etc., are often misleading. If the photograph is shown as a specimen of work done by the lens, then, of course, it ought not to be worked upon by hand; but, if it is shown as a picture, it has a right to be estimated as such, without any reference to the means that have been taken to produce the effect. The only question is—Have these means attained their object? A man may use any method he pleases if it produces a beautiful result, but the quality of that result must be determined by minds that are trained in art. At present, at any rate, minds of this character are far more likely to be found amongst painters than anywhere else. In course of time there may emerge men who are accepted as artists, and whose experience has been acquired

through photography, and not through painting; but it is very unlikely that any man will attain such a position without studying the acknowledged masterpieces of art and the accepted principles that guide all artists in their work.

One point of great importance is that a picture of any sort should be judged according to its aim. "How far has the artist realised or fallen short of his intention?" is the point to be examined by the critic, not merely "Has the artist produced a picture which appeals to me?"

In painting, of course, the same question is all important, but the different aims followed by different painters are more widely understood. It is known that the same picture is unlikely to excel in power of design, in harmony of line, in beauty of colour, and in well-balanced light and shade, and there are many different schools of painting that produce widely different results. But in photography the fact that differences of aim exist is not yet so fully recognised. A man who produces work of the older type of excellence, consisting of elaborate detail in the sharpest possible focus, is with difficulty brought to acknowledge that another man's work can have real merit, although expressed in sombre masses, low in tone, and indistinct in outline. All this kind of thing he is apt to consider simply bad work, and to condemn accordingly; whereas, of course, a picture of this broader kind may well have achieved a true pictorial excellence. An artist judging by results alone is more likely to have a balanced mind, from the fact that he is no partisan of any school of technique.

A M \acute{e} tier for Photography.

It is to be hoped that from all the pioneering work now going on there may emerge some definite knowledge as to what type of pictorial work photography is most fitted to produce. There may then be a recognised school, which does not practise a mere imitation of painters' methods, and has got rid of the early affectation which delights in defying all accepted conventions, so that we may realise that pictorial photography has a definite m \acute{e} tier of its own.

At present the pioneers are making vigorous experiments in all directions. Many eccentricities, highly praised but a short time ago, are now seen to have been off the lines of real advance. The chief need is that those things should be studied which find their expression better through the lens than through any other medium. An art founded upon such things as these must be truly characteristic of photography, and would be welcomed, because of its power of expressing itself in a field of work that the recognised arts have not hitherto been able to make their own.

OUT OF THE RUT ADVERTISING.

THE "British Advertiser," which by the way has now established itself in London at Queen's Anne's Chambers, Westminster, publishes in its August number an interview with Messrs. Taylor, Taylor, and Hobson, of Leicester, on their distinctive methods of advertising "Cooke" lenses. The interviewer writes:—"Appreciating the value there is attached to a cross mark against the side of any matter to draw attention to it, Messrs. Taylor put a cross against all their announcements, with the result that they at once stand out. In case others may haste to copy the idea, I give the following bit of conversation I heard only the other day. Another photographic manufacturer, with more appreciation for the value of the idea than originality, is attempting to distinguish his announcements by putting a tick against them. 'See this?' said one camera enthusiast to another, 'that's not a bad idea to draw attention to an advertisement?' 'Oh,' said the other, 'they've copied Taylor, Taylor, and Hobson. They always put a cross against their advertisements.' Then followed a long dissertation on Cooke lenses, which by the way were not being advertised in the paper they were looking at, to the total exclusion of the real advertiser.

"There is a hint in this for those people who are fond of slavishly copying any good idea that comes along. They forget the obvious fact that the idea is associated with the original advertiser, and that in many instances the effect of their copying it will only be to accentuate the original advertisement."

Discussing the opportunities for powerful advertising of lenses, the writer pictures the photographer dissatisfied with his optical equipment for some particular reason.

"Turning over the pages listlessly, he comes across an announcement of the Cooke lenses and he is interested at once. There's a 'reason why' in each of them. In dull weather you are reminded that you can take pictures in a fraction of the time required for other lenses to operate because of the wide aperture of the lens. Perhaps at the moment you are interested in enlarging or copying your attention is drawn to the flat field of the Cooke. Price may be a consideration; you are shown how by its simple construction the Cooke can be sold cheaper than other lenses, and so through all the gamut of reasons that could possibly be adduced to persuade you to become a possessor of a Cooke. Each is dealt with in turn, and in each announcement there is a 'good reason why' you will be acting wisely in acquiring such a lens.

"Messrs. Taylor do not believe, however, in relying on their announcements only. At the foot of all their advertisements is a line 'Send postcard for particulars.' This is usually keyed, and a request for further particulars brings a neatly got up little catalogue as chock full of argument as one could wish. Following this comes a series of follow up letters, each one a little more persistent than the preceding, the last culminating in a request to know the reason why the order has passed them."

We have already reported the threatened demise of the Camera Club as a separate entity, and on the 22nd inst. an extraordinary general meeting of the Camera Club Company will be held to consider, and if it were deemed expedient, to adopt, a formal resolution for winding up of the same. Provisional arrangements have been made with the Club Trust Company, the proprietors of the Blenheim Club, by whom members of the Camera Club can be nominated as members of the Blenheim before November 30. Up to the 1st inst. only 120 out of the 400 town and country members of the Camera Club had signified their intention of being absorbed by the Blenheim. The Camera Club will finally close on the 31st inst.

Photo-Mechanical Notes.

Etching Zinc Plates.

THE effect on the structure of zinc plates by enamelling the image was shown, by photo-micrography, in a previous issue of this Journal. In that case the zinc was fractured to show the change of grain. The writer has often observed the effect on "perished" zinc of the nitric acid etching bath. Before placing in the bath the surfaces of normal and perished zinc

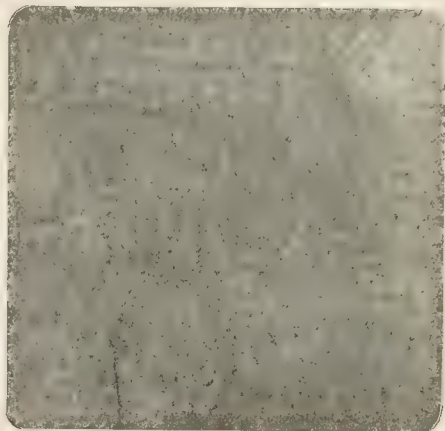


Fig. 1.—Photo-micrograph of normal zinc plate after etching with nitric acid.

have practically the same appearance, but directly the metal is placed in the etching bath the difference of structure is immediately demonstrated.

The normal metal etches with an even, dull surface, whereas the heated zinc shows its crystalline structure directly the acid

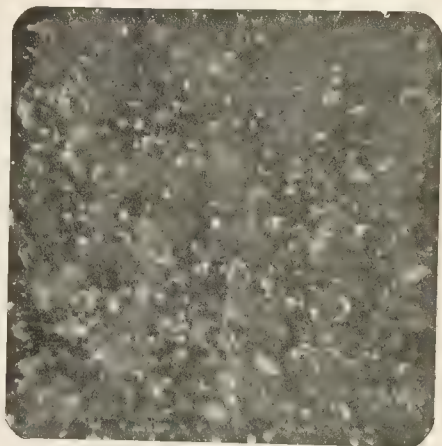


Fig. 2.—Photo-micrograph of enamelled zinc plate after etching with nitric acid.

flows over it, and the surface of the metal assumes a coarse granular appearance with bright sparkling specks of metal.

Under the microscope, the surface of the unheated zinc appears of a fine, even grain of a grey tint. The perished zinc shows a large irregular grain. Some of the crystalline granules are of

distinct bluish tint, probably owing to slight impurities in zinc. The effect of the acid on the surface of the two kinds of metal is shown in the accompanying photographs taken with a two-thirds-inch objective. The first illustration shows the small zinc with the comparatively even surface; the second shows the appearance of the perished substance with its crystalline structure developed by the nitric acid. Enamelling does not seem to affect the rapidity of the etching to any appreciable extent. Two-line blocks printed one on perished zinc and the other on normal metal and etched for the same period of time are both of the same depth when removed from the bath.

J. I. Pigg, F.R.P.S.

The Citrate Bichromate Bath for Photolitho Paper.

Professor Namias gives, in the current number of the "Zeitschrift für Reproduktionstechnik," a preliminary note on the above subject, the experiments being based on the much greater stability of carbon sensitive on a bichromate and citric acid bath. If Rives' paper is coated with albumen and bichromate, rendered alkaline with ammonia, a good photolitho transfer paper is obtained, which, however, only keeps for a short time. If, however, 2 to 3 per cent. of citric acid is added, the paper will keep much longer. The actual formula will then be:—

Potassium bichromate	10 gms.
Water	100 ccs.
Liq. ammonia	q.s.
Citric acid	23 gms.

From 10-15 ccs. of this should be added to every 100 ccs. of egg albumen, and the paper floated on the mixture. This paper will keep for three weeks at least, and then give transfers on zinc as good as freshly prepared paper. Details are promised as to the use of citric acid in the bichromated films for collotype.

Shrinkage of Stripped Films.

To a reader of Penrose's "Process Work" who asks for help in stripping a collodion film square and exactly to size, the following reply is given:—

"First, let the film dry—gummed or ungummed does not matter. Wet the edges $\frac{1}{4}$ in. wide all round, and then neatly, with a piece of square wood, remove the wet strip of film, and rub clear of the smallest fragments all round with a cloth, pinching the edge of the plate. 3. Have ready a gelatinised plate. The gelatine is very particular; it must be of fair quality, and should have a mixture of stale or inferior gelatine, otherwise the surface is as biting to the collodion film under water as if it were in the air and you touched it with the finger. We all know the peculiar grip of pure and freshly set gelatine. The same smoothness or freedom from grip under water may be got by a very small mixture of fish-glue. But it is easy to add too much, and the collodion film then refuses to grip when wanted. These gelatinised glasses are preferably dry and in stock; they may also be made by bleaching out dry-plate negatives or spoilt dry plates so as to be clear and transparent. 4. Now bathe the negative in a dish so as just to cover it with water acidulated with hydrochloric acid about 7 per cent. Leave it in awhile and the edges will be seen to rise, and as separation goes on the whole film will presently float. It is often well to take out early and rinse it from the jug, holding the upper edge with the thumb on the glass. Meanwhile, it will become quite free. 5. Place the gelatine glass in a dish about 1 in. deep in water, and on the far edge of it a strip of glass about $\frac{1}{4}$ in. thick. 6. Now turn over the negative with the loosened film face down, and lay it carefully upon the future support with the space produced by the glass strip on the farther side. 7. In a minute or two the film will drop slowly from the upper glass, and

can be assisted by passing the water away from the operator on either side of the glass, when a return current is caused which runs in between the film and the glass, and so it gradually gets clear. 8. When nearly or more than half clear, begin by putting the fingers under the far edge of the upper negative glass, and very slowly and steadily lifting it. As it rises the currents in the water may be caused similarly to keep the floating film straight, and cause it to clear itself from the upper glass, which is deftly and slowly removed, the last part being very careful. 9. The film, now floating freely in the dish, is adjusted by the two thumbs on the far edge, and gradually the lower glass is lifted, keeping it carefully to an angle of 15 deg. until it is lifted right out. Keep it down on the far edge with the thumb, by which it will become attached, and on draining it will be found to settle with practically exact truth, and can be biased a little this way or that by the thumb or finger during the draining, after which it dries in a few minutes. It is usual to lay it on a gentle slope to drain, and a small weight or two along the top will prevent it slipping altogether away. This method has served me many years, and I was never put out with the least distortion."

The Direct Reproduction of Plastic Objects.

The direct reproduction of any solid object in half-tone is generally acknowledged to be much more difficult than a mere print or flat surface, and Herr Mente gives some useful hints on this subject in the "Zeitschrift für Reproduktionstechnik." One of the most important things is the illumination, and this must be arranged for each object, so that brilliancy is avoided as far as possible. If the object has low relief, then the lighting must be from one side; if high relief, on the other hand, the lighting must be "soft" and more from the front. Polished objects are always difficult because of the hard and spotty lights, and these should be obviated by painting with a thin paste of magnesia or chalk. Silver and glass vases and bowls can be "matted" by putting pieces of ice in them, and a great deal of reflection may be avoided by hanging a neutral grey, dull cloth behind the camera. In taking glass vases, particular attention should be paid to the background, so as to avoid extreme contrasts. When a lot of small objects are to be included in one plate, they can be temporarily cemented to a sheet of plate glass, so as to avoid shadows, and a card of the desired colour placed some distance below the glass. As regards the lens, it is usual to employ a focus of from 45 to 60 cm. for plane objects, and such a lens may be also used for small objects, but for large ones a shorter focus will be more convenient, and this introduces the difficulty of the screen distance, which will in certain cases become less than the thickness of the glass, so that limits are thus set to direct work. It must not be forgotten when choosing the stops that not only is it requisite to have the proper shaped dot, but also sufficient depth of focus to get all planes sharp.

The work of students in the Bolt Court School of Photo-engraving, Fleet Street, London, E.C., is given a prominent place in the "Inland Printer" for August, where the separate impressions and the complete trichrome from a set of three-colour blocks made by students are presented as a series of supplements.

Who said American invasion? We now read in the "Inland Printer" that the firm of Penrose and Co. is establishing in New York a house for the supply of all process apparatus and materials, and will carry on in America a business such as that which it has so successfully established in Great Britain and the Colonies. The announcement comes as a natural sequel to Mr. William Gamble's recent visit to the States, and we congratulate the management at 109, Farringdon Road, on the enterprise which now bids fair to make their house world-famed in the process-materials trade.

Exhibition.

ANDOVER.

The fifth amateur photographic exhibition held in connection with the Andover and District Horticultural Society was opened on Monday last. The exhibition is a great advance on previous shows, all classes being well supported. The judges, Messrs. F. J. Mortimer, F.R.P.S., and W. Milman, M.A., made the following awards:—

OPEN CLASSES.

Class A. (Portrait and Figure Studies):—Gold medal, Miss B. Stanford; silver medal, A. W. Walburn; bronze medal, Rev. E. G. Watts; certificate, C. Castle Sloan.

Class B. (Landscape and Seascape):—Silver medal, Fred Judge; bronze medal, Rev. E. G. Watts; certificate, M. Willis; extra certificate, G. Vials.

Class C. (Architecture):—Silver medal, W. G. Hill; bronze medal, Alfred Roffey; certificate, James Dunlop.

Class D. (Postcards):—First prize, J. H. Saunders; second prize, A. H. Almond.

CLASSES OPEN TO ALL AMATEURS RESIDING WITHIN A RADIUS OF TWENTY MILES OF ANDOVER.

Class E. (Landscape and Seascape):—First prize, Miss M. Best; second prize, Rev. E. G. Watts; third, T. C. Baynon.

Class F. (Architecture):—Rev. E. G. Watts.

Class G. (Figure Studies, etc.):—First prize, Rev. E. G. Watts; second prize, T. C. Baynon.

Class H. (Novices):—First prize, H. C. Wood; second prize, George Knowles; third prize, Mrs. Barr.

FORTHCOMING EXHIBITIONS.

July 4 to August 12.—Northern Photographic Exhibition. Secretary, F. G. Issott, 62, Compton Road, Harehills, Leeds.

August 24 to September 21.—Berwick-upon-Tweed Arts Club. Hon. Secretary Pictorial Photography Section, H. Hancocks, 38, Ravensdowne, Berwick-upon-Tweed.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 17-18-19.—Isle of Wight Photographic Society. Hon. Sec., V. Howard Burgess, 53, Pyle Street, Newport, I. of W.

October 18-21. Rotherham Photographic Society. Hon. Secretary, H. C. Hemmingway, Tooker Road, Rotherham.

October 19-21.—Grangemouth Amateur Photographic Association. Hon. Secretary, Robert Marshall, 3, Park Terrace, Grangemouth.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November.—Bristol and Clifton Arts and Crafts Society. Secretary, R. H. Parr, 5, Grove Buildings, Blackboy Hill, Bristol.

November, December, January.—Second American Photographic Salon. H. Snowden Ward, 6, Farringdon Avenue, London, E.C.; Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

November 3, 4, 5.—Motherwell Young Men's Institute C.C. Hon. Secretaries, James Dunlop, Myrtlebank, Motherwell, and Archibald Matthews, 24, Enfield Place, Ladywell, Motherwell.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern A.Ph.A. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarnock Street, Parkhead, Glasgow.

December.—Muirkirk A.Ph.A. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. MacLachlan, Mairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph.A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Win. Kitson, Hawthorne Villa, Shettleston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, M'Neill Street, Larkhall.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 19-24, 1906. Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

FORTHCOMING COMPETITIONS.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 15.—Lantern Slide Competition, Association Belge de Photographie. Secretary, Palais du Midi, Brussels.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour; (b) Illus-

ted technical lecture. Particulars from the Secretary R.P.S., 66, Finsbury Square, London, W.C.

February 6-9, 1906.—Guisbrough Fine Art and Industrial Society, Photographic Section. Hon. Sec., G. H. Angus, 34, Westgate, Guisbrough.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for patents were made between July 29, 1905:—

LOUR PHOTOGRAPHY.—No. 15,185. "Improvements in multi-colour photography." Charles Louis Adrien Brasseur, 18, Southampton Buildings, Chancery Lane, London.

ULSIONS.—No. 15,214. "Improvements in the manufacture and production of emulsions and other materials sensitive to light." James Harris, Paul Gillard, and Henry Hearn Molyneux, 2, Beaufort Villas, Sandycroft Road, Kew Gardens.

VELOPMENT APPARATUS.—No. 15,262. "An automatically rocking developing apparatus for photographic plates, films, and the like." George Beston, 306, High Holborn, London.

FOUSSING.—No. 15,341. "Focussing device for magazine cameras." John Herbert Briggs, 36, Bridge Street, Castleford, Yorks.

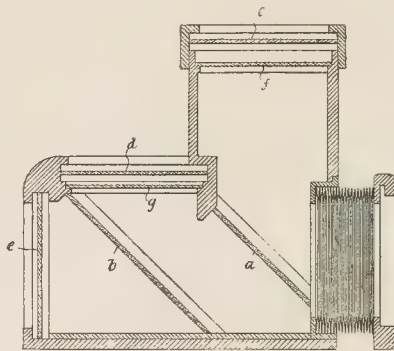
COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

MONOCROMA CAMERAS.—No. 19,427, 1904. The patent relates to a camera with a lens swinging on an axis which passes through the optical centre of the lens, and provides for the employment of film of less length than the longest the camera will take. There are also:—Improved means for regulating or adjusting the speed of the swinging lens-carrier and thereby timing the exposure; and arrangement of the body of the camera in such a manner that the internal parts are rendered easily accessible and the introduction and removal of the films facilitated. The numerous diagrams are necessary to explain the construction. John Boulton Brooks, Finstall Park, Bromsgrove, Birmingham.

THREE-COLOUR CAMERA.—No. 4,290, 1905. The patent is for a camera with a particular arrangement of screens and reflectors for simultaneously taking all three negatives, viz., as follows:—The blue-sensitive plate is placed where it receives the image from the second reflector, the green-sensitive plate where it receives the image at first reflection, and the red image is received direct. The arrangement permits of the quickest exposures consistent with the requirements of the red plate and more correct adjustment of the quantity of light allowed to act on each plate so as to secure more truthful rendering of the colours of nature. By placing the green in the position opposite the first reflector it gets the strongest reflected light and the red at the back is not needlessly kept back. The drawing shows a section of a camera with the two reflectors a. b. c. d. e. are the three plates, and f. g. coloured screens before the first two plates. The first reflector (a) transmits red, orange, yellow and blue, and may be called a "pink reflector," though it may appear to the eye heliotrope, mauve or magenta. The second reflector (b) transmits red, orange and yellow, and may be called "yellow," it may appear to the eye red or orange. A

portion of the light passing through the lens is reflected from the reflecting surface of the reflector (a) passing to the plate (c). This light is filtered of all rays except the green and a portion of the yellow, by the green screen (f). A portion of the red, orange, yellow and blue rays which have passed through the reflector (a) is reflected by the second reflector to the plate (d). These rays are again filtered of all but the blue rays, which are to act on the blue taking plate by a blue screen (g). This screen should be so coloured as to exclude the more active violet and ultra-violet rays which will prevent plate (d) from being over-exposed compared to plates (c and e), the violet colours of the subject being reproduced in the photograph by combinations of blue and red. The red, orange and yellow rays pass through the second reflector on to the red plate (e) situated at the end



of the camera. In place of the reflectors being parallel to each other, as shown, they may be at right angles to each other, in which case plate (d) will be on the opposite side of the camera to that on which plate (c) is situated. Should it be desired to make the colour records to consist of suitably adjusted secondary colours instead of primary colour sensations, this arrangement will still hold good—the slow colours being assigned to the position of the greatest illumination and the quickest to the position of least illumination. It is not necessary to have the reflectors movable for the purpose of adjusting their position as the correct position of the faces of the reflecting surfaces can be ascertained once for all by calculation or experiment, having regard to the thickness of the glasses used in the reflectors and screens. It is only necessary to adjust the lens to the distance from the subject, that is, to focus the subject as in ordinary cameras for one plate, and when one plate is in focus the others will be also. Edwin Tranter Butler, 26, Craven Park, Willesden, Middlesex.

MULTIPLE PICTURES.—No. 7,900, 1905. 1. A photographic apparatus in which a number of separate subjects or views may be taken on a single plate, by means of one lens mounted on two screens, one being adjustable vertically and the other horizontally, the camera being also provided with a removable compartmented partition. Abbé Antoine Cardon, Castel Lorrain, Beausoleil, Monaco (A. J. Boulton, 111, Hatton Garden, E.C.).

DRAINING RACK.—No. 8,964, 1905. The patent is for the combination in a photographic draining rack (of the folding type, in which grooved rails, or boards, for supporting the negatives are fixed to pivoted X legs which open at right angles) of rails made V shape in section, and of metal legs furnished with right angle flanges for the purpose of forming direct resisting stop abutments to prevent the legs from spreading when in use, and

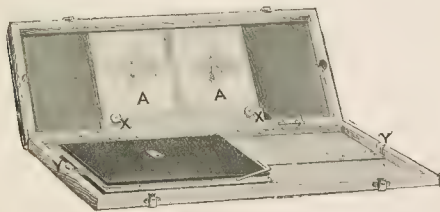
for providing a convenient means of attaching the rails. Houghtons, Ltd., 88-89, High Holborn, London, W.C., and Herbert Holmes, Tudor Works, Tudor Road, Hackney, London.

MULTI-FILM ORTHO PLATES.—No. 9,246, 1905. The claim is for a double or multiple film of isochromatic emulsions, one of a different character from the other. The slower emulsion having been applied as a first layer on a support (which may be temporary or permanent according as a flexible photographic film or rigid plate is required) and dried, the faster emulsion (made in the same manner but differing from the first in its higher degree of sensitiveness to the actinic rays) is then applied as a second coating on top of the first or slower coating and allowed to dry, and so on for as many superimposed coatings of progressively increasing degrees of sensitiveness as may be deemed necessary to ensure the complete interception of the rays. The film may then be stripped off the support and used as a flexible film, or it may be left on the support and used as a plate. There are a number of aniline dyes which may be used for the first or slower emulsion (for examples, dyes of the erythrosine series), while for the top or faster emulsion a mixture of the dyes of this series with a yellow dye (for example, nitrophenine or other dye of that nature) may be employed. The emulsions are of the ordinary silver bromo-iodide formulae. The dyes in liquid form are added to the emulsion, which is prepared in the usual manner previous to coating the support. The advantages obtained by this invention as compared with the ordinary single layer of isochromatic emulsion is the absence of all halation and false tone-rendering due to imperfect interception of light rays, and the wider and more perfect tone-rendering due to the colour sensitiveness of each layer of emulsion of which the film of this invention is composed. Sandell Films and Plates, Ltd, 213, Selhurst Road, South Norwood, London, S.E., and Leonard Smith, 22, Park Hill Road, Croydon, Surrey.

New Apparatus, &c.

The "Brownie" Stereo-Printing Frame. Made by Kodak, Ltd., Clerkenwell Road, London, E.C.

With this compact printing frame negatives on glass or film can be printed on to a single piece of paper, and when finished can be mounted for the stereoscope without transposition. In use the frame



is very simple and rapid, and is strongly, yet lightly made. The prints are obtained with a narrow white margin, and with the pictures level and at the right distance apart, we conceive that users of the Brownie stereos will find the frame an indispensable adjunct to their outfit.

THE V.H. WASHER. An improved pattern of this washer has been submitted to us by Houghtons, Ltd., of 88 and 89, High Holborn,

W.C. We have already reviewed the apparatus, and can speak well of its capabilities. It is well and strongly made in enamelled iron. The direction of the jet entering the washer is so arranged that circular motion is set up, and this motion is continued by the impetus of the inrushing water. The prints, therefore, are kept continually on the move, and as there is no vortex they do not all clog together in the centre. This vortex, which is the usual failing of circular washers, is prevented by a central column or core, which gives an even circulating motion to the moving water, and prevents the prints sticking together. The movable bottom is perforated in a helical manner, so that hypo or other foreign matter is quickly carried off, drained away by means of a central conduit. The V. H. is also fitted for plate washing, and does this as effectively as it washes prints. The price of this washer is now 6s. for 12 inches in diameter, 13s. 6d. for 17 inches, and 21s. for 22 inches. This last size is large enough to wash prints up to 12 x 10 size. The V.H. is supplied either as a print and film washer only, or as a combined print and plate washer, the latter being slightly more expensive, but in any case they cannot be considered dear, and are very good value for the money.

New Materials.

Ensign "Slip-in" Postcards. Supplied by Houghtons, Ltd., 88-89, High Holborn, London, W.C.

The fecundity of the picture postcard goes without saying in these days, and we cannot be astonished by any introduction which adds a novelty to what seemed infinite variety. Messrs. Houghtons, Ltd., at one fell swoop have caused the photographic postcard to multiply in the earth, the swoop being in the nature of a slip-in mount, postcard in size and shape, but with openings for prints quarter-



plate or less in size. Thus the small print that would otherwise be thrown away becomes a postcard, though in justice to prospective senders of the cards, it must be pointed out that officially they are not postcards, but letters or book packets, according as a message is or is not written upon them. Messrs. Houghton do not say so, but we imagine that when bearing only the sender's name and address the "Ensign" card will pass through the post for a halfpenny.

"Chess" Brand P.O.P. Made by Photographic Materials, Ltd., Rickmansworth, Herts.

Samples of a new brand of P.O.P. have been sent us, and although there are a good many papers already on the market, we are always ready to welcome another, provided it can substantiate its claims to popularity. "Chess" Brand P.O.P., however, makes its appearance with no beat of drum or flourish of trumpets, neither does it claim to be the best ever made. By following the directions, how-

ver, the user of this paper will soon discover for himself that it is first-class article. It prints quickly, tones easily, and gives a good colour print. The toning bath recommended is composed as follows:—Ammonium sulphocyanide, 20 grs.; water, 18 ozs.; chloride of gold, 2 grs. When the desired tone has been obtained, the prints are fixed in:—Hypo., 3 ozs.; water, 20 ozs.; and then washed and dried. In hot weather the prints should be transferred to a solution of alum, 3 ozs.; salt, 1 oz.; water, 40 ozs., for five minutes after fixing and rinsing. A glazed surface is obtained on Chess' P.O.P. by squeezing the prints as soon as they are taken from the last washing water, face downwards on ferrotype plate, the surface of which has been previously polished with waxing solution, made as follows:—Spermaceti wax, 30 grs.; benzene, 5 ozs. The paper is sold at the usual rates, and in the usual cut sizes.

A memorandum from the Kodak Company calls attention to the fact that the recently introduced Tank Developing Machine permits of the simultaneous development of any number of films. As the films require but little attention during development use can be made of duplicating outfits which are supplied consisting each of an extra tank, reel, and apron. While one film is being developed a second is rolled up within the duplicate apron in the box, and inserted in the second tank. Duplicating outfits are sold at 6s. to 2s. 6d., according to size.

URBANORA IN THE CAUCASUS.—The expedition which in the early part of the year Mr. Charles Urban despatched to the Western Caucasus has returned to London with records in "animated photography" of several months' travel in Albania, Roumania, Montenegro, Servia, and other countries.

OPEN classes and cash prizes for photography are announced in the schedule of the forthcoming exhibition of the Guisbrough Fine Art and Industrial Society, to be held on February 6 to 9, 1906. The hon. sec. is Mr. G. H. Angus, who will supply all information on application to 34, Westgate, Guisbrough.

On August 3rd, Wm. Scott, photographer's canvasser, of Chapel Street, Swinton, aged 63 years, died under somewhat singular circumstances. The deceased was found asleep in Station Road, Mexborough, and on being brought home a bottle of laudanum was found in his pocket. He regained consciousness once or twice, but finally expired. A verdict of death from natural causes was returned.

An instance of rapid photographic work was accomplished last week by Mr. J. H. Coath, F.R.P.S., of Fore Street, Liskeard, on the occasion of the opening of a new Cattle Market in the same town. Mr. Coath first "snapped" the Mayoral procession, headed by the Volunteer Band, just on the point of entering the market. The next picture shows the Mayor in the act of speaking when declaring the market open, while the third photograph depicts his Worship on the point of unlocking the gate, completing the ceremony, after which the company proceeded to luncheon. Mr. Coath subsequently photographed different views in the market, illustrating in a remarkably life-like manner the animals within the various pens. The negatives were then developed, prints made, then washed, and dried, and sent to the market for the inspection of the company during luncheon, where their appearance evoked much favourable comment. Much interest, too, was shown among the worthy farmers present, whilst "spotting" each other in prints, or recognising either their sheep or bullocks in the pens. Only one camera—a whole plate—was used for the whole of the series. All the various processes were gone through under an hour, Mr. Coath's only assistant being his son.

News and Notes.

DR D'ARCY POWER, for many years a practitioner of pinhole photography, is the writer of No. 70 of "The Photo-Miniature," in which the subject is taken to a more advanced stage than that reached in the earlier number (27) of the same series. Dr. Power is directly practical, and illustrates most of his points. This number of "The Photo-Miniature" brings the appearance of the magazine up to date by the heroic method of omitting the issues from January to June. Subscriptions are advanced, and Editor John A. Tennant holds out the promise of hereafter producing "on time."

THE ROTARY CLUB HOUSE.—We can now give a view of the club house opened at Yiewsley on July 29th in connection with the works and London office of the Rotary Photographic Company, Ltd.



The Social Club of the Rotary Photographic Co., Ltd.

The premises, as we have already said, are fitted up for the entertainment and enjoyment of the employees at West Drayton and Moorfields, and the opening of the house should mark a distinct step forward in the prosperity of the company.

CONSTANT change, as a law of nature, is in no way opposed in Cecil Court, or, more precisely, at Nos. 22 to 27, where Messrs. Gaumont and Co., cinematographers, work without ceasing to produce new subjects almost daily. The latest "Elge" list of films describes the most recent notable additions.

PROCESS and Printing via the Photographer.—Our note of last week is endorsed by Hood and Co., Middlesbrough, themselves specialists in blocks, and also of completely printed circulars, souvenirs, catalogues, &c. A selection of these reaches us, with the reminder to the photographer that it is quite as much or more within his province and to his profit that he should supply and arrange for the finished engravings, and even the illustrated printed matter from the photographs which he has prepared, than an outsider who is not so much concerned nor can have the same personal enthusiasm as the man with the camera. Messrs. Hood show us a number of postcards and pictures for framing produced by their four-colour process, and by a special method of their own designated "Poynter full-tone process." The latter method gives a most pleasing and rich effect, producible with matt or semi-glossy surface, and giving a handsome, and, we think, saleable description of card. We must signalise several very neat photographers' booklets among the specimens.

THINGS were pursuing the even tenour of their way in New York

last week. On M. Witte driving across Brooklyn Bridge and taking the train to Oyster Bay, his way was persistently blocked by the Press photographers, who had to be dispersed by the police.

TANK development is receiving a good deal of attention in America from both professional and amateurs. Several prominent photographers have recently assured us of their desire to possess a reliable and effective system of this kind for development, and we see "The Photo-Miniature" hopes to publish a monograph on the subject in the course of the year.

ON BEING PHOTOGRAPHED.—In an American publication intended for the reading of the public we find a few "Don't's" for the woman who would have a successful photograph of herself:—Don't wear a new and uncomfortable gown. Don't arrange your hair in a new way for the first time. Don't forget white is safest for brunettes. Don't forget black is safest for blondes. Don't forget black lace is always effective with silver locks. Don't wear any stiff neck-dressing. Don't risk decolleté unless your neck is plump. Don't close your lips tightly.

ALUMINIUM PAPER is now employed for various purposes in Germany in place of tinfoil, but a kind of parchment paper coated with aluminium dust by means of a spirit varnish, the whole being subjected to pressure between rollers to cause the aluminium to adhere well. The metallic coating is not affected by fatty matters or atmospheric influences, and as the aluminium paper is cheaper than tin foil it is being substituted for the latter in wrapping up various food products and other articles.

An electrical exhibition is open at Olympia, London, W., on September 25, at which, amongst a large number of other appliances, electric lamps for photography will be a feature. The organisation of the exhibition is in the hands of a committee having its headquarters at Balfour House, Finsbury Pavement, E.C.

THE NORTHERN EXHIBITION.—The fourth visitor entitled to select a picture from the walls passed the turnstiles on July 30, in the person of Mr. W. H. Hodgson, who chose a photograph by J. E. Latham, entitled "On Lago Maggiore." This idea of our Leeds friends appears to have worked excellently in practice, and the scheme of awarding a prize to every thousandth visitor is one which other societies may note as offering possibilities for local advertisement.

THE Shah of Persia was busy with a Kodak during his visit to Paris last week. Early in the forenoon he was in the Bois. There he arranged his suite and the municipal guards who form his escort Persian-wise—that is, tailor-wise—on the greensward of the Pré Catalan, and took several photographs. Then, espying a group of ladies, among whom was Mrs. George de Reuter, wife of the London representative of the Bank of Persia, the Shah photographed them, also, and then went back to lunch.

DEATH OF MRS. MAWSON.—On Wednesday in last week, at Alnmouth, the death of Mrs. Mawson, widow of the late Mr. John Mawson, founder of the firm of Mawson and Swan, took place. Mrs. Mawson had reached the great age of 82 years, and her death is a reminder of the tragic circumstances under which her husband met his end in 1867. A large quantity of nitro-glycerine exploded, and eight persons were killed, including Mr. Mawson, then Sheriff of Newcastle. Mrs. Mawson, who survived her husband's death by 38 years, was the eldest in a family of eight. One of her brothers is Sir Joseph Wilson Swan, the eminent electrician, another is Mr. John Cameron Swan, and a sister is the wife of Mr. John Pattinson, the Newcastle City Analyst. Mrs. Mawson is survived by three daughters and one step-daughter.

Commercial & Legal Intelligence

PHOTOGRAPHIC Obstruction.—The latest form of obstruction Blackpool (according to a newspaper report) is that caused by the taking of photographs. In nearly every street visitors are to be seen grouped in gardens having their photographs taken, and the photographers fix their apparatus either in the middle of the street or on the footpath, thereby impeding traffic. Last week at the police-court four persons were fined for causing an obstruction in this way.

At the North London Police Court last week the case of John Samuel Francis, reported in our last issue, came on again. The prisoner was charged, on remand, with obtaining 2s. 6d. by false pretences from John William Gray, photographer, of Union Square, Islington. It was alleged that the prisoner had taken in bogus orders and thus obtained commission. Several of the orders were produced in court; and one witness was called who denied any knowledge of the prisoner, and also that anybody of the name entered on the order had resided in her house for the past 15 years. The prisoner then said that if he had entered wrong addresses it was owing to his negligence and not to deliberate falsification. He also declared that the prosecutor owed him over £1 for commission, which was more than an answer to the three half-crowns which he had received. The prosecutor denied that he owed the prisoner anything. The prisoner called a witness who said he had canvassed for Mr. Gray, who was not always prompt in his payments. He added that he considered the prosecutor owed him 10s. This also the prosecutor denied. The prisoner asked this witness if he remembered being with him in the "Mother Redcap" on the 17th July, when he got two of the orders which were now in dispute. The witness: Yes; you got into conversation with some women, and two of them gave you orders. The prisoner declined to plead guilty to obtaining money by false pretences, and was committed for trial at the Sessions. He was allowed out on £10 bail.

IMPROPER PHOTOGRAPHS.—At the Clerkenwell Sessions on August 2nd, before Mr. Loveland-Loveland, K.C., two Frenchmen, named Eugene Wegel, 25, bookseller, and Albert Bourlasse, 20, clerk, pleaded guilty to having unlawfully dealt with certain French books, postcards, photographs, and pictures of an improper character. Wegel was ordered six and Bourlasse four months' imprisonment in the second division.

At the London Bankruptcy Court on Friday last the public examination took place of Adolph B. Neilson, photographer, lately carrying on business at 7 and 9, Regent Street, under the style of the International Art Company. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £974 13s. 7d., of which £964 13s. 7d. was expected to rank against the estate for dividend. It appeared that in 1897 the debtor joined a Mr. Thompson in partnership, under the style of the International Art Company. They first took premises at 28, Cockspur Street, but afterwards removed to 20, Regent Street, W. No deed of partnership was executed, but it was verbally agreed that the debtor should work the business, and Mr. Thompson finance it. The debtor put about £500 into the business altogether, and Mr. Thompson put about £2,000 into the business. After trading at 20, Regent Street for some time, they removed to more commodious premises at 7 and 9, Regent Street, W., where they carried on business until February, 1904. The business was very successful and they made a profit. About June, 1902, Mr. Thompson thought it would be advantageous if they went into the wholesale fine art business, and worked it in conjunction with the retail business in Regent Street. They took manufacturing premises at Newman Yard, Newman

street, W., but the venture proved a failure, and brought about the bankruptcy. The examination was ordered to be closed.

PHOTOGRAPHER'S ALLEGED THEFT.—Frederick William Brown, 45, described as a photographer, of 116, Latham Road, East Ham, was charged at Stratford on a warrant for stealing £85, money belonging to his wife, Margaret Ann Brown, on June 8th. Detective-sergeant Anstone said that at 8.30 that (Friday) morning he went to 116, Latham Road, where he saw the prisoner and told him that he held a warrant for his arrest. The warrant was read to him, and then he said, "I didn't steal it, she signed the cheque," but afterwards he added, "I am very sorry. I did have the money, and will pay her back again." Three months.

The public examination of W. H. Hayward, photographer and picture-frame maker, 60 and 61, Long Lane, Smithfield, E.C., was held at the London Bankruptcy Court on Thursday in last week. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £9,993 10s., of which £5,360 8s. 1d. was due to unsecured creditors. The assets consisted of stock-in-trade, cost £7,800, estimated to produce £4,050; trade fixtures, £150; book debts, £2,290; and other items brought up the total assets to £6,563 5s. 7d., from which £279 4s. 3d. had to be deducted for the claims of preferential creditors payable in full, leaving the net assets at £6,284 1s. 4d. It appeared that the debtor commenced business in 1886, without capital, at Paternoster Square, E.C. Three years afterwards he removed to Giltspur Street, and remained there until 1904, when he went to his present place of business at 60 and 61, Long Lane, West Smithfield, E.C. For the last seven years he had also premises at 55, Farringdon Road, and branch shops at Lewisham High Road, and other places in the S.E. district of London. In 1900, he entered into partnership with a Mr. Ellis in a photographic publishing business at Streatham. Eventually disputes arose between debtor and his partner, which resulted in Chancery proceedings, which were settled in his partner's favour, and he was awarded £1,112 and costs. He alleged his failure to have been caused through the action of his partner in the business at Streatham. He had kept the usual books of account, and proper books had also been kept in respect of the Streatham business, but they were in the hands of his partner. When he said he had lost £2,000 in the Streatham business, he included the amount he had spent in law costs in the Chancery proceedings. Replying to Mr. Brinsley Harper, who appeared for Mr. Ellis, the debtor's late partner, debtor stated that he did not keep the books of account relating to the partnership business. He had sometimes sent out partnership goods in his own name. He had not paid all the partnership money into his own banking account. He had never disregarded Mr. Ellis as a partner, and carried on the business in his own name. He had only used his own name in some instances, in order to facilitate business. The partnership business was carried on under the style of Ellis and Hayward. He could not say whether he was solvent or not, it would depend upon the realisation of his estate. After debtor had been questioned at considerable length with regard to certain of the figures in his statement of affairs, and having replied to a few questions put by a barrister who appeared on his behalf, the examination was ordered to be closed.

An international lantern slide competition is announced by the Association Belge de Photographie. There are no classes, and two silver gilt and one bronze medal are placed at the disposal of the judges. An entry will consist of six slides, which must be of regulation size, and they will be judged by arc-light. October 15, 1905, is the latest date for receiving entries, and they must be addressed to the Secretary of the Association Belge de Photographie, Palais du Midi, Brussels, Belgium.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
13.....	Glasgow Southern Ph. Assn. ..	Outing to Luss, Loch Lomond.
12.....	Manchester Amat. Photo. Soc.	Rambles to Middlewood.
12.....	Bowes Park and Dis. Ph. Soc...	Outing to Chingford Marshes.
14.....	Southampton Camera Club	Demonstrations. 1. "Sulphide of Silver." Mr. G. Vials. 2. "Simple Photo-Micrography." Mr. C. M. Cooper. 3. "Combination Printing." Mr. G. Daw.
16.....	North Middlesex Photo. Soc.	"Modifying Transparencies for Enlarged Negatives." Mr. Louis Dick. "Our Library." Mr. A. E. Smith.
19.....	Woolwich Photographic Soc....	Excursion to Slades Green.

THE July meeting of the Torbay Camera Society was held at Park View, Bovey Tracey, the moorland residence of Mrs. Marillier, who invited the members, whilst the August meeting took place at Maidencombe House, by invitation of the president, Colonel W. Fothergill Macmullen. In both instances there were representative gatherings, and after the transaction of the ordinary business, many matters were discussed and experiences interchanged; always beneficial to the tyro as well as the more experienced in the art. Some delightful prints were shown of Ely Cathedral, both of interior and exterior. At the conclusion of the meetings the members were entertained, respectively, by Mrs. and Miss Marillier, and Colonel and Mrs. Macmullen.

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

BACKGROUNDS.

To the Editors.

Gentlemen,—The letter to a "Professional Photographer," in this week's *Journal*, is instructive, and should prove helpful to many, but the assertion is rather wide that there are no backgrounds of the class advocated painted in England. I am now painting dark, unobtrusive interiors (true to different periods), and heavy foliage effects, with breadth and depth, as well as light, simple pictorial ones, which are always useful for children. It is true, however, that the better photographers only go in for the first-mentioned, the middle and cheaper class being largely influenced, on the one hand, by the demands of their ignorant sitters, who desire what they have so long seen that they deem it orthodox; and on the other by the fact that the showy, sharper grounds are more easily and quickly painted by inexperienced painters, and therefore cheaper. It is quite time, though, in the interests of common sense that the arrangements of blossoming curtains and the half Louis, half anything else style, with ferneries stowed half behind all the available ornamentation, should give place to something quiet, simple, and in better taste.

I enclose a few rough prints, and beg to remain, gentlemen, yours truly,

Longford, near Sevenoaks, Kent,

Aug. 4, 1905.

J. EVERETT WILSON.

[Several of the prints sent by Mr. Wilson represent backgrounds done in a reserved, unobtrusive style.—Eds., B.J.P.]

ORTHOCHROMATIC RATIOS OF PLATES.

To the Editors.

Gentlemen,—I am sorry my letter was not as explicit as appears to have been necessary, for I do not think you have yet fully appreciated my point.

Suppose we have an ideally chromatic plate and wish to photograph an object consisting of patches of various colours and tints which are all of equal visual luminosity (though of varying colour), we should expect this plate to give a negative in which all the colours and tints were rendered by equal opacities.

Of such a plate we shall unquestionably say that its ratio

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

was represented by $\frac{1}{2}$.

Now suppose we take such a plate and test it in the way Mr. Mees does, we shall not obtain the value $\frac{1}{2}$ for its

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

for his yellow light is many times (I do not know exactly how many) more brilliant than the blue, and we should get a factor something like $\frac{1}{4}$ or $\frac{1}{5}$.

I am not quarrelling in the least with the method of testing, but I consider to give the figures so obtained as representing

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

is misleading, to say the least.

The last paragraph but one of your article on p. 603, I absolutely fail to understand. To quote your words: "To obtain equal brilliancy we must . . . and having done this we shall have to correct the results by a complicated calculation to bring the factors obtained into line with the conditions of practical work." Suppose, again, we have an ideal plate and test it behind screens that have been reduced to equal visual luminosity, we should, you must admit, obtain a ratio of $\frac{1}{2}$ for its

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

and is not this exactly what the practical man requires? For he then knows that photographing objects of blue and yellow colours he would obtain negatives in which the opacity was proportional to the luminosity throughout; or, supposing a plate, tested in the way I suggest, showed a ratio $\frac{1}{2}$ the practical man at once knows that he has to make a screen which only allows 1-3 of the blue to pass. but all the yellow, in order to obtain a correct rendering in monochrome of these colours, when he uses this plate in his camera. I do not see any complicated calculations in this.

But the ratio as determined by Mees' method for an ideal plate would, let us say, be something like $\frac{1}{4}$, which ratio will have no value for the practical man, unless he knew that the relative luminosities of the blue and yellow lights, as used by Mr. Mees, were as 1 to 6. Further, Mees' ratio for the second of the two plates, discussed above, would be $\frac{1}{2}$ or $\frac{1}{4}$; would not the practical man either think he had got a plate which was twice as sensitive to yellow as it was to blue, and would, therefore, require a compensating filter, which actually cut down the yellow, or if he realised that this was not the case, he would be no wiser off, unless he knew the relative luminosities of the light transmitted by the two filters used.

Again, quoting, "Whereas now, knowing the ratio

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

any practical worker who also knows the ratio

$$\frac{\text{visual luminosity}}{\text{photographic luminosity}}$$

can at once adjust a colour filter to give his ideal negative." Sur the ratio of

$$\frac{\text{visual luminosity}}{\text{photo luminosity}}$$

with colour sensitive plates is one that must vary according to colour sensitiveness of the plates used, and would require as much determining for every make of plate as the chromatic ratio.

What I contend is that a ratio

$$\frac{\text{blue sensitiveness}}{\text{yellow sensitiveness}}$$

naturally means the relative sensitiveness of the plate to blue and yellow lights of approximately equal luminosity (a good average determination by several people of the colour luminosity would give quite near enough results), and that this ratio should not be used in the way you have done without some qualifying factor or statement being appended to it every time it is mentioned.—Yours faithfully,

R. S. POTTER.

97, Belgrave Road, Hford, August 4th, 1905.

[It is obvious that 'our correspondent's definition of an ideally chromatic plate is one in which there is equal sensitiveness throughout the spectrum, and he ignores the fact that the luminosity of yellow and blue is practically 10 to 1, taking the spectrum as the standard. Therefore, to obtain "negatives in which the opacity was proportional to the luminosity throughout," this should be the ratio of sensitiveness. The objection to Mr. Mees' light is, as we have already pointed out, uncalled for because it approximates very closely to daylight, and in practice plates are exposed to daylight and not to patches of colour of equal luminosity. If the sensitiveness behind the blue filter is stated to be 100 and that behind the yellow filter is 10, it is obvious to represent the luminosities correctly we must screen down the blue till it bears the correct ratio to yellow, and Mr. Mees' results tell us exactly how much screening down we must resort to, with each plate that we have so far given a reading for, and as when giving these readings we have invariably stated that they have been made by Mr. Kenneth Mees, it is necessarily inferred that they are by the method which he has adopted. Hence is fulfilled, it seems to us, the final requirement of our correspondent's letter, namely, "that this ratio should not be used in the way you have done without some qualifying factor or statement being appended to it every time it is mentioned."—Eds., B.J.P.]

THE CELLULOID HAIR COMB.

To the Editors.

Gentlemen,—It may interest you and some of your readers to hear of an authenticated case of a fire caused by the ignition of celluloid combs in a shop window.

Mr. Brooks, of 264, Lavender Hill, Clapham Junction, keeps a hair-dresser's and tobacconist's shop at the address named. The shop is a double-fronted one. The left window was set out with toilet articles, including a number of celluloid combs and hair ornaments, etc. Last Sunday morning, in the window facing south-east, the celluloid articles ignited through the heat caused by the sun shining through the glass on to them, and the whole window blazed up and was burnt out in less than ten minutes. The sun-blind not being down and the shop closed helped, of course, to intensify the sun's rays, and there must have been quite 160 deg. in the window if not more. The fire broke the plate glass and a large mirror in the window, but did not do any damage in the shop otherwise.—Yours, etc.,

E. FENSKE.

188, Falcon Road, Clapham Junction, S.W.
August 8, 1905.

THE CHEAP COPIES GRIEVANCE.

To the Editors.

Gentlemen,—Why should not photographers adopt the system of requesting their sitters to sign an order form before sitting, requesting a negative to be taken, proofs furnished, and conveying the right to the operator—if necessary, a clause to be inserted stating that no publication of the portrait would take place without the sitter's permission? A very large proportion of sitters would do this without any trouble or question. The few who would object could state their reason for so objecting, and the photographer could then hold out for a higher rate. This would effectively meet the case of those who have a negative taken and proofs supplied in a good studio, and have the proofs reproduced cheaply elsewhere.—Yours truly,

F. SKEEN.

1, Chatham Street, Colombo, Ceylon.

July 18, 1905.

The system has often been mooted, but our feeling is that the best plan of charging for, and if necessary suing a sitter what he has had, is the one which will work best in the long run. It is easy to foresee a good deal of unpleasant aspersions cast on the photographer who takes the case of a cheap copyist into his hands on the basis that the sitter has assigned the copyright to him. There may be cases when such a transaction can be creditably made, but to adopt it as a general practice would place photographers very unfavourably in the eyes of the public.—Eds., B.J.P.]

THREE-COLOUR STEREOSCOPY.

To the Editors.

Gentlemen,—As I am aware you take a deep interest in stereoscopic work, I send you by this mail, under separate cover, a slide mounted from one of my trichrome stereograms, which I hope you will accept.

I am in the habit of reading the numerous articles on colour photography in the "British Journal" as well as in the Almanacks, and I may say I thus frequently gathered hints to improve my work.

I take negatives for three-colour work, only from nature, avoiding paintings, water-colour or coloured prints, as the truth of the colours of their photo reproduction can only be appreciated when comparing with the original. Such is not the case with subjects of nature, the colours of which are generally known by everybody.

I also selected the stereoscopic form of image, same giving sensations of solidity, and besides excludes any attempt to retouch or paint, but gives the pure synthesis resulting from printing the three negatives.—I am, dear sir, yours faithfully,

VICTOR SELLE.

42 Rue des Drapiers, Bruxelles,

Aug. 2nd, 1905.

[We are pleased to receive token of our correspondent's esteem, particularly as it takes the form of an excellent piece of pigment trichromy on paper.—Eds., B.J.P.]

DEATH OF MR. E. H. FITCH.—We very much regret to record the death of Mr. Edgar Henry Fitch, which took place at Brixton on July 25, after a long and painful illness. Mr. Fitch was associated with the celluloid film manufacture from its early days, and up to the time of his decease was actively engaged in the business which he conducted at Fullwood's Rents, High Holborn, W.C. His interest in photography sprang from those of his father, Noel E. Fitch, who was a well-known amateur photographer of the last generation, an active member of the old South London Society, and for some time its treasurer. We join our regrets to those of many others by whom the deceased gentleman was known and respected.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
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PHOTOGRAPHS REGISTERED:—

L. Berry, 29, Chapel Street, Chorley. Two Photographs of the Rev. Father C. E. Slater.
H. Terry & Sons, Lodge Road, Redditch. Four Photographs—Group of small metal work. Group of bent wire work. Group of steel springs. Heap of steel springs.
W. Sbeeran, Watercastle, Durtow, Queen's Co., Ireland. Five Photographs—Abbeyleix House. Main Street, Abbeyleix. Abbeyleix Fair. Old Bridge, River Vore, Abbeyleix. Tea House, Abbeyleix.
J. H. Cartwright, 171, Orford Lane, Warrington. Photograph, Pictorial Post Card with seven local views of Warrington.
J. Clapperton, 23, Albert Place, Abbotsford Road, Galashiels. Photograph of marble bust of Sir W. Scott.

RETOUCHING (Balgownie, N., Queenstown, Cape Colony).—Your retouching, whilst very good indeed, is not equal to the best we have seen. The face, worked two years ago, has lost much of its ruggedness and strength of character through over-stippling and lifting of the lead. We should think you laboured over the subject, but you do not state the time taken. Softer, looser, and bolder treatment would have improved matters. The neck looks twisted and unpleasant, although correct in the unretouched. This negative was not a difficult subject, being well modelled in its unretouched state. The test is to make something good out of a really defective and poor negative. Since this effort you appear to be passing through a transition stage, as shown by the other specimens, which are more in the English style, although not fine and soft enough in the working for the subjects. The management of the shadows under child's eyes is bad, and they are unevenly balanced. (2) You have yourself criticised your evident lack of knowledge in knife work or reducing agent. Your retouching is nearly first-class, but you might try us again in about twelve months' time, and under conditions as advised to "General Assistant," in our issue of August 4th, 1905.

RESIDUES.—Which is the best way to throw down the silver in used hypo baths, and how can I make sure that it has settled?—H. H.

Add "liver of sulphur" (potassium sulphide). The silver is thrown down as a black sludge of silver sulphide. Add a little more sulphide solution to some of the clear supernatant bath; if it remains clear, the silver is all down, if not, further liver of sulphur must be added to the bulk.

SALARY.—1. What is average salary for landscape operator for publisher? 2. What amount of expenses allowed per day? 3. How many half-negatives of popular subjects, in town, fairly near together, for post-card or similar use, would be usually expected to be taken in a week? 4. Does "out of pocket expenses" mean, in addition to railway fares and porterage, all hotel expenses of board and lodge? Presuming, which is the case to me, that the operator has a home and family to keep.—ALPHA.

1. There are no fixed salaries, they depend upon the abilities of the operators. 2. There is also no fixed rule as to expenses, they are a matter of mutual arrangement between

the parties. 3. This question is unanswerable, for it is obvious that so much depends upon the weather, the light, and the time it may take to get from one subject to another.

4. Yes. 5. Yes, we should say it does.

POSTCARDS.—Would you kindly inform me the cheapest process to produce picture postcards? I may only want 100 of each, so block would be too expensive. I would like to sell at 1d. each. Is colotype best? If so, where could I obtain instructions in same? Is apparatus expensive, and would it pay at above price.—LEAMINGTON.

For such a small number it will certainly not pay you to set up a colotype press, etc. Your best plan is to produce a bromide or gaslight card. If of the size sold as midget, micro, etc., the card can retail at a penny.

AGREEMENT FOR SERVICES.—We are writing to ask your advice and shall be glad if you will kindly let us know what you think about the following subject:—Some months ago we took on a canvasser at a salary and commission, and he signed an agreement (a copy of which enclosed). He left us, giving us a week's notice, and then started with another photographer in this town. We saw the photographer, showed him the agreement, and he dismissed the man, who was not heard of again for some time. One day he came back and asked us for work, and we then took him on again on the same terms, but not asking him to sign an agreement this time. He this time left without notice, and is working for the same photographer, who now refuses to dismiss him, as he says the agreement was cancelled by working here again. The man is a very good canvasser, and is doing us a lot of harm, or we should not trouble about him. Can we get an injunction to stop him working? Can we, in any way, compel the photographer to dismiss him?—INJUNCTION.

The agreement seems to be a curiously-worded one, as the man, in one part of it, agrees not to enter the services of anyone or trade on his own account while in your employment. In agreements of this sort it is usual to have a penalty named which is to be forfeited in case of a breach. You cannot compel the other photographer to dismiss the man. Your remedy, if you have one, is against the man himself, for damages. Your best way will be to consult a solicitor, showing him the agreement.

VARNISH.—Can you oblige me with the name, or formula, of a suitable varnish for using after transferring carbons on china, so that the pieces can be washed?—EN AVANT.

The best varnish we know for the purpose is "Japon. Enamel 105." It is supplied by the Crane Chemical Co., 22, Newhall Street, Birmingham.

SEPIA TONES WITH PLATINUM.—I shall be obliged if you can favour me in your columns with a bath to obtain a cold sepia tone on collodio-chloride paper. I have been in the habit of using the ordinary plat. and phosphoric acid bath, but the tones got are either too rusty or else the common brown. The paper used is Solar. Thanking you in anticipation. — EXPERIMENTALIST.

Try diluting the bath with water. Use 12 or 15 ounces instead of 10 ounces, or in this proportion. The phosphate bath should then give you the desired sepia tone.

S. E.—You do not state the working aperture of the lens. Assuming this to be $f/11$, most likely, the distance beyond which all objects are in focus is 15 ft., if $f/8$, 21 ft. (2.) As above (3.) If working correctly to its marking, the magnifier should give any object nearer than 9 ft. as out of focus. (4.) On the side remote from the camera, a considerable distance, the-

retically an infinite distance: on the near side, the range is practically nil. (5.) No. As the focal length is increased, the working aperture is also increased and exposure may be less.

ORTHO.—All the films you name are, we believe, sensitised with erythrosine and not eosine or fluorescine. Your most likely trouble is in errors in exposure, and you are under-exposing through the orange screen, the result is that your negative is too thin everywhere, and therefore in printing in blue you get an excess of blue. You give no information as to the screens or plates that you are using, but if you are using an isochromatic plate with an orange screen to obtain the blue printing negative, your results are likely to be wrong, because unless you give very long exposures, you cannot possibly get sufficient density. For the orange screen, which gives you the blue printing plate you must use a panchromatic, or red sensitive plate, that is assuming you are employing the ordinary stained film process.

THE Right to One's Face.—A case came up in the American Courts not so long ago in which it was ruled that one cannot restrain a photographer from taking and using a photograph of oneself, saving only in the case when by so doing he exposes himself to action for libel. Hence, an incident such as the following, reported in the "Photographer," may occur frequently in the States:—"Harry Lehr, the well-known society man, had an argument with a photographer on Bellevue Avenue, Newport, recently because the man had taken his picture. Alighting from a motor, Mr. Lehr and party started for the Casino door, and the camera was aimed at them, and the plate exposed. Mr. Lehr saw the taking of the picture, and as the man pressed the button he raised a bundle in front of his face, and then made a rush for the man. Mr. Lehr did not lose his temper, but gently told the man that he guessed he would "have to take the camera now." The man replied, "I guess not." Seeing that he could do nothing with the photographer, Lehr went for a policeman to make a complaint, and while talking to the policeman the artist again took his picture. This made Lehr angry, and he sent for the chief of the police, telling that official that the man had taken his picture. The chief informed Lehr that he was powerless to act in the matter, but said that he would ask the man to stop, which he did. This in a measure satisfied Lehr, but he did not get the man's camera, and the man has Lehr's picture. Shortly after that a number of young women were photographed by the camera man, and they complained to a young man in the party, who went and threatened to kick the camera to pieces, but the threat was not carried out. There is no law to prevent the taking of pictures on the street, although the cottagers have tried for years to have it stopped.

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EX CATHEDRA.

Although many members of our Royal Family are amateur photographers none so practical an interest in photography as Queen Alexandra. Her small hand camera is a familiar sight at the numerous outdoor functions she attends, and she apparently derives as much pleasure in portraying the interesting scenes she witnesses, and as keen a delight in photographing the crowds that gather to greet her, as the energetic press photographer takes in snap-shooting Majesty. A unique opportunity is now afforded the public of seeing some of the Queen's photographic work. "Graphic" for August 19, 26, and September 2 will contain special supplements consisting of a series of reproductions of photographic studies taken by her Majesty Sandringham, Marlborough House, Copenhagen, and the Coast of Scotland. These pictures will not only be interesting from the fact of their Royal authorship, but as admirable specimens of artistically chosen incidents and scenes. Further particulars of the first of these special numbers will be found in our advertisement pages.

From the pages of the "Scientific American" we learn that Professor Lowell and his assistants at the Flagstaff Observatory succeeded in recording on a bioscope film photographs of the enigmatic canals of the planet Mars. A monophotographic apparatus was devised which, excellent though it was, left much to be desired, chiefly so far as automatic motion was concerned, inasmuch as the camera had to be worked by hand. Still, by diaphragm-down the objective to suit the atmospheric currents at time of observation, the experiment succeeded. An excellent reproduction of a part of one of the films is reproduced, and side by side with it is placed a drawing

made by Prof. Lowell shortly before the camera was put on. This serves the double purpose of showing the confirmation by the photograph of the existence of the canals, and at the same time of acting as a chart. Our contemporary says:—"The astronomical importance of this feat of photographing the canals can hardly be overestimated. A hot controversy may now be considered definitely settled—a controversy in which most of the eminent astronomers of the world have taken part, either in absolutely denying the existence of Martian canals, or in advocating not only their existence, but also in regarding them as evidences of life on a neighbouring world.

Losses through the Post Office.

Complaints are frequently made of the loss of letters and parcels sent through the post, and often by photographers of packets of photographs, but is it always the fault of the Post Office? The annual report of the Postmaster-General has just been issued, and very interesting reading it is. For example, it shows that no less than 734,500,000 postcards were sent through the post during the year, being an increase of 19.7 per cent. on the previous year. This increase is attributed largely to the increased use of picture postcards. The most astonishing part of the report is that referring to the number of packets posted with insufficient addresses, and with no address at all. It says that the number of registered letters, and letters containing property sent through the post with insufficient addressing was 315,965. These letters contained £17,830 in cash and banknotes, and £622,123 in bills, cheques, money orders, postal orders, and stamps. One packet contained jewellery whose value exceeded £2,000. The number of letters containing valuable contents posted with no address at all was 4,507, the contents including £157 in cash and banknotes, and £9,412 in various forms of remittances, and it was found possible to restore the greater number of these letters to the senders. It seems incredible that so many letters and parcels with valuable contents should be posted without any address at all, or with only insufficient ones. Also that they should be so insufficiently secured that the contents get loose in their passage through the post. The fact that so much of this valuable property was restored to the careless senders speaks much for the honesty and ability of the Post Office employees.

Sending Negatives by Post.

Apart from occasional losses in the post complained of by photographers, who, doubtless, by studying the above figures will think less badly of the department, losses frequently arise, for which the photographer, by no line of argument, can blame anybody but himself. We refer to the case of

negatives getting smashed in transit. We have on more than one occasion received an envelope full of bits of broken glass and film, and an accompanying letter containing the naive enquiry, "Can you tell me what is the matter with the enclosed negative?" The answer is, of course, obvious. The negative has come into precipitate contact with some hard substance, and the glass, being devoid of ductility, has suffered disintegration. It may, of course, have been trodden on, or squeezed into an awkward corner of the mail-bag. In any case, to send a glass negative through the post with no further packing except that afforded by a paper envelope is to court disaster. And yet this is done again and again, and the unfortunate Post Office gets the blame. Negatives for conveyance by either letter-post or parcels-post should be first carefully wrapped in soft tissue paper or placed in one of the prepared envelopes specially sold for the purpose. It should then be placed between several pieces of stiff corrugated paper, cut to size and inserted in a plate-box, with more packing of tissue paper if necessary. The plate-box is wrapped in several thicknesses of the corrugated paper, and the ends well covered. If the whole parcel is now given a final cover of brown paper, and the address is written on a tag label attached to the package, it ought to travel with perfect safety through most of the dangers that beset such things en route. If the negative is particularly valuable, further protection can be assured by placing the brown-paper parcel, with the addition of extra packing, in a light wooden box. We have frequently sent negatives 15 in. by 12 in. and larger per parcel post packed in this manner, and they have come to no harm.

The Free Portrait Swindle at Home.

the suburbs, but with somewhat different tactics. The touts, sometimes stylishly dressed women, call at private houses and politely offer to do an enlargement free, with the usual tale that it is as an advertisement for the firm, etc. If no money can be drawn at the time the photograph is still taken with the promise that a rough proof of the enlargement will be submitted in a few days. In due course a bromide enlargement is shown, and the demand made for the price of a frame, as the picture will not be supplied without the amount being generally from fifteen shillings to a pound. If this is refused, bullying and threats of county-court proceedings follow. In the case of nervous women, who are the chief dupes, the money is often extracted. Sometimes the unlucky dupe loses the original photograph entrusted to the tout unless the money demanded for a worthless frame, etc., is forthcoming. As the photograph is too often one of a departed relative, and, perhaps, the only one its owner has, the money is frequently paid rather than lose the original. The price of the frame, which is of the commonest description, amply covers the cost of the enlargement, and yields a very good profit. A friend who resides in the suburbs has just related to us the following:—A well-dressed man called at the house and stated he was representing the — Studio. He then recited the usual formula about doing free enlargements as an advertisement, etc. This was duly listened to, and then our friend, in a quiet way, informed the man that he quite understood the game, and that the thing would not work with him. That was sufficient: the man was profuse with apologies for troubling, and said he had been sent to the district, and was simply doing his duty. It was noted that he did not call at any more houses in that road.

The free portrait swindle of Tanqueray in Paris has been frequently referred to in these columns, yet it is still being largely practised here, particularly in

Light on the Waters.

In another column a correspondent told of his difficulties in dealing with the extreme actinicity of the light when photographing sailing vessels and such subjects at this time of year when the sun is shining brightly. The conditions that govern photography on the sea during the summer months are altogether different to those that apply to any other form of camera work, and up to the end of August every precaution will be necessary to avoid over-exposure. Exposure meters give only an approximate idea of the brief exposures necessary, as it will usually be found that the test paper tints so rapidly that calculations are difficult, and even then it is found that one-fifth to one-twentieth of the indicated exposure usually suffice. We have during the past week made exposures on Barnet ortho films, and, using a yellow screen with $f/16$ and focal plane shutter exposures of 1-130 second, have had considerable over-exposure. Marion-Iso plates and Kodak films have also given over-exposure under similar conditions, the subjects being racing yachts, with their canvas illuminated by brilliant sunshine. The blue sky and choppy sea, reflecting nearly as much light as the sky itself, also tending to shorten the exposure, which, under the circumstances, could easily have been one-half of that given. It will be found, however, that the light will drop considerably in actinicity value during the month of September, and exposures that are now possible at the seaside will be impracticable in a few week's time. But, nevertheless, photographs taken either on or by the sea always need considerably shorter exposures than those of landscapes or any other outdoor subjects, irrespective of the time of year.

Photographing Fortifications.

We have on several occasions cautioned English tourists on the Continent against taking photographs in the neighbourhood of fortifications, or they might find themselves in an unpleasant position if noticed by an enterprising official anxious of promotion. It may not be known to all amateurs that taking photographs of English fortifications without authority may also land them in difficulties. Only last week a German photographer who has lived for thirty years at Sheerness was charged with attempting to take a photograph of the Ravilin Battery, and the case was remanded. In dismissing the charge a couple of days afterwards, the Stipendiary remarked that the proceedings were absolutely right and proper in the interests of the country. If an unpleasantness such as this arises with one who has lived for thirty years in the neighbourhood, it should serve as a warning to strangers when using their cameras in the proximity of fortifications in any part of Great Britain. As a rule, amateurs in search of artistic pictures are scarcely likely to point their cameras at fortifications, for they are by no means picturesque. Still, the subjects may be interesting to some, and if they desire to obtain photographs of them they should take the precaution of asking permission of the commanding officer before attempting to do so. On the Continent they are much more strict in this matter than we are here, and not a few tourists have had at times got themselves into trouble through the incautious use, or even carrying, a camera in the neighbourhood of fortifications, particularly on the Franco-German frontiers. It is not pleasant for a tourist on a short holiday to have to spend a day, perhaps two, in durance vile, and that has happened to several. We have on more than one occasion before advised all visiting the Continent to provide themselves with passports before starting, although now passports are not required in most Continental countries. They may be

and without difficulty at the Foreign Office, and the cost quite nominal. A passport will not, of course, prevent a photographic tourist from getting himself into difficulties, but it will help very materially in getting him out them by proving his *bonâ fides*.

Portraits in Natural Colours.

We notice in one of our German contemporaries the announcement that a studio has been opened in Berlin specially for photographs in natural colours on paper. The studio is about fifteen yards long and five and a half yards wide, and is fitted with ribbed glass windows and of. About six feet of the roof and side glass is movable, thus giving a brilliant and open-air lighting, and also saving away with any loss of light by the absorption of the glass. The camera is fitted with a repeating back for the three exposures, and the colour filters are placed just in front of the plate. The printing process adopted is that of superimposed carbon tissues, in, of course, the correct colours—red, yellow, and blue—the same as are placed in the market here by the Rotary Photographic Company. Not only portraiture, but the reproduction of oil paintings and other coloured objects will be undertaken, and special arrangements have been made to give instructions in the process. We should think that what is possible in Berlin might also be possible in London or England, and at the prices charged, namely, fifty shillings for two cabinets, there ought to be profit in it.

Development in P.O.P.

In the early days of P.O.P. many formulæ were given for developing faintly-printed proofs, all of which were tried, and which practically relied on the phenomenon of physical development—that is to say, the silver salts in the film were more or less dissolved by the developer and immediately reduced to the metallic state by the reducing agent and the silver deposited in the image. The disadvantage of this process was the liability to general stain, due to the silver being deposited all over the print rather than locally on the image, and, further, the unpleasant tones which were frequently obtained. A distinct advance was made when Mr. W. J. Wilson, of the Paget Prize Plate Company, suggested the conversion of the whole of the free silver salts into bromide, and the subsequent use of an alkaline developer. Of late there has been a revival of the acid physical development, particularly with metal acidified with glacial acetic acid, and on some papers excellent results are obtainable. The article which we publish elsewhere on this subject is interesting, as it is, far as we are aware, the first attempt to control the results obtainable by the addition of various salts and acids.

NEGLECTED BUSINESS.

We suppose there are very few photographers who cannot sympathize with us in deploring the agencies which of late years in one way or another have "cut into" photography. The business of the photographer has been assailed at a good many points. The picture-postcard, since the market has been flooded with cards of every place and thing in heaven and earth, has practically destroyed the trade in views of his locality, which many a photographer could have accounted an appreciable source of revenue. And the postcard has had a further injurious effect in offering the opportunity for the production of the cheapest and poorest

kind of photography, done either direct or from the work of reputable photographers. We know the cheap postcard and the other forms of cut-price photograph as well as we know the cheap enlargement in its various degrees of badness. Considered as value for money, these products cannot be unreservedly in demand, and it is difficult to exaggerate their evil effects on the commercial and professional status of the photographer.

Our object now, however, is not to dilate on these adverse tendencies in the profession, but to insist on one or two directions in which profit and prestige may be sought, and which a very large number of photographers seem to ignore or to be ignorant of. There is one basic fact that appears to be lost sight of in the management of studios—that is, the variety of finished results to be extracted from the raw product—the negative. Few businesses offer the opportunity for altering the final article as may seem commercially most expedient. No need for us to enumerate the changes which can be rung on printing process, size of picture, and style of production; we would here call attention particularly to a class of business which should be the photographer's, which can be extremely profitable to him, but which—we have good grounds for saying it—he is extremely slow to take up. We refer to the miniature, photographic or non-photographic, and producible in styles to suit every taste and purse.

We should not make the insinuation of neglect against photographers if we were not certain that there was business in this particular specialty, but that there is we have the strongest evidence, and that others outside the photographic profession are profiting by it is equally certain. For commercial purposes we can assume a miniature to be any small picture, or photograph, from the "photo-button" to the genuine hand-painted ivory. Between these two is a range of articles at any and every price. We need say little about the ivory miniature which sells from ten guineas and upwards, because the businesses in which it can be offered are, for the most part, in the hands of men fully alive to its value. The miniature is almost invariably extra business, and it would very possibly surprise those who have left it out of their programme to discover the total which it may amount to at the end of the year. For the middle-class and lower-class business the miniature can change its form. It can be as cheap as you like, and assume the shape of a locket, pendant, brooch, or scarf-pin. The fact that active business is done in this "photographic jewellery" by jewellers and silversmiths in the very towns where the photographer complains of slackness in custom is a reason for believing that tightness of money is not the only cause of diminished receipts. Business of this kind is rightly the photographer's, but if he does not look after it someone else will.

The case would be different, and exception might be taken to our criticisms, if the introduction of the miniature as a specialty involved the photographer in special staff or equipment, but the facilities offered by several firms working for the profession in this special line places the photographer in a favourable position to deal with the smallest and largest volume of the business. That it is of advantage to push such special lines must surely be the conclusion of the man who surveys the situation. When one's competitors within and without are contending for pre-eminence in supplying a very ordinary article at an extraordinary low price, it is sound policy to try one's public with something different.

A PHOTOGRAPHER OF CHILDREN.

AGREEABLY to our promise of last week, we would interest our readers in the work and method of another New York photographer, at present in Europe to see what is being done, photographically, in the Old World. Such success as Mr. E. B. Core has attained is purely individual, the essential personality of the man finding the very field it needed.

A Pioneer.

American photographers are to the fore this year. A few weeks since we met "Byron, N.Y.," the veteran flashlight worker, who a generation ago found that the English public were too slow to appreciate a new thing, and so crossed to New York to score success. And more recently, while we were chasing Pirie Macdonald, we ran across Mr. E. B. Core, the New York photographer who banishes men and women alike from his studio, and limits his energies to portraits of children. Mr. Core is a man interesting to photographers in that he is a pioneer, if not the pioneer, in specialist portraiture. It is just about eight years since he set the example, followed by others, of relinquishing a successful business to sink or swim in a new venture. He gave up a well-established connection in Cincinnati, where his work had won him an enviable reputation, and came east some six hundred miles or more to be the photographer of New York's children.

The Man and His Studio.

Mr. Core does not strike one as an aggressive man. His manner with adults is gentle almost to bashfulness, but he has a fund of quiet enthusiasm, and he is a capable business man. His venture was an immediate success; eight years have attested that it is also a permanent one. He believes that it is not difficult to build up a successful business for the photographing of children; but then, few things are difficult to the man who is master of them. His success has been merely that of the right man in the right place. In connection with this he mentions a curious fact. In spite of the undoubted and much-talked-of success of a few men venturing in special lines, there has been a noticeable lack of imitators. Why this should be is a little difficult to say. It would seem as if every city of 100,000 people—and there are probably a score of such in the States—could support its own children's photographer. And yet photographers are not forthcoming to bid for exclusive business.

His studio is fitted with a couple of cameras, chairs, and a few backgrounds. The usual accessories are absent, but the place overflows with toys. Toys are a wonderful introduction, and with toys and E. B. Core working in conjunction there is a combination which few children can resist. If the real skin bear cannot emit growls which are sufficiently distinctive, Mr. Core will oblige with a real live impersonation. The first interest is the interest of the child; and in gaining this the natural dignity which many children possess must be appreciatively considered. Some children will work loyally with the photographer, while others are full of a mischievous determination that no picture shall be taken.

The Method.

An assistant is placed at the camera to change plates and attend to details—often to make the exposures. Mr. Core is thus enabled to devote all his attention to his subject. Many a little active resister has left the studio confident that his efforts had been successful, little dreaming that ten or a dozen exposed plates have been passed on to the developing room. Mr. Core finds it good policy to make a fair number of exposures. His price for a dozen cabinets, from two negatives, is twenty dollars. A wide range of proofs often leads

to orders from more negatives, which means an increased price, and helps to increase the total number of prints ordered. And a considerable choice of pictures is necessary to a probable specialty of Mr. Core's, viz., a large sheet of paper on which a number of poses of the little subject are delicately vignettted. Mr. Core has but one relaxation of his rule "children only." Where necessary to the success of the picture he will include the mother.

The Stamp of Personality.

E. B. Core and Pirie Macdonald are one in their insistence on the individuality of the American photographer. All work which leaves his studio must be recognisable as his work. The printer may do the best grade of work, but if he has any style or preference of his own, it must be subordinate to the style of the studio. Core gets the credit for a good photograph, and he gets the blame for a bad one, and he is the one man responsible through every stage of procedure. The finished work is his, and must be so distinctive that his lay patron will recognise it as such.

Fraternity.

Mr. Core is appreciative when speaking of the English professional; but then, he is always quick to see the best in anyone's work, and he would rather praise another than speak of himself. Four years ago he filled the office of President of the Photographer's Association of America. The annual meeting that year was stamped with the personality of the president more than any meeting before or since. The convention, which was wont to be a huge social gathering, with a strong competitive exhibition of photographs, was turned into an "educational convention." For that year medals were abolished, and photographers asked to hang their pictures for honour only. As a result the show was strengthened, for many men of assured position, who declined the chances of competing for awards, agreed to send a display of their best work. For those who looked to medal-awarding as a gauge of the quality of their work, another aid was offered. When desired, two men, a painter and a photographer, wrote brief criticisms of an exhibit, and these criticisms were handed privately to the authors of the pictures. The speakers for that year chose subjects of distinctly educational value, and the profession at large approved the experiment. It was a practical demonstration of a healthy belief in the value of fraternity.

THE souvenir in "Commemoration of the Reception of Admiral Caillard and the Officers of the French Fleet by the Houses of Parliament" is a most elaborate and interesting volume, comprising ten views of the Houses of Parliament reproduced from negatives specially taken by Sir Benjamin Stone, M.P. Opposite each view appears descriptive matter in French, the letterpress being tastefully displayed in red and black. The binding is most artistic, the cover of white vellum being blocked in gold, with a laced design surrounding the inscription, in which are included the arms of the two Houses of Parliament. The volume has been produced by Messrs. Blades, East, and Blades, of 23, Abchurch Lane, E.C.

"La Propriété Immobilière," a Paris journal, has instituted a competition confined to amateurs, the subject of which is a village in the country or on the sea shore. Medals are offered, and the judges will be MM. Bucquet, Bourgeois, Puyo, Nansonty, Guimard, Wallon, Mareschal, Farge, and da Cunha. The right to reproduce the winning or any of the prints without fee is reserved by the promoters. The address of the journal is 8, Chaussée d'Antin, Paris.

HOW TO RETAIN THE LIKENESS WHEN RETOUCHING.

One of the earliest difficulties the young retoucher has to contend with is that of retaining a faithful likeness; and with any so-called competent retouchers we often find that whilst they may be adepts at making the much-coveted yet unnatural and unnecessary grain, their methods of obtaining it are such that the resemblance to the original is generally more or less impaired. I have often heard people praise the untouched photograph taken by some amateur because "it is just like so-and-so," and at the same time speak disparagingly of a photograph taken at a good studio because the likeness to the original was partially or totally lost. Photographers generally, especially employers, will agree with me that I am dealing with one of the most common failings of retouchers, and I want to show the reason why it is so and how it can be avoided. For it is possible to very much retouch a negative, and, indeed, to over-retouch it, as is often required for actresses and others of that ilk, without losing the natural personality of the subject.

A Basic Error of Retouchers.

First, then, the common method of retouching by working evenly across the features from one part or corner to the opposite end is radically wrong. For in doing so the difficulty of keeping the true balance of light and shade is enormous, and the tendency to take out detail which should not be touched is equal to it. Most retouchers either begin retouching at one corner and then work right across to another, or else commence at the nose or the highest light on the forehead or cheek and then gradually spread out over the face until the whole is covered. Others, again, work up some special feature first, and finish it before proceeding to another, or else do a bit here and there without system or method in doing so. But all these methods are wrong, for it is impossible to keep the natural balance of

light and shade exactly centralised, and to know what to take out or leave in.

A Method which Aids Retention of the Likeness.

The better method of procedure is to work *successively* from high lights through the half-tones to the shadows, as follows, viz.:—First look to the highest lights on the face. If these contain blemishes which, however, will not show on the print, or, in other words, which will not print through, it is better to leave them alone; for whilst working upon them may make the negative look more finished it will make the subject in the print less so. If the negative is somewhat hard, or strongly lighted, it is more than possible that none of the highest lights will need retouching at all; but if it is flat or weak, the highest points may be strengthened, and, as the rest of the negative is untouched, it is easy to keep them exactly of the same nature and position as they would have been had more contrast existed previously. For remember always to keep the *centres* (highest points of intensity) of light in their proper places.

The remaining high lights should then be attended to in the order of their density, and not according to their position, and all this should be done before the half-tones or shadows are touched, so that all the features are retouched methodically part by part. The half-tones are next attended to, commencing with those which will print lightest, and working with the others successively until the shadows are reached in turn and worked off in the same order. By working thus, the balances and centres of light and shade may be kept throughout, and only defects will be obliterated, whilst the modelling and character detail is retained with ease.

This way of working (which is more fully described in my book on retouching) is easily followed, and by doing so it is remarkable how little work is required to secure a beautifully-retouched negative when compared with the usual methods of working.

ARTHUR WHITING.

THE WEEK IN HISTORY.

Scott-Archer's Film—1855.

SCOTT-ARCHER, four years after his invention of the wet-collodion process, devised and patented an addition to it which has been a constant use for one purpose from that day to this. On Thursday next, exactly fifty years will have elapsed since his application for a patent was made, and the full specification (No. 1,194, 1855) is interesting reading as extolling even in these early days the virtues of a flexible film-negative. "The negative picture," he writes, "is produced in the ordinary manner upon the collodion film on a sheet of glass, and it is fixed and dried in the ordinary manner. I then pour over it, or dip it into a solution of guttapercha, and after draining off the excess, it is dried by a gentle heat, and leaves a nearly transparent film of guttapercha upon the collodion. If the film is not sufficiently thick this operation is repeated once or more times until a sufficiently thick film of guttapercha is formed. I then immerse the whole in water, which causes the collodion to separate from the glass, and I then remove the film or sheet of guttapercha with the collodion film firmly adhering or combined with it. These films or sheets are sufficiently transparent, and are tough and flexible, and may be handled without injury, and they may be preserved in a book or portfolio. I employ these films for producing the positives in the same manner that the ordinary glass negatives are employed. They may be placed with either

side in contact with the paper according as it is wished to obtain a correct picture or a reversed picture."

The Publication of Daguerreotype.

To-morrow precisely sixty-six years will have passed since the greatest day of Daguerre's life, for on August 19, 1839, his process was the subject of Arago's enthusiastic eulogy before the Academy of Sciences. Apparently the address itself did not describe the manipulatory details of the process, for in the printed account in the "Comptes Rendus" these latter figures as footnotes. They constitute the first recorded description of the Daguerreotype process.

The first Daguerreotype.

As there must be few photographers who have perused this archive of their art, I may perhaps quote somewhat liberally from Arago's footnotes:—

"In the process to which a grateful public has given the name 'Daguerreotype,' the surface upon which the picture is impressed is a full yellow. It is produced when a silver plate is exposed for some time in the upper part of the box to the vapours from a few fragments of iodine placed in the lower portion. No sign of image can be discerned on the plate when it is removed from the camera obscura. The yellowish film of iodide has received the image, but still appears perfectly uniform. But if the plate is exposed in a second box to a stream of mercury

vapour rising from a dish of that metal, heated by a spirit lamp to 75 deg. Centig., the most remarkable result is produced. The mercury deposits freely on those parts of the surface which have been exposed to bright light, but does not adhere to the unexposed parts. It affixes itself to the portions which represent the half tones in greater or less quantity, proportional to the action of light on those parts. By the light of a candle the operator can follow, step by step, the gradual formation of the image; the mercury vapour can be seen to trace the details of the image as though it were a brush of exquisite delicacy. The image of the camera thus reproduced, the further action of the light must be arrested. M. Daguerre does this by moving the plate in hyposulphite of soda, afterwards washing it with warm distilled water. According to M. Daguerre, it is better to produce the image on a plate of copper covered with silver than on a silver plate, a fact which suggests that electricity plays a part in these curious phenomena. The surface of the plate should be first rubbed down with pumice-stone and cleaned with dilute nitric acid. The useful part which the acid thus plays, suggests M. Pelouze, may be due to its removing the last molecules of copper."

The first Theories of Daguerreotype.

M. Arago passed from practice to theory. "In attempting to explain this singular process of M. Daguerre's," he writes, "the idea immediately suggests itself that where the light reaches the plate in the camera, it produces vapourisation of the iodine, that the metal is bared in this spot, and that during the next part of the process the mercury vapour has full access to the plate and produces a white and lustreless amalgam, that the washing with hyposulphite chemically removes those portions of the iodine not removed by light, with the result that the bare and mirror-like parts are left behind and produce the shadows of the picture. But this theory offers no solution of the formation of the beautifully-graduated half-tones obtained in M. Daguerre's process. A single fact, too, will prove that the process is not so easily explained. The plate does not perceptibly gain in weight after coating with its yellow film of iodide. The increase in weight, however, is quite distinct when the plate is treated with mercury. M. Pelouze has ascertained that after washing in hyposulphite the plate weighs less than it did at first in spite of the presence of some amalgam. The hyposulphite, therefore, removes some silver, and the chemical examination of the liquid shows this to be the case. To account for the action of light in M. Daguerre's process, we may assume that the silver plate becomes covered during the exposure to the mercury with particles of amalgam, that these particles are close together in the high lights, are less crowded in the half-tones, and absent from the shadows."

A Point in Emulsion Making.

A practical step forward in gelatine-emulsion making attains its twenty-sixth birthday on Tuesday next, for on August 22, 1879, Mr. George Mansfield published through THE BRITISH JOURNAL OF PHOTOGRAPHY a method which, though not new on paper, was first put into practical shape at this time. It was the principle of emulsifying the silver bromide in a little gelatine, of heating this emulsion to obtain sensitiveness, and, after washing, of adding the remainder (i.e., the chief portion) of the gelatine. This process was fully reported on in THE BRITISH JOURNAL OF PHOTOGRAPHY at the time, and the following data given for carrying it out:—

For five ounces of emulsion, take:—

Gelatine	5 grains.
Ammonium bromide	60 grains.
Silver nitrate	100 grains.
Water	5 ounces.

Dissolve the gelatine, bromide, and silver each in one ounce of warm water. When the gelatine is completely dissolved, add to it a small quantity—say, a drachm—of the bromide solution, and shake or stir well. Then add a similar quantity, pouring it in a thin stream, of the silver, and again agitate. Proceed in this manner, adding the bromide and silver alternately until the whole of each has been used, when, if ordinary care has been exercised, a thin but perfect emulsion of bromide of silver—the finest possible state of division—will be the result. The remaining two ounces of water may now be added; but it is better to omit it at this stage, as the gelatine will take up more during washing. We now come to the question of emulsification or digestion. Seeing the minute quantity of gelatine present to be injured by heat, there is no necessity to confine ourselves to the stereotyped "ninety degrees." We, in fact, simply place the bottle in a covered pan and raise it to the boiling point, as Mr. Mansfield recommends; and, singularly enough, for general purposes we have adopted the same length of time (ten minutes) as that gentleman during which the boiling is continued. There is very little doubt that the change which goes on in the state of the silver bromide under these conditions is quite as great as, under ordinary conditions, occurs in hours, or even days. That such is the case, we have proved, for an emulsion prepared in this manner and digested at a moderate temperature (110 degrees) for about five hours was found to have assumed a distinctly granular appearance, though for two or three hours no such change was apparent. In the ordinary method of emulsifying, with a full quantity of gelatine, a similar result would have required weeks.

HISTORICUS.

THE PHYSICAL DEVELOPMENT OF P.O.P.

THE following abstract of an article by Herr Schmidt, which appears in "Photographische Kunst," opens up new fields for experimentalists in this direction, as suggestions are made which are, so far as we are aware, distinctly novel.

An acid hydroquinone developer will give a range of tones from red to olive green, but blue and violet are not easy to obtain by mere development. An alcoholic solution of metal will also give excellent results; it works quickly and keeps well, but is rather more costly than pyro or hydroquinone. The metal is used in a 10 per cent. alcoholic solution—or rather mixture, for the whole of the metal does not dissolve, and the solution must be shaken up before dilution with water in the proportion of 1.100, which forms the actual developer. This gives a dirty greenish brown tone, and

very quickly causes general stain; if, however, 20 to 30 drops of a 20 per cent. chrome alum solution be added to every 100 parts of the metal developer, the whites are kept clean. The addition of a little glacial acetic acid gives a greenish black, which, with continued use of the developer and very short insolation, turns to black-brown. Instead of the glacial acetic acid, acetate of soda may also be used with equally good results.

Citric, oxalic, and tartaric acids added to the metal developer give each its special tone ranging from brown to reddish yellow. Citric acid gives excellent brown tones with a shade of rose, which cannot be obtained with any toning bath. Oxalic acid also gives brown tones, and prolongs development. Chrome alum also acts as a restrainer, and the tone is pure brown and the whites clean, and

the presence of tartaric acid it acts in the same way, and the tone yellowish brown, which becomes darker the longer the development continues.

The possible combinations between the various acids are, of course, innumerable, but a mixture of two acids does not apparently give one which may be called the mean of the two, but it always has a tendency to reddish-yellow.

Although an acetate gives the same results as acetic acid, it does not follow that the salts of the other acids will act in the same way, for instance, the oxalate of sodium does not act in the same way as oxalic acid, as it gives greenish tones. In conjunction with citric acid it gives an excellent pure olive tone, however. Phosphates act in the same way, though, as phosphoric acid, and cause a general fog, which is not prevented by chrome alum.

Traces of bichromate in the metol and acetic acid developer give beautiful bright brown tones, but without the acetic acid there is no developing action. Phosphoric acid, if used in a 15 per cent. solution, added to the acetic developer converts the olive tone into brown. Its action is peculiar, as it appears to fog the whole print, but yet develops the detail with the same contrast as the other developers, it may therefore be useful for artistic effects.

The following tables give a summary of the results attainable, though there are other factors that influence the tones.

ORIGINAL DEVELOPER 50 CCS. 1:1000 METOL SOLUTION.

Additions.	Development.	Tone.	Remarks.
Glacial acetic acid, 3 ccs.	Quick	Olive	Addition of 5 ccs.; 1:20 chrome alum solution gives more brilliant tone. Excellent.
Lead acetate	"	"	Nitrate may be used. Advisable.
Citric acid (1:5), 5 ccs.	Medium	Brown	As No. 1. Excellent.
Oxalic acid sat. sol., 10 drops	Slow	"	Worth trial.
Tartaric acid sat. sol., 3-5 ccs.	"	Yellow or yellow brown	As No. 1.
Acetic acid, citric acid (a little), chrome alum	"	Brownish red	Very commendable.
Citric acid (1:5), 5 ccs.; sodium oxalate	Medium	Greenish olive	Excellent.
Bichromate (1:50), 2-3 drops	Quick	Brown	Commendable.
Phosphoric acid (15 p.c.), 10 drops; chrome alum	Very quick	Dark green	Sodium phosphate can be used (for artistic work).

ORIGINAL DEVELOPER 50 CCS. PYRO SOL. 1:1000

Additions.	Development.	Tone.	Remarks.
Nil.....	Medium	Yellow brown	The same with 5-10 drops of acetone added.
Glacial acetic acid, 3 drops ..	Slow	"	The same with citric acid added.
Glacial acetic acid, 4 drops; chrome alum 8-10 drops	Medium	Bright brown	Commendable.
Glacial acetic acid, 5 ccs.; citric acid sol. (1:5) 5 ccs.; Pot. Bichrom. (1:50), 3-5 dps	"	Chocolate brown	Very commendable.
Glacial acetic acid, 10 drops; Pot. Bichrom., 1:50, 3 drops	Very quick	Olive	Commendable.
Citric acid sol. 1:5, 5 ccs.; Pot. Bichrom., 1:50, 3-5 dps	Quick	Greenish olive	Very commendable.
Oxalic acid sat. sol., 5 ccs.; Pot. Bichrom., 1:50, 3-5 dps	"	Sea-green	Commendable.
Copper citrate sol., 5 ccs.	Medium	Olive	For artistic work.

ORIGINAL DEVELOPER 50 CCS. HYDROQUINONE SOLUTION 1:100.

Addition.	Development.	Tone.	Remarks.
1. Nil	Very slow	Yellow brown	
2. Acetone, 5 drops	Slow	Brown	More acetone pure browns. Commendable.
3. Pot. Bichrom., 3 drops.....	"	Bright brown	Wash before fixing.
4. Pot. Bichrom., 6-10 drops; citric acid sol., 1:5, 10 ccs.	Very slow	Dark carmine	For artistic purposes.
5. Phosphoric acid (15 per cent.), 3 drops.	Slow	Brown	Very commendable.
6. Phosphoric Acid, 20 drops ...	"	Grey green	" "
7. Copper citrate sol. 10-15 ccs.	"	Olive	Chrome alum gives greater brilliancy. Very commendable.

Pyro stands midway between metol and hydroquinone, not only as regards the rapidity of development, but also as regards the variation of tone by certain additions. The use of a very dilute pyro solution 1:1000, gives, according to Liesegang, a beautiful chocolate brown that approaches warm black in the shadows, but this was only found to be the case with prints that were fairly strongly printed; if but a faint impression was obtained, a yellowish-brown tone was obtained. Unfortunately the tendency to fog is a great disadvantage with pyro. Acetic, citric, and tartaric acid do not alter the tone, but restrain development and prevent the fog. Good bright brown tones are obtained with a bath of pyro, acetic acid, and chrome alum. Oxalic acid plays a noteworthy part; in conjunction with pyro there is no development, and in conjunction with other substances it does good service as a restrainer.

Potassium bichromate and phosphoric acid can be used as accelerators, the addition of even a few drops of a saturated solution of bichromate accelerates considerably. Both give green to olive tones, but plenty of fog. If to the bath is added from ten to twenty times the quantity of oxalic acid as there is bichromate, beautiful sea-green tones result. Substituting acetic for oxalic acid, olive tones are given; the same applies to citric acid, which gives a tinge of rose. Acetic acid, in conjunction with a little bichromate and pyro, gives chocolate-brown tones, such as are unattainable with pyro, but as this tends to fog, it is advisable to add some citric acid.

To the pyro developer some copper and citrate solution, as used for toning bromides, was added, the actual composition being—

Copper sulphate	10 g.
Potassium citrate	50 g.
Water	1,000 c.c.s.

This gave an exceptionally artistic rendering in olive, which was accompanied by a slight fog. The pyro stock solution was a 6 per cent. aqueous solution with the addition of 40 drops of acetone to keep it. For hydroquinone a 10 per cent. solution was used as a stock solution, and some acetone was added to make it keep. When a print developed with the normal developer—that is, 1:100—and fixed, the tone obtained was a yellowish brown, with the acetone a warmer brown was obtained. Alcohol may be used instead of water. Citric and acetic acids and their salts produced no difference. Bichromate gives brown to dark green tones, but very little must be used, otherwise the prints must be washed before fixing, otherwise the traces of bichromate in conjunction with the hypo will act as a reducer. The longer the print is in the bath—that is to say, the fainter the original impression—the more the tone approaches chocolate-brown; but there is at the same time slight fog. Very beautiful dark carmine red tones are obtained if the quantity of bichromate is increased, and plenty of citric acid used; the print

must be only faintly printed and the development may take ten minutes.

If phosphoric acid is added, the tone varies according to the quantity used; a few drops give brown tones, with more a greyish green, and finally an olive tone is produced; if a lot is used a vigorous dark-green peculiar shimmering precipitate is produced. Small additions of acetone and bichomate hasten the development.

The addition of the copper-citrate solution gives excellent results, and the tone is olive, and is clearer with the addition of chrome alum.

The above remarks apply mainly to gelatino-chloride paper only, half printed under a normal negative. Faintly printed proofs give darker tones, tending towards green; strongly printed prints give brighter colours. A deeply printed proof gives more contrast than a weakly printed one, and concentrated developers tend to give darker tones, dilute developers brighter ones, and the latter work more softly than the others.

Some of the statements advanced by the author seem somewhat

curious, as, for instance, when he says that the more developing solution used the softer the image, which he explains is that the nascent silver has more opportunity to be suspended than when only a little developer is used.

Collodio-chloride papers, as a rule, give practically the same results as the gelatine papers, only the tones are colder, frequently darker and less brilliant. The metol and alcohol developer with chrome alum gives excellent brownish black results.

Not more than 50 ccs should be placed in a 9 by 12 dish at once, and not more than three or at the most four, prints should be developed therein, otherwise the precipitate of silver becomes too thick. Liesegang suggested the use of a fish glue to prevent this precipitation, but the author states that a dirty dish, such as has been used for developing and fixing, and only superficially cleaned, may be used for this process, and that the nascent silver is then deposited on the dirty places in the dish.

After development the prints may be either rinsed or transferred direct to the fixing bath, and an acid fixing bath is an advantage.

CONTROLLING EXPOSURE AND DEVELOPMENT IN MAKING BROMIDE ENLARGEMENTS.

Development.

SUPPOSE we were to make a "print meter" or densitometer by pasting over a piece of clean glass, pieces of semi-transparent paper, so that the first step has one thickness, the second two, the tenth ten, and so on up to the thirtieth, having thirty thicknesses, and suppose we put a piece of bromide paper behind and print through, giving such an exposure that on development to the limit (that is until it is not possible to develop any more), say step twenty-three has not printed, but twenty-two has just done so, twenty-one more so, and

II.

in the resulting print, and hence the line of gradation would be steeper. (See Fig. 2.)

A Negative of Standard Gradation.

If a negative is of exactly the right contrast—i.e., of standard gradation—and we give the correct exposure, whatever developer we employ, if we develop to the limit of reduction—i.e., until no more silver can be reduced—we will get a perfect rendering every time, as long as no fog sets in. The gradation of the negative is faithfully rendered, and, with modern bromide papers, fog will not set in as

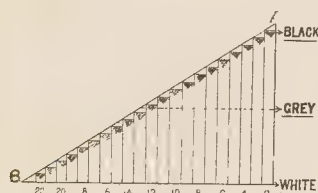


Fig. 1.

so down; step eleven is greyish, step two is jet black. We can represent these deposits of silver in the print as steps where black is a very high step; deposit twenty-two is just an appreciable step.

Let us assume for argument sake that the exposures, through the thickness of paper, are in arithmetical progression, though for a "print meter" so constructed they would be in geometrical progression.

A Mental Picture.

We may then represent the result of development thus. (See Fig. 1.)

We see that the tops of the steps represent a straight line AB. This line denotes by its steepness the steepness of gradation of the print. Now if there were greater differences between the opacities or steps of the "print meter," that is, if the "print meter" or negative were harder, then there would be fewer steps between white and black

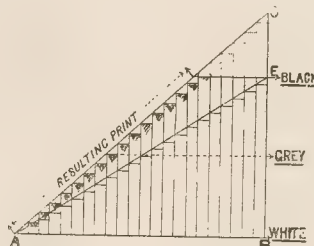


Fig. 2.

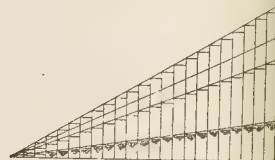


Fig. 3.

long as the developer is not too strong in alkali and not too warm. But if the gradation of the negative is not exactly right, we have to modify development to correct it, and to do this we must understand the action of developers exactly.

The Three Classes of Developers.

We may divide the developers into three classes:—

- (a) Those very slightly susceptible to the restraining action of potassium bromide, as rodinal, metol, paramidophenol. These have a high Watkins factor.
- (b) Intermediate. Amidol, weak pyro, kachin, ortol, eikonogen.
- (c) Those easily restrained. Hydroquinone, adurol, strong pyro, generally with low Watkins' factor.

We will discuss these separately.

- (a) Rodinal Class.—Unsusceptible to potass. bromide.

Most of us know the appearance of the image when developing a negative with metol or rodinal. The whole picture seems to flash

everywhere, and then blacken over and take an abnormal time at density when compared with the quick appearance. This is as should be expected with a developer of this class. In this the densities at any instant of development are proportional to the light actions—that is, all portions from the most exposed to the least exposed are being reduced relatively at the same rate. Development is uniform. If, now, we develop a print from the "print-meter" we can represent the different stages of development as shown in Fig. 3.

Now we see that by shortening the time of development we can get a softer print than normal, so we see how to decrease contrast in the case of a hard negative. In this case we use no bromide of potassium, or as little as possible, and use a developer of this class. When we develop the print, a bromide is set free in the developer. The reason is that when we reduce silver bromide to silver, the atom of bromine is liberated and combines with the base of the silver salt present, forming sodium bromide, or potassium bromide, according as a soda or potash is being employed as the alkali. In the case the bromide liberated does not appreciably affect development, seeing that rodinal is unsusceptible to it, and that this quantity is small.

We may here remark that the common phrase, "a developer which stops up detail before density," is unscientific and nonsense, seeing that detail is density, nothing more or less than pure silver. We do not rather to talk of such a developer as one which develops gradually.

Intermediate.—These developers are intermediate in character between (a) and (c).

Adurol Class.—Very susceptible to potass. bromide. The action of potass. bromide in a developer susceptible to it is to hold back portions of the latent image which have been least acted on by light. It has very little action on those much acted on by light.

Hence, in a bromide print the effect is that the shadows or blacks are free play, but the whites and greys are more or less held back. The holding-back action gradually passes off, and if we develop to the limit of reduction we get the same result as if we had used no potass. bromide, and developed to the limit.

Now, most of us know the appearance of a negative developed in a fairly strong pyro-soda developer containing a soluble bromide, and high lights (where there is most light action) in the case of a negative come up first, then the half-tones, and ultimately the shadows. In this we recognise the falling off of the holding-back action of the bromide. This is scientifically known as "the regression of the bromide." Even if we add no bromide to the developer we will see this appearance, though it will be very rapid, the regression being very rapid, as the bromide set free by development is very small. In the case of a print, of course it is the shadows or blacks which appear first, then the half-tones, then those tones bordering on whites.

When I wish to employ a restrained developer I find Schering's rodinal very convenient, using the formula given in the box, with the addition of potass. bromide:—

Adurol	3 drms	I use equal parts of A, B,
Sod. sulphite cryst ...	3 oz.		and C.
Water	19 oz.	To the mixture add 2 gr.
Potass carbonate	2½ oz.		bromide per oz. of developer.
Water	19 oz.	

Thus, A 1 oz., B 1 oz., water 1 oz. Ten per cent. potass. bromide, 60 minims.

We will represent graphically a print in the different stages of development when using such a developer. Suppose we use the print-meter again, and give as before such an exposure, that if the print were developed to the limit, step 2 would be jet-black, while step 22 just develop. Now, suppose we develop it in this restrained

adurol developer (see Fig. 4). The first step to appear will be No. 2. A little on, say when step two is between grey and white, step seven may have appeared. Then, when two is grey—i.e., midway between black and white—step eleven may have appeared. Then, when two is black—that is, when all the silver capable of being reduced in step two is reduced—step fifteen may have appeared. We see that the gradation of the print at any stage of development is represented

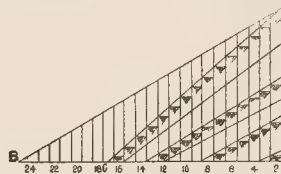


Fig. 4.

by a line, which is continually shifting up and shifting to the left—in fact, it is revolving about a point below the abscissa or initial line.

We also see that the line AC, obtained when step two has just developed to the limit, is steeper than the final limit line AB; hence gradation is steeper at this period. The steps sixteen to twenty-two are being held back by the restraining action of the bromide.

If we go on developing, step two cannot get any taller, as it has reached the limit; hence the gradation line cannot shift upwards, but it can still shift to the left towards B, and this it does, the restraining effect of the bromide passing off until ultimately it coincides with AB.

Suppose, now, our negative were too flat—that is, suppose our print meter were too flat in gradation, and that, as before, we gave the print such an exposure that step twenty-two just printed and twenty-three did not (see Fig. 5). Now, if we developed the print to the limit, step twenty-three would be white, but step two would not be black, but a grey-black (see E); the print would then appear flat. The dotted line EC would represent such a print. Now, if we want to increase contrast we must make our blacks really black and not grey-blacks, and yet preserve our whites, white. To do this, evidently, we must give more exposure, because step two has been developed to the limit, and is only grey-black, and needs more silver to become black. Now, if we give more exposure we must hold our whites back if we want to preserve them, and this we do by using the restraining action of potass. bromide. So that to increase contrast we must over-expose and use a restrained developer.

Fig. 5 represents what occurs in development. AB represents the limit of development, and C the required line; the other lines repre-

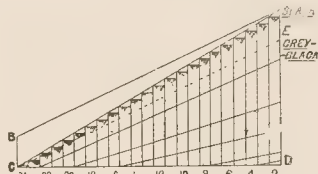


Fig. 5.

sent the intermediate lines. If we went on developing our whites would become dirty. If we put this print into rodinal the whole picture would flash up—and the whites would be dirty. So to understand the theory of development is to be able to allow exactly for the idiosyncrasies of the different papers and get any result desired—for instance, if we find a certain paper too soft we know how to increase the contrasts.

N. C. BACK.

[The concluding portion of this paper will be given next week.—Ed. B.J.P.]

SOME NEW SENSITISERS.

HERR VALENTA, of Vienna, publishes in the current issue of the "Photographische Korrespondenz" the following results of his experiments with some new dyes, samples of which were supplied to him by Meister, Lucius, and Brünig (M. L. Br.) and Fr. Bayer and Co. (By.). Some were tried with collodion emulsion as well as dry plates, and in the former case alcoholic solutions of the dyes was added to the emulsion. In all cases the actual German names are given, and the name of the maker in brackets. Alkaliechtgrün B. (By.), easily soluble in water and alcohol, sensitises vigorously with long exposure in yellow and yellowish green (ends abruptly at D, fades off towards E), and in the red (narrow and sharply defined band at C). Amidonaphtholrot G; 2 B and 6 B (M. L. Br.) give in strong dilution 1.50,000 a band, which is abrupt towards the less refrangible end, from D $\frac{1}{2}$ C to beyond D $\frac{1}{2}$ E. Alizarin-Irosol R (By.) sensitises in the red; the band extends with long exposure from B to C $\frac{1}{2}$ D (maximum at C). Brillanthodulinviolett R (By.) sensitises gelatino-bromide very strongly, less active with collodion. With short exposure there is a minimum at D $\frac{1}{2}$ E and a band from D to A (maximum D $\frac{1}{2}$ C), with long exposure there is a closed band from a to beyond H, but the dye makes the plates spotty. Dianilgranat B and G (M. L. Br.) is a weak sensitiser; it acts with prolonged exposure equally from F to beyond B. Plutoschwarz P G (By.) sensitises vigorously for red; the action extends from a to beyond D. Neutralblau 2 R (M. R. Br.), sensitising band from C to $\frac{2}{3}$ D, maximum C $\frac{1}{2}$ D; a second dye, Neutralblau R-giyes a narrow band from C to D. Alizarin Astrol B (By.), patented powder, vigorous band from B to C, with long exposure, extending beyond a, also a second line like band at C $\frac{2}{3}$ D. Brillantwollblau (By.), band from B to C $\frac{1}{2}$ D weak. Azosäureviolett B A L (By.) patented, band from C to C $\frac{1}{2}$ D weak. Kristallviolett P (By.), vigorous band from B to D $\frac{1}{2}$ E; maximum C $\frac{1}{2}$ with long exposure. Halbwollschwarz LS (By.) gives with long exposure a band in the red that reaches from B and fades before D. Chromotropblau A (M. L. Br.) acts

only with long exposure, and gives a band from E $\frac{1}{2}$ D to maximum at D. The band reaches with collodion emulsion from where it falls sharply off, to E. The maximum lies at D 1-5 W G and W B of this dye also sensitise. Rhodulinreinblau B (By.) gives a sharply limited band from B to C; the addition of silver nitrate to the bath considerably increases the vigour of the band. With equal exposure, it only acts slightly on collodion. Wollehtblau R L (By.) undecided faint band with maximum at E. Echt Dunkelblau R extra (M. L. Br.) sharp vigorous band from C to C $\frac{1}{2}$ D. Thiogenkohlschwarz, indistinct faint band at a-B.

The following dyes neither sensitise nor cause fog, nor greatly reduce the blue sensitiveness of the plate:—Anthracenrot (M. L. Br.); azophloxin 2 G (By.); azosäureblau 3 B, Konz. a (M. L. Br.); benzobraun und benzoechtgelb (By.); carminogen und chromoglaucin N M in paste; Dianildunkelgrün L (M. L. Br.); dianiltiefschwarz B T and T konz. (M. L. Br.); echtazogranatbas (By.); karbonschwarz (M. L. Br.); kaschmirblau F G extra (M. L. Br.); kaschmirschwarz T N (M. L. Br.); kategrünbraunschwarz (By.); lanoglaucin N paste patent (M. L. Br.); melanogenblau B (M. L. Br.); metanilrot 3 B, naphthylaminschwarz 4 B and 4 B K (By.); neuäthylblau RS and BS (M. L. Br.) (these dyes give fog even in weak dilution); orange R O (By.); pigmentechtgelb (M. L. Br.); rhodulinblau G G extra (By.); säurealizarinblau S N (M. L. Br.); säurealizarinrot G; säurealizarinschwarz S N P (M. L. Br.); säureschwarz 4 B L and L D (By.); sulfocyaninschwarz B (By.); sulfongelb R and 5 G (M. L. Br.); thiogen dyes (M. L. Br.); thiogenbraun G, G G, and G R; thiogendunkelblau B; thiogendiamantschwarz B and V; thiogengelb G and G G; thiogenorange G G, R G, and R R; thiogenschwarz 4 B konz. and M konz.; thiogenviolett and thiogenviolett B all cause fog and lower the blue sensitiveness, even when used very dilute; wollehtblau R L; wolldruckschwarz N B; wollscharlach 4 R and 4 R (M. L. Br.).

FIRES FROM MOVING-PICTURE EXHIBITIONS.

[Abstracted from the "Scientific American."]

The danger attending the use of moving-picture apparatus is due to the highly inflammable character of the celluloid film bearing the pictures and to the intense heat produced where the light is condensed upon the film. This heat is sufficient to ignite the film at the projection aperture if the light is allowed to rest continuously upon one portion of the film for a few seconds, but when the machine is in operation the film of course travels so rapidly across the projection aperture that the heat is without effect upon the film. The projection aperture, therefore, is the point at which the film is most apt to take fire, and in almost every instance the ignition takes place because a portion of the film is held stationary at the projection aperture for a time.

Contributory Causes.

This may be brought about in various ways. The film may break below the projection aperture; the feed mechanism may become jammed and inoperative; it may lose its hold on the film; the crank may become loose on the shaft of the feed mechanism so that its turning will not feed the film forward; a small fragment may be torn off the film and lodge in the projection aperture where it will be exposed to the full heating effect of the light; or the operator may stop turning the crank of the film feed mechanism for any one of a variety of reasons. He may become faint or giddy

from the heat or from escaping gas; his attention may be suddenly distracted and he may forget to keep the film feed mechanism in motion; or he may stop the feed of the film intentionally and neglect to cut off the light.

Preventive Measures.

Fires have resulted more than once from each of the foregoing causes, and it is practically impossible to construct moving-picture apparatus in such a way as to prevent the film from occasionally taking fire at the projection aperture. It is possible, however, to prevent serious consequences from the ignition of the film at this point, and this may be done by simply preventing the fire from following the film from the projection aperture to the reels upon which the film is wound. Ordinarily, these reels have from eight hundred to twelve hundred feet of film wound on them, consequently, if a flame reaches either of these reels the fire that results is so large, so hot and so difficult to extinguish that great damage to the building is almost certain to result, to say nothing of the panic that is always caused when a flame of any size breaks out in a place of public entertainment. If, however, the film burns only at the projection aperture, the flame will be small and do no damage.

Limiting the Fire Area.

To limit any fire that may occur from a moving-picture exhibition to a few inches of the film, it is only necessary to inclose both the

film supply reel and the take-up reel in fire-proof chambers and to provide valves leading into said chambers through which the film can pass freely while the film feed mechanism is in operation, but which will close instantly when the film feed mechanism ceases to operate or the tension upon the film is relaxed. If the film supply reel and take-up reel are inclosed in such fireproof chambers or magazines, the ignition of the film at the projecting aperture is a matter of very little consequence, as the burning of the film at that point immediately causes a reduction of the tension on the film and permits the valves through which the film passes into the magazines to close and so prevent absolutely the passage of the flame into the magazines. Properly constructed magazines for the film supply reel and take-up reel can be applied at very small cost to any moving-picture machine, and if the machine is equipped with such magazines it may even be overturned without causing any serious damage.

Alternative Methods of Prevention.

Other methods of preventing flames at the projection aperture from reaching the reels of film have been proposed, such as a non-inflammable plate of considerable size arranged above the projection aperture and extending rearward and to the sides for a considerable distance. Such a plate will sometimes prevent a flame at the projection aperture from reaching the film on the supply reel, but it is by no means as certain in its action as the magazines already mentioned, for the film above the plate is fully exposed, and if the flame rises above the edge of the plate it may strike the exposed

film and set fire to the entire reel. Another device which has been proposed to prevent the transmission of a flame from the projection aperture to the film reels consists of a pair of flat tubes or guides extending above and below the projection aperture and made of non-inflammable material, the idea being that in the small space afforded by these guides for the passage of the film a flame will be extinguished. As a rule, this device operates successfully, but as the reels themselves are exposed, a flame flaring up suddenly at the projection aperture may reach one of the film reels in spite of the guides.

English v. American Methods.

A plan of preventing fires from the use of moving-picture apparatus that has been adopted in England to a considerable extent is to inclose the entire apparatus in a fireproof box large enough to contain the operator also and to lock the operator in during the exhibition. This plan has the merit of making operators careful, but many grounds of objection to it are obvious, and American operators of moving-picture apparatus are unwilling to be locked in such a box while giving an exhibition.

Considered from all points of view, the most satisfactory and thoroughly reliable means for rendering moving-picture apparatus safe is a fireproof magazine for the film supply reel and a similar magazine for the take-up reel. Such magazines answer all the requirements and have the advantage of being readily portable and of being easy to apply to any standard moving-picture machine.

BAXTER MORTON.

ANOTHER LETTER TO A MIDDLE-CLASS PROFESSIONAL. THE QUESTION OF MOUNTS.

DEAR J.—In my last letter, talking of backgrounds (see *BRITISH JOURNAL OF PHOTOGRAPHY*, August 4, 1905), it was suggested that the general "get-up" of a print had much to do with the "common appearance" apparent when viewing an otherwise good work. The question was, however, shelved for a future communication.

Now mounts, as the amateurs have discovered, have a most important bearing on the finished photograph, and this point has to be borne in mind when you are making out your mount order.

What, then, are the underlying principles of a good mount? Of course, I have nothing to say here on the scientific question of purity.

Firstly, as with backgrounds, subordination to the chief feature—in this case the print—and, secondly, unobtrusiveness combined with efficient carrying out of its duties of properly enhancing the print. In other words, the mount has not to be seen before the print, the first impression should come from the photograph.

Arriving, then, at this conclusion, the whole matter can be summed up with one word, "simplicity."

The colour of the mounts should, perhaps, first claim your attention. You cannot, of course, have a different coloured mount to suit each print, neither is it possible in most studios to combine colours and to build up composite mounts used by the leading amateurs. It is also not worth while, for I know from experience that these mounts do not take with the public. Placing this method aside then, it is obvious that we must have either a set of one colour which will suit all prints made (white), or a set of two or three colours which by their negative tones will suit a variety of prints. I can imagine you preparing to ask: "What colours, then, should I choose?" This will depend in every case on the processes you work. What colours do you want that will be most useful for these varying needs?

The white mount, in spite of all the tirades levelled at it, continues to be the favourite of the public, and is generally used by all

photographers. Of course, it is an undoubted fact that the glare of the light reflected from the white surface seriously detracts from the portrait, and does not "show-up," to use the public phrase, the print so well as the dark-toned mounts, but, nevertheless, all arguments to the contrary notwithstanding, the public insist that the reverse is the case. As you are in business for profit and not pleasure, it is not advisable to run counter to the public belief. Moreover, with judicious arrangement of plate-mark, names, and proportions of mount, this kind of board can be made to look very stylish, and certainly not old-fashioned. You must therefore have a full stock of white mounts, not only because they are demanded, but because any colour and description of print can be mounted thereon without violently assailing any canons of taste.

Mounting schemes may be classed as contrasting or harmonising. The latter method of mounting in harmony is, I think, the more generally useful, and more successful as a seller than the contrasting method. This latter is useful at times to attract attention, and, if prints are carefully chosen, will look very brilliant and attractive; but, as I said above, you will find mounting in harmony—which, to give you a broad definition, is to use a mount of same colour or approximate to same colour of print—is much the best for artistic and business reasons; for, to repeat, "it is essential that a stock of mounts should suit, or, at any rate, not detract from a very great variety of prints." It must be borne in mind when weighing the pros and cons of harmony or contrast that, as a general rule, a print that is to look well on a mount of a colour to contrast with its own prevailing tone must be itself snappy and brilliant. In all probability, therefore, your delicate prints, or those somewhat flat and dull, will be overpowered on a contrasting mount; whereas a mount of approximately the same tone as a print would enhance and aid the print.

Our first consideration, then, will be harmonious mounting schemes.

Starting, as before, with grey-toned prints, it is obvious that we have the whole gamut of greys between white and black, as well as those colours, to select from. The first has been discussed, and the latter does not sell, so the greys remain.

The exact tone will, of course, depend greatly on your individual taste. As a rule, the public prefer the light to the darker tints. The latter, however, makes a good set-off to the white mounts, which the lighter tones somewhat approximate. A C.C. print, gold and platinum tones, does not look amiss, or a dark-grey with the slightest tinge of blue—some makers count grey as what I mean.

I will say no more about grey prints here, for no contrasty mounting is permissible—at any rate in business—with this cold tone, and I would particularly warn you against using a positive coloured mount with a negative-coloured print such as platinum. The result is almost bound to be failure. As an illustration, let me point out the cheap and common appearance given to work by some of the best firms when a grey print is mounted on a green board—a breach of taste very frequent a year or two ago, when the green mount was extensively used. The combination is bound to jar in all but exceptional circumstances.

Red prints would obviously look bad on a similarly coloured mount, but a mount approximating to that colour—such as warm brown or cream—will do, for cream as it gets darker is buff, and buff is decidedly brown. Green prints, when such are done, should usually be mounted on non-committal white, though some green carbons I mounted on dark green mounts looked better than any other green prints I have yet seen.

The discussion of mounts for contrasting schemes is, you will observe, much narrowed down by the exclusion of grey prints, and mounts for warm-toned pictures need only be discussed. The only colour very generally used is green, and if of a dark green, brown prints, and occasionally Bartolozzi red, look well; but the prints must suit, and should preferably be printed solid.

Cream mounts may be considered by some as a contrasting tint, though I spoke to you about it as a harmonising colour. As it is, a beautiful and extremely useful colour I will extend my letter a little and find time to say more about it. The actual tone should be a very deep cream—almost buff, not the dirty white that usually passes for a cream in traveller's samples. The colour you want is that of vellum. These mounts suit admirably sepias and browns of all descriptions, warm black, and are the mounts par excellence for the difficult red carbon. In fact, they will take all the warm tones usually used. Not only this, but they keep their colour in a case, and are not so easily soiled as white.

I do not know that the popular paper mounts require any special remark. Either the imitation hand-made paper or the Japanese vellum mounts are good. The latter have the same advantages and same restrictions as the cream mounts already written about. It is advisable to see that you get a thick sample of the vellum—there are many cheap and bad imitations on the market, but the best is, in the end, the cheapest. These mounts are somewhat difficult to mount upon, for it goes without saying that the prints must be mounted dry.

This letter is getting longer than expected, but I find that I have only at present discussed the vital question of colour, putting aside matters that, though of not such great weight, make all the difference between a good and an extremely good mount. To enumerate outside size of board, thickness of ditto, position of space to surround print, type of border—whether plate-mark ruling or what-not, edges whether plain cut-bevelled or colour-bevelled, and position for name and address—I hope at some future date to write you a letter on these points. At present I must be content to recapitulate—the following being in order of utility—those

I advise you to stock. If you can only afford one set, get the first colour; if only two, get the first two, and so on:—

White—for all prints.
 Cream—for all warm-toned prints.
 Grey—for all grey or black printing paper.
 Brown—for all shades of brown.
 Green—for brown, green, and red prints.

Just a last word, when ordering do get sets—i.e. some of each shape you use, rather than getting oddments of the various shapes at different times, for if you get them at one time they are certain to be uniform, and will look so in the show cases. Moreover, they will keep the same tone even when they fade slightly, for all mounts are bound to change colour a shade or two. This makes the appearance much better than when after a few days' exposure you find your cases contain half a dozen different tints.—
 Yours,
 STUDIOUS.

TONING BROMIDES WITH LEAD CHROMATE.

THE following method of obtaining yellow, orange, and green tones on bromide paper, whilst not new, may be of interest now that the toning of bromides is so much to the fore. It is, in fact, a revival, with modifications, of Eder and Toth's process of lead intensification for collodion negatives. It has been revived once or twice, and the main objection to it is the extreme difficulty of obtaining pure whites. Possibly, however, by following the directions carefully this defect may be avoided. Professor Namias is the author of this note, which appears in "Das Atelier des Photographen."

Two stock solutions are required:—

1. Potassium ferricyanide	8 g.
Water	100 ccs.
2. Lead nitrate	8 g.
Water	100 ccs.

Just before use the solutions are mixed in equal parts, and if there is any cloudiness the mixture should be filtered.

We may possibly interpolate here the remark that it is better not to keep the ferricyanide as a stock solution, but to mix it fresh as wanted, and the crystals should be rinsed before being dissolved.

The print, which must, of course, be quite free from hypo, or, if dried, must be soaked in water till thoroughly wet, is immersed in the mixture till thoroughly bleached, and then well washed till every trace of yellowness has disappeared. Now it must be immersed in a 1 per cent. solution of potassium bichromate, and the image will appear yellow. A thorough washing must follow, and then the print must be treated with a $\frac{1}{2}$ per cent. solution of sulphuric acid, which clears the image up, and converts some of the lead chromate into sulphate.

The chemical reactions which take place in this process are as follows, and they are given by the author, as it is obvious that, knowing the composition of the image, a long gamut of colours may be run through by playing on the formation of other coloured deposits by the use of various metals. The mixture of ferricyanide and lead converts the silver of the image into ferrocyanide of silver and ferrocyanide of lead. By treating with bichromate the ferrocyanide of lead is converted into lead chromate, whilst the silver ferrocyanide remains unchanged.

If, instead of the second treatment with bichromate alone, a mixture of bichromate, neutralised with ammonia, and potassium iodide be used, silver iodide and lead chromate are formed, and the former considerably increases the intensity of the image. The pictures thus obtained are yellow, and of great vigour.

If, instead of neutralising the bichromate of potash with ammonia, about $\frac{1}{2}$ per cent. of ferric chloride is added, blue ferrocyanide of iron is formed with the lead chromate, and by the combination of

the two colours an intense green tone is produced. Professor Namias states that this green can be obtained in no other way such intensity and stability, as it will stand a long exposure to sun and air.

The colour thus obtained is a bluish green, but it may be altered will by merely placing the print in a $\frac{1}{4}$ per cent. solution of monia or carbonate of soda, which decomposes the blue without on the yellow lead chromate, and a yellowish green is formed according to the length of its action.

With the bichromate solution some cupric chloride be added, an orange print is the result, as lead chromate and copper ferrioxide are formed. By treating this image with acid ferric chloride in weak solution the colour may be altered.

Whilst applied by Professor Namias to bromide prints, it is obvious the process is equally applicable to transparencies of all kinds.

THE CAPE TOWN EXHIBITION.

In our recent issue we made a preliminary announcement concerning the International Photographic Exhibition to be held at Cape Town, February next, under the auspices of the Cape Town Photographic Society. The prospectus of the exhibition is now to hand, and we give herewith particulars for the benefit of intending exhibitors in this country, who must bear in mind that three weeks is average time taken for letters or parcels to reach South Africa from London. As previously mentioned, the new City Hall, Cape Town, has been secured for the show, and we are enabled to herewith a representation of this fine building. This hall



The City Hall, Cape Town.

is also the meeting place of the British Association during its visit to South Africa this week. Exhibitors can, therefore, depend that every consideration will be extended to their exhibits, and that they will be displayed to full advantage. The judges will be:—Pictorial Classes—Mr. R. H. Whale (artist and technical instructor, Government School of Art), Rev. Mr. Hall, and Mr. A. J. Taylor. Genre and Figure Studies—Messrs. G. Crosland Robinson (art master, Government School of Art) and Diploma of Honour, Dresden Academy), J. J. Bissett, and Mr. Watson. Scientific and Technical—Dr. R. Marloth and Messrs. F. Fripp and W. Richmond. The International and open sections will include the following classes:—1, Landscapes; 2, seascapes; 3, architecture; 4, genre and figure studies; 5, still life; 6, lantern slides, subject (sets of three); 7, stereoscopic transparencies (sets of three); 8, stereoscopic paper prints (sets of three). A silver medal

is offered in each class in this section. An open section is also devoted to scientific and technical photography, and its application to processes of reproduction. Medals will be awarded at the discretion of the judges.

The society's gold medal will be awarded (in lieu of any other medal) for the most artistic picture, irrespective of class or subject, such picture to become the property of the Cape Town Photographic Society.

The conditions of entry are similar to those usually adopted by English exhibitions. An entry fee of 1s. is charged for each exhibit, and pictures from other parts than South Africa need not be framed, but must be mounted. The rules and recommendations of the "Conference of Judges," as published in the Photographic Red Book for 1905 will be adhered to.

All entry forms and exhibits sent by post must reach the secretary (Mr. A. J. Fuller, P. O. Box 470, Cape Town) on or before January 13. Cape Town exhibits and other exhibits forwarded by other means than by post, must be addressed to the Secretary (Mr. A. J. Fuller) at the City Hall, Cape Town, on or before January 13, 1906. The exhibition opens on February 3, 1906.

ACID FIXING IN EMERGENCY.

An acid fixing-bath has come to be considered a necessity for the successful working of gaslight papers on account of the extreme readiness with which these papers may be stained. E. A. Turner, in the current number of "The Photo Miniature," says: "Even with an acid bath, the prints must be quickly covered with the hypo solution and must be kept moving for the first few seconds. For fixing plates and films, while the acid bath is not a necessity, it is much superior to the ordinary hypo, especially in warm weather when stains are likely to occur, and when the hardening produced by an acid alum bath is an important advantage. For use at home most of the usual formulæ for acid fixing-baths are all that could be desired. But for the tourist it is desirable to avoid weighing, and to use dry, readily obtainable chemicals wherever possible, as liquids are not only bothersome, but may do considerable damage if a bottle should become broken. For such use the following bath is excellent—Warm water, 1 pint; anhydrous sulphite soda, $\frac{1}{4}$ level teaspoonful; alum, 1 level teaspoonful; cream of tartar, 1 rounded teaspoonful. When dissolved, add: Hypo (measured in graduate), 4 oz. Stir and it will quickly dissolve.

This formula should produce a perfectly clear acid fixing-bath, suitable either for gaslight prints or for plates or films. By using warm water, the resulting solution, after dissolving the hypo, is of ordinary temperature and ready for immediate use. If water of ordinary temperature is used the hypo will cool it so much that the solution will be extremely cold, will fix slowly, and be likely to cause blisters. By measuring the chemicals, instead of weighing, considerable time is saved, and the accuracy is sufficient for every purpose.

Some workers prefer to leave out the alum in a fixing-bath used for plates and films, as the hardening produced by the alum makes the gelatine of the negative hard and impermeable, and such negatives are much more difficult to intensify or reduce than negatives which have not been thus hardened.

THE Princess of Wales has honoured Messrs. Speaight, the child photographers, of 157, New Bond Street, by accepting from them for the use of little Prince John, the first copy of their new edition of "Baby's Album."

THE summer number of the "Practical Photographer" deals with Photography of the Sea. The Rev. F. C. Lambert deals with "The Hand Camera at the Seaside," and "River and Lakeland Photography" are also dealt with. Marine photography and the pictorial work of F. J. Mortimer, F.R.P.S., forms the subject of the editorial.

Photo-Mechanical Notes.

The Dots of Albumen and Enamel Prints.

SOME years ago half-tone negatives were nearly always printed by the albumen process. Albumen was a fairly simple and reliable method, but had the serious drawback of giving a ragged, unfinished appearance to the half-tone plate. This unsatisfactory appearance of the picture was caused by the inking and dusting up of the plate, giving ragged edges to the dots. On

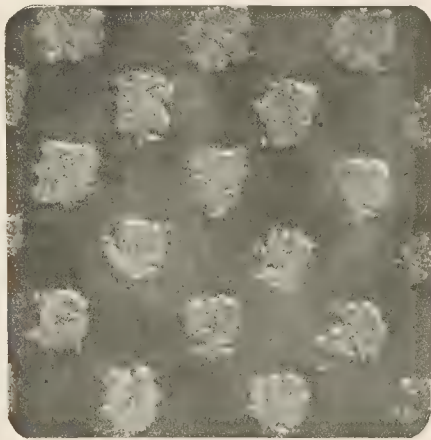


Fig. 1.—Photo-micrograph of etched half-tone plate printed by albumen method.

this account bitumen-printing was adopted for the finest work, but this method was extremely slow and uncertain. The advent of the enamel process changed all this, as clean, smooth dots were obtained with comparatively little trouble.

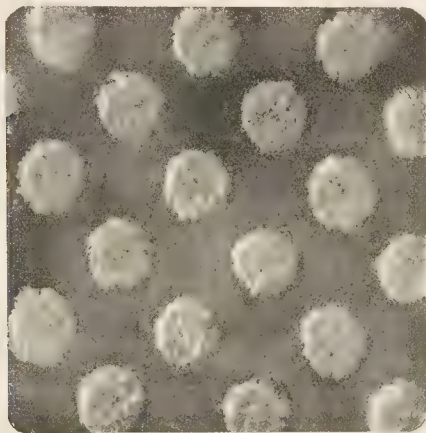


Fig. 2.—Photo-micrograph of etched half-tone plate printed in enamel.

A comparison under the microscope shows in a very interesting manner the superiority of the enamel over the albumen method of printing.

In the accompanying illustration the improvement in sharp-

ness and roundness of the enamel over the albumen dot is very clearly demonstrated. The first photograph is from an albumen printed plate. The dots are ragged at the edges—this is partly due to the plate having been rolled up with litho ink and also to the subsequent dusting-up with dragons' blood.

Fig. 2 is from an enamel print, and in this case the dots are very much rounder and sharper; though, of course, the microscope reveals a slight unevenness of the edges. These prints show in the enlarged dots the reason why the enamel is superior to the albumen half-tone plate.

The same negative was used for both prints, and the plate was only etched sufficiently to show the dots clearly when the resist was removed.

J. I. Pigg, F.R.P.S.

Patent News.

The following applications for patents were made between July 3 and August 5:—

OPTICAL LANTERNS.—No. 15,607. Improvements in or connected with optical lanterns. John Ambrose Sprason, 48, Corporation Street, Birmingham.

TRIPOD HOLDER.—No. 15,624. Tripod holder. George Felix Shilk, 23, Fleet Street, Swindon, Wilts.

DAYLIGHT LOADING.—No. 15,695. Daylight loading wrapper for photographic plates. Albert Hawkins Clark, Ferncliffe, Pembrokehire.

LENSES.—No. 15,732. Improvement in lenses. The firm Rathenow Optische Industrie-Anstalt vormals Emil Busch, Act. Ge. 37, Chancery Lane, London. [Date applied for under Patents Act 1901, 13th April, 1905, being date of application in Germany.]

DARKSLIDES.—No. 15,958. Improvements in and relating to means for carrying and exposing dry sensitive photographic plates or films in the camera. George Wishart, 96, Buchanan Street Glasgow.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

CHANGING APPARATUS.—No. 20,769, 1904. The patent is for a dark-slide or light-tight changing box which may be similar in external shape to an ordinary dark-slide, having at one side an exposure opening covered by a sliding panel or shutter and at the other side a detachable light-tight lid or cover. Within the said changing box a loose detachable partition preferably consisting of a piece of cardboard or other suitable material, is provided, that is capable of being bent into a shape that will impart to it a certain amount of resiliency, said partition constituting a combined guide and pressure piece for the films. This changing box is furnished with suitably arranged teeth or stop-pieces near the aforesaid outlet, opening or slit through which the manipulating tabs on the film protrude, said stop-pieces being adapted to engage with appropriately shaped openings in the said tabs when the latter have been withdrawn far enough to cause the exposed film to enter the space behind the resilient partition, thus affording a reliable stop for ensuring that the exposed film shall not be withdrawn too far and that they shall be withdrawn to the same or approximately the same extent. A further claim is for flexible films mounted on opaque backing paper or tabs for use with a film changing box. Benjamin Joseph Edwards Greylands, Castle Bar Park, Ealing.

CINEMATOGRAPH ADVERTISING.—No. 6,776, 1905. This patent relates to cinematographic advertising apparatus which consists of a series of illustrated panels arranged alongside a railway track or other road, in such a manner that an observer travelling rapidly past the apparatus, is given a view of an apparently animated object similarly to that produced before a stationary observer by a moving film in the cinematograph. A plate or wall is placed in front of the illustrated panels and parallel thereto, and there are slots in the said plate, which only allow one picture to be seen at once. An improved form is that in which the pictures are inclined so that an observer may see two different sets of pictures according to whether he sits with his back or face to the direction of travel. The pictures may also be transparencies and illuminated from behind. Albert Demierre, Bulle, Switzerland.

New Materials.

Pattern Premo Film Pack. Sold by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

A new pattern of this handy camera accessory has been put on the market by Messrs. Kodak, Ltd. When the great utility and popularity of the film pack is taken into account we are surprised that an improvement which forms the chief feature of the new pattern has not been introduced sooner.

This improvement enables any exposure to be removed for development without disturbing the remainder of the films in the pack. The pack, as our readers are aware, includes twelve flat orthochromatic films, interleaved by and attached to black paper separators, by means of which the changing is effected. Hitherto, the first twelve films had to be exposed before the pack could be opened, and the exposures developed, but now, in the new pattern, a simple device the bottom part of the pack can be removed (the dark room, of course), and any film removed for separate development. After removing the film and closing the pack, the latter can be replaced in the camera or the adapter, and further exposures made on the remaining films. There is no difficulty in selecting the chosen films, as each is attached to its black paper backing, which is conspicuously numbered in red. These numbers appear white in the ruby light of the dark room, and are easily identified. This little addition to the film pack will undoubtedly increase its usefulness and popularity tenfold.

CATALOGUES AND TRADE NOTICES.

No. 2 of "Lizar's Magazine" is to hand. It is published by Lizards, of 71, Bold Street, Liverpool, and contains notices concerning the firm's goods, and other information.

WILFRED EMERY'S "Apek" Novelties are neatly listed in a small pamphlet, which will be sent on application to the Works, High Road, Cricklewood. Among Mr. Emery's specialties may be mentioned Apek S.T. papers and postcards, Apek P.O.P. and cards and slight papers, Apek hand and stand cameras, and all accessories. Notices for developing, enlarging, and printing on P.O.P. are also given.

A BEAUTIFULLY illustrated and well printed little booklet is the latest catalogue and price list of the Century Camera, made by the Century Camera Company, of Rochester, New York. Messrs. O. Sichel and Co., of 52, Bunhill Row, London, E.C., are the English agents for these popular cameras, which are priced to suit every purse. Photographers should write for a copy of the list.

A MOST complete list of tools and machines for picture-frame makers, including the latest and best inventions for picture-frame making,

mount cutting, etc., has been sent us by Mr. Henry Lawson, picture-frame manufacturer, of Pittenweena, Fifeshire, Scotland. Everything that the professional or amateur frame-maker wants will be found in this catalogue, which is well illustrated. A copy will be sent free on application.

New Books.

La Fotografia Senza Obiettivo. By Dr. L. Sassi.

I. Primi Passi in Fotografia. By Dr. L. Sassi. Published by Ulrico Hoepli. Milan.

The first of these little manuals deals with the subject of the "pinhole" or lenseless photography, and describes the making of the pinhole, and all its possible applications, such as interior and landscape work, copying full-size, and enlarging. Several instructive illustrations and diagrams are given and some useful tables.

The second manual is, as its title implies, "The First Steps in Photography," an elementary text book, and deals with the choice of apparatus and all the necessary operations for completing both negative and print, and the instructions are simple and not overloaded with a multiplicity of formulae, which are so bewildering to the beginner.

Special summer number of "The Studio," published at the offices of "The Studio," Leicester Square, London. Price 5s.

When the leading English magazine devoted to the fine and applied arts announced that its special summer number would deal with the erstwhile despised sister of the arts—photography—we were prepared to see something very special indeed. "The Studio" has long been noted for its excellent reproductions of works of art and its catholicity in respect to the graphic arts generally has secured for it a high place in the estimation of all pictorial workers.

This special number has now been published, and our anticipations, so far as the reproductions are concerned, are fully realised. Possibly at no time have photographs been reproduced with so much care and attention to the qualities of the originals as in the present case. In nearly every instance the colours and textures of the prints have been rendered in such a way that makes each plate (and there are 112 of them) as worthy of being separately cherished as the original print would have been. Whether the original prints would, in every case, have been altogether worthy of that attention would depend, of course, on individual taste. But the fact remains, the reproductions are excellent. We wish, however, that in a publication of distinction, such as this undoubtedly is, the literary matter was as good as the illustrations. A great opportunity appears to have been lost in not making more of the claims of modern pictorial photography. As it is, the letterpress is little beyond a more or less critical review of the pictures reproduced and a list of the workers, while the present condition and position of photography receive but scant consideration. Mr. Clive Holland (author of "Making and Faking Photographs") contributes the reviews of English, French, and Belgian work. Mr. Charles H. Caffin has a short essay on "The Development of Photography in the United States," Mr. A. Horsley Hinton deals with Pictorial Photography in Austria and Germany, and Dr. Enrico Thovey gives some notes on Artistic Photography in Italy. We can, nevertheless advise every pictorial photographer to secure a copy of the book while there is yet time, as it is a marvellously cheap production, considering its bulk and quality; and we feel sure that a great step towards the recognition of photography as a means for the making of pictures has been achieved by the publication of this specially illustrated number of "The Studio."

"**HERTFORD AND ITS SURROUNDINGS**" is the title of the 43rd volume of the useful series of little handbooks published by The Homeland Association, Ltd, 22, Bride Lane; Fleet Street, E.C. It is written by Mr. W. Graveson, of Hertford, and deals with the county town of Hertford, and the country along the Lea Valley between Hatfield and Broxbourne. Its associations with Charles Lamb and Isaac Walton render this country of general interest to readers. There is a chapter on Haileybury College, and an account of the Hertford branch of Christ's Hospital. The illustrations, forty-eight in number, are from photographs by Mr. Arthur V. Elspen, and the volume is provided with an excellent map of the district on the scale of one inch to the mile. It is published at 1s. paper cover, 2s. cloth bound, postage 3d.

A POSTCARD to the Town Clerk of Salisbury will procure a copy of the Salisbury Souvenir, a most elegantly printed little guide to this beautiful old cathedral town. The book is admirably illustrated from photographs.

No. 71 of the "Photo Miniature" has been published, and deals entirely with "Marine and Surf Photography." The work and methods of Mr. F. J. Mortimer, F.R.P.S., forms the bulk of the book, while a postscript in the shape of some notes by Mr. J. H. McCorkle, a well-known American marine photographer, adds further interest to the little volume. Thirty-six examples of Mr. Mortimer's work are reproduced, and two of Mr. McCorkle's. They are excellently printed.

News and Notes.

In the "Journal de Physique" for May, M. Adrien Guébard contributes a paper on photographic action, illustrated by curves showing the darkening due to development as a function of the time, and the superficial changes as a function of the sum of the causes producing them—as he calls it, the "photographic function." It is well known that the effects of greatly over-exposing a negative is to reverse the photographic action, sometimes producing a positive instead of negative impression. M. Guébard discusses the theory that the photographic function, after reaching its maximum and descending to a minimum, attains a second maximum, followed by a second minimum, and he describes experiments in support of this view.

THE Northern Photographic Exhibition.—The 6,000th visitor to the Northern Photographic Exhibition, at the Leeds City Art Gallery, arrived on Friday evening last in the person of Mr. F. W. Lawton, 17, Ashville Road, Cardigan Road, Leeds, who selected as his prize—awards are made to every thousandth visitor—Wm. Clayden's "Tagging Home." A lantern lecture illustrating "A Run to Norway" was given on Friday by Mr. Ingham Learoyd, president of the Halifax Camera Club, who showed nearly 150 excellent slides from his own negatives. The exhibition closed on Saturday last, and appears to have been very successful.

THE Camera in Western China.—The experiences of Mr. Alexander Hosie, British Consul-General at Chengtu, Central China during his recent journey from that place through Western China to the frontier of Tibet and back, form the subject of a Foreign Office report just issued, and make an exceptionally interesting narrative. Mr. Hosie made several ineffectual attempts to photograph the natives, the women being particularly picturesque. He says: "I was anxious to get a photograph of one of these maidens got up in all her finery and jewellery, but money was

powerless to make her look at my camera. She retreated into dark recesses of the house, and declined to reappear."

THE tenth annual athletic and cycling meeting of Hentschel's Athletic Club will be held at the London County Grounds, Bursage Road, Herne Hill, to-morrow (Saturday).

THE St. Louis Collection of Photographs.—The collection of pictures which represented British pictorial photography at the St. Louis Exposition has attracted much attention at the Leeds Municipal Galleries during the past few weeks. It is to be sent in entirety to an exhibition in Rochdale which opens in April next.

MR. T. BIRTLES, F.R.P.S., a well-known photographer of Warrington has just opened new premises and studios in place of old studio, which has been demolished to allow of Municipal improvements. The following description of the new buildings been sent us: "On entering from Sankey Street the visitor finds himself in a commodious and well-appointed reception-room picture gallery. At the end of this room is the entrance to studio, which in size can certainly be regarded as one of the finest in the country. Adjoining it are dressing-rooms fitted with every convenience. Underneath the studio are the dark-rooms, enlarging and printing rooms, all of the most up-to-date character. The space at the rear of the buildings will be specially arranged for photographing of groups, horses, and outdoor pictures generally."

SOUTHAMPTON CAMERA CLUB.—The members of this club met Monday evening last, at the Philharmonic Hall, Southampton. Mr. C. M. Cooper read a paper on "Micro-photography," and dealt fully with his subject. He specially discussed the difficulties of exposure, laying down the fact that, owing to the varying factors of light, colour values, and magnifications, exposure must necessarily be a matter of experience rather than of schedule. Mr. Cooper also read a paper on "Combination Printing."

THE Warwick Competitions.—The result of the July competition is as follows:—1st prize £10, G. R. Henderson, Esq., 162, Elliott Street, Hebburn-on-Tyne, "A Decorative Study"; Donation £5 to the Jarrow and District Camera Club; 2nd prize £5, H. Blagden, Esq., Camera Club, Charing Cross Road, London, W.C., "Competition in Meadow"; Donation £2 10s., to the Camera Club, London. Entries for the next competition must reach Warwick not later than August 15 next. Entry forms and particulars can be obtained from the Warwick Dry Plate Company, Warwick.

THE British Association inaugurated their visit to South Africa this week with a meeting of all the sections at Capetown. A grand reception was held on Wednesday night by the Mayor of Capetown at the City Hall, of which we give an illustration on another page. The members of the Association, possibly to the surprise of some of the natives, found on their arrival an offshoot from the main body flourishing on these distant shores, in the person of the "South African Association for the Advancement of Science," who have made arrangements to participate in the proceedings. The characteristics of the South African Association appear both energetic and business-like, for they have presented to the British Association a sum of £500, and guaranteed in addition to purchase 1,000 copies of the "Proceedings" published in connection with the visit. It is pleasing, as well as interesting to note that a large number of South African scientific men have arranged to read papers at the meetings.

SUMMONS as "Picture Postcard."—A Hemsworth woman declared on oath at Pontefract that the purport of a summons was not explained to her. She did not understand it. She thought it was a picture postcard, and she had it framed and hung in the house.

WE learn from an American contemporary of the death of Mr. John Carbutt, the pioneer maker of dry plates in America. Mr.

Carbutt died at his home, Germantown, Philadelphia, on July 26. In 1879 he made his first dry plates commercially in America, although he made dry plates for his own use in 1868 in Chicago, where he was actively engaged in photography. He was a chemist of marked ability, and to his efforts was due the introduction of the orthochromatic plate in America. Mr. Carbutt was an Englishman, and was born in Sheffield in 1832. He was the first president of the Photographers' Association of America, and did much to advance the interests of that organisation.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
1.....	Manchester Amat. Photo. Soc.	Ramble to Cartmel Priory.
1.....	Bowes Park and Dis. Ph. Soc.	Competition: Prints of Wheathampstead and Leigh-on-Sea Outings.
3.....	North Middlesex Photo. Soc. ...	Lecture: "A Variety Show." Mr. Harry Barnard.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—On Thursday, August 24, at the White Swan, Tudor Street, E.C., Mr. T. E. Freshwater will show a set of Japanese coloured slides which have just arrived in this country.

Commercial & Legal Intelligence

WALTER TYLER, LIMITED.—Registered August 2. Capital, £10,000 in £1 shares. Object, to acquire the business of manufacturers of and dealers in optical and magic lanterns and slides carried on by W. C. Tyler at 48-50, Waterloo Road, S.E. No initial public issue. The first directors are W. C. Tyler, E. H. Bishop, and T. H. Palmer. Registered office: 48-50, Waterloo Road, S.E.

LETO PHOTO MATERIALS COMPANY (1905), LIMITED.—Registered August 2. Capital, £10,000 in £1 shares. Object, to acquire the business of a company of the same name incorporated in 1904. No initial public issue. The first directors are F. A. Zimmermann, R. A. J. Zimmermann, and F. W. T. Krohn (all permanent). Registered office: 3, Lloyd's Avenue, E.C.

ALLEGED SPY'S ACQUITTAL.—At Sheerness, on Saturday, Mr. Arthur Gill, on behalf of the Director of Public Prosecutions, announced that it was not proposed to proceed further with the charge against Franz Heinrich Losel, a German subject and a resident of the town, of photographing, or attempting to photograph, the new Ravelin battery. Counsel said the case had been reconsidered as a result of a search of defendant's premises, where the photograph found showed that the camera was not directed on the new battery. Defendant, however, was guilty of grave indiscretion in going on the property of the War Department with a camera, particularly as he was a foreign subject. Mr. Booth Hearn, defendant's solicitor, said there was no evidence of any kind to show that Losel was there with any criminal intention. He was there with the legitimate object of photographing the town. The magistrate agreed with Mr. Gill as to defendant's grave indiscretion, and said he considered the proceedings absolutely right and proper. Defendant must be more careful in future. The charge was then dismissed.

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

"WHO TOOK THE PHOTOGRAPH?"

To the Editors.

Gentlemen,—My attention has been drawn to a paragraph in your last issue, headed as above. In it the writer is anxious for the name of the "firm" who took a photograph of a child's cot in the Northern Hospital, Manchester, which picture has been offered to and accepted by the Queen. As the author of the photograph in question, I am a little at a loss to know what Manchester paper or papers has supplied your correspondent with the facts on which he bases his little article. The only paper, so far as I am aware, which noticed the "event," was the "Manchester Guardian," of August 2nd. I enclose the cutting, from which you will see that the authorship of the photograph is plainly ascribed to me. I am not a "firm," but only an amateur, and a member of the local amateur society. Incidentally, I should like to add that the information contributed to the "Guardian" was not sent by me, or with my desire or connivance, either direct or indirect. As a member of the medical profession, I am inclined to deprecate such references in the ordinary daily papers, as savouring too much of self-advertisement. This does not, of course, apply in the case of a technical paper like yours, so that I may add that I took nine negatives before securing a fairly satisfactory result, and that an enlargement from half to full plate was made for me by Messrs. Chapman, of this city.—I am, yours, etc.

R. W. WALSH.

Ebor Lodge, 381, Bury New Road, Manchester, August 14, 1905.

[We are obliged to Dr. Walsh for his information. The cutting he encloses certainly gives the authorship of the photograph in question and other particulars. We have not the newspaper by us in which we observed a reference to the event, but it certainly contained no mention of the photographer who obtained the photograph.—Eds., B.J.P.]

THE P.C.U. AND THE CROOKE-IRVING CASE.

To the Editors.

Gentlemen,—I am desired by my committee to send you the enclosed copy of letter sent to the Editor of the "Daily Chronicle," in reply to a report of an interview with Mr. Clement Shorter, which appeared in that journal of July 8th, of which I also enclose a copy.—Yours faithfully,

HENRY GOWER,

Secretary, Photographic Copyright Union,

23, Soho Square, London, W., 9th August, 1905.

[Copy.]

To the Editor of the "Daily Chronicle."

Dear Sir,—At the monthly meeting of the Committee of the Photographic Copyright Union, attention was called to the report of an interview with Mr. Clement Shorter, of the "Sphere," on the recent action for infringement of the copyright in a photograph of Sir Henry Irving, brought by Mr. Crooke, of Edinburgh, against the Scots Pictorial Publishing Company; and as there are certain misleading statements therein prejudicial to photographers, I am desired by my committee to ask your courtesy to insert this reply. That the suggestion that public personages should be photographed only upon the usual terms charged to private individuals, the committee feel sure would be welcomed by the majority of photographers. My committee cannot agree with Mr. Shorter, "that the

whole of this copyright law is shadowy," and would remind him that copyright in a photograph is property, which is the basis of all copyright law.

He also states that the "history of a photograph is coincident with the process block," which is quite wrong, and that a photograph only became valuable on its introduction. The real facts are that a very large business has been done in the publication of photographs of "public personages" since the early fifties, as can be evidenced by the well-known publishing firm of Marion and Co., of Soho Square, who, in the course of their business transactions with one firm of photographers alone, paid no less a sum than £27,000 for photographs for resale to the trade, and large amounts to several others, and their stock would be two million cartes-de-visite and one million cabinets at a time to meet the demand. This would represent considerable business to photographers, which has been practically swept away since the introduction of the process block; and as unauthorised use of photographs was in many instances made by the Illustrated Press, photographers found it necessary to protect their interests by the formation of the Photographic Copyright Union, who have framed a minimum scale of charges for the granting of licences for the reproduction of their copyrights.

This is the position of photographers, which provokes Mr. Shorter to say "that they have become little short of robbers."—Yours truly,

For the Committee of the Photographic Copyright Union,
HENRY GOWER, Secretary.

[We have already commented on the "Daily Chronicle" interview with Mr. Clement Shorter, in our issue for July 21st.—Eds., B.J.P.]

EXPOSURE TABLES.

To the Editors.

Gentlemen,—Having recently had occasion to take a short voyage in a sailing vessel up the East Coast, I made the most of my opportunities to secure some photographs of the sea and shipping en route. I used a folding camera and plates of medium speed, and knowing that the light would be very bright, stopped my lens down to $f/11$ or $f/16$. The shutter (between lens) I worked at its highest speed, which was marked 1-100.

All my negatives have turned out failures from over-exposure, and I have come to the conclusion that not only are exposure meters somewhat unreliable for work of this sort, but the exposure tables as published are also incorrect.

In most exposure tables August light is given as being the same as that in either April or May. My recent experience shows me that it is as bright and actinic during the first half of August as at any other time of year. I have photographed at sea during May in the same locality as that which I have just visited, and I found then that the exposures I have mentioned above were none too much to secure full exposure. There seems to be an extra brilliancy and glare about August light when the sun is shining, that is lacking in April or May, or even June. I think therefore that July and August should be bracketed equal so far as the power of the light is concerned.

Another point I should like to raise in connection with exposure tables is that the light at 9 a.m. is usually marked as being equal to that at 3 p.m., the reason being, I suppose, that the compilers of these tables have decided that theoretically the light three hours before noon would be the same as that three hours after noon. During the summer months I have always found, and doubtless other practical workers have also found, that the light at 3 p.m. is generally much more actinic than at 9 a.m.

I mentioned exposure meters as being rather unreliable for subjects such as the sea when flooded with bright summer light, as my experience with them has been that they do not indicate a brief enough

exposure for the purpose, and to rely on them usually results over-exposure.—Yours faithfully,

EDWARD G. MARCHANT.

Margate, August 14.

[We have commented on our correspondent's letter in another part of the Journal.—Eds. B.J.P.]

BACKGROUNDS.

To the Editors.

Gentlemen,—While every encouragement should be given by the leading photographic paper in this country to industries and handicrafts carried on in these islands, whether by Englishmen or foreigners (who, by the way, have to pay their rates and taxes), yet a statement, as that which appeared with regard to individual broad-treated backgrounds, not only tends to strengthen the prejudice against home productions, and a quite unfounded belief in the superiority of Uncle Sam's artistic abilities, but they are a direct perversion of the actual state of things.

It is obvious to everybody with an artistic turn of mind that America (for this was the producing country hinted at in your columns) is not an artistic country; they send their aspiring geniuses to Paris, London, Munich, or Berlin and Vienna, where they mostly remain. As for that peculiar art of background painting, as practised by several prominent "artists" over there and boomed over here with the big drum, the less we say about it the better, for it is a poor testimony to the standard of artistic education (of the public at least), to be photographed with those impossible and curious: laboured clouds and scrolls in oriental barbaric splendour, in mid-air suspended, curtains and pillars. A recently issued American catalogue was full of those "creations."

The writer of this, along with some other artists, for years has made strenuous efforts to bring about a better understanding for the refined styles of English and Continental art, past and present, which are quite at their door, but which the greater part of the photographic profession fail to grasp. So far, only a small cultured minority have availed themselves of the opportunity to have their own ideas carried out; individual treatment as regards the ever-changing conditions of light, etc., should be one of the first considerations in a background, and this can only be done effectively by a matured cultured artist, who not only possesses a full knowledge of the artistic possibilities of photography, but also of its limitations, and who also commands a quick *recherché* technique (the old Italian tempera being the most beautiful and expressive for rendering soft "al fresco" effects).

For this purpose no one need to send his orders out of the country, and pay 50 per cent. more and get disappointed about the result.

London is by common consent amongst artists (French, German, English, or Italian) the most important, refined, international art-centre in the world. More elbow to London artists and English photo-industrial enterprise generally!—Yours faithfully,

Fitzroy Square, London, W.

EMILE NIEBES.

[Mr. Niebes sends for our inspection some specimen photographs of American backgrounds, and also some of his own commercial work, but as he has not made it quite clear in every case which are the productions of "Uncle Sam," and which are the examples of "recherché technique," we can make no comparisons for the purpose of substantiating his statements. We would, however, draw our correspondent's attention to the original remarks made by our contributor "Studiosus" (see p. 612, ante). He says: "Perhaps the best grounds for general use are the plain graded ones, and these have the undoubted advantage, as the English background painter can paint them without any great blunder, and you are almost sure to get them good. . . . It is against cheap scenic grounds that my preliminary tirade was directed."—Eds. B.J.P.]

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

J. and E. Grosvenor, 2, Belvoir Terrace, Cowleigh Road, Malvern, Worcester. Photograph of Malvern Foresters' Jubilee Dinner, July 31st, 1905, at Drill Hall, Malvern.

J. Smith, 281, Lord Street, Southport. Photograph of Illuminations; Municipal Gardens, Southport.

Edm. 35, Taylor Street, Woolwich. Photograph of J. Ashcroft, Woolwich Arsenal Football Club Goalkeeper.

Wm. H. Azulay, 48, Castle Avenue, Rochester, Kent. Photograph of the King and Duke of Connaught in carriage, taken at Chatham, July 26, 1905.

R. Hogben, 25, Guildhall Street, Folkestone. Photograph of group, "General" Booth and Mr. and Mrs. Spurgeon at "The Rivulet," Radnor Park Avenue, Folkestone.

COPYRIGHT.—We have received from a customer several books containing engravings to reproduce, all published before 1870, which he says do not come under the Copyright Act. He further states that any plate issued with a book prior to 1863 is perfectly free, i.e., open to any one to reproduce the plate, although the letterpress is still subject to the author's life. Can you confirm or otherwise? The point is: Can we safely reproduce for him plates prior to 1863 (two) or ditto 1870.—**REPRODUCER.**

1. We are not sure that pictures produced prior to the Copyright Act of 1862 may not be covered by the Act of 1842. 2. With regard to the 1870 pictures, they will certainly be copyright if the artist is still alive, or if he has not been dead seven years.

HUMPHREY.—Would you kindly inform me the cause of this mottled appearance in the enclosed prints?

The mottled, or rather granular, appearance seems to be due to the prints being too heavily squeezed on to the plate while the gelatine was in a soft condition. Alum the prints after washing, and let them dry. Then wet them again and squeeze on to the plates. That will avoid the trouble. We do not answer correspondents by post.

RIGHT TO PUBLISH.—I took a gentleman's house in the country a short time ago, not for an order, but for my own pleasure, as I was walking across his park by a public footpath, on which I stood when taking negative. I now wish to know if I can print post cards from the same for sale, without asking permission of the owner of the house?—**PROFESSIONAL.**

If the photograph was taken from a public thoroughfare, we do not see that you can be prevented from publishing the picture. As a matter of courtesy, however, you might ask the owner of the house if he has an objection to the publication.

CHERRIE.—I would like your opinion on the following matter. Our establishment is closing for cleaning-down purposes, pro-

bably for a month. Can the assistants claim wages for that period or not, as they will not be working?

Certainly they can. The people are in your employ, and if you choose to suspend your business it is no affair of theirs. They must be paid their salaries.

ADDRESS WANTED.—Will you oblige with the address of the firm publishing A. Whiting's book on Retouching?—**CHIPPY.**

Messrs. Dawbarn and Ward, Farringdon Avenue, London, E.C.

COPYRIGHT.—Having purchased a negative from photographer, with sole right to reproduce picture post cards, etc., we find another printer has copied our view and published picture post cards. We have not yet copyrighted it. Can we compel all cards to be called in and destroyed and stop further sale, and claim damages for infringement before view was copyrighted. We are now copyrighting the view, as advised, and by permission of the photographer. Had we better treat the case from time of being copyrighted, or before. Do you consider we have a good case for damages.—**PRINTER.**

We doubt very much whether all cards can be called in and destroyed, as no action can be taken for an offence committed before registration. As soon as the copyright is registered, and it must be properly assigned by the photographer, then there would be good ground for action, and an action would lie for a penalty of not more than £10 for every copy sold, also forfeiture of all copies and negatives used in their production; and, in addition, by special action, damages may be claimed.

ORTHO.—We are obliged for your letter and negatives, but we have nothing to add to our previous answer. All the orthochromatic films on the market—and there are several—are, we believe, sensitised with erythrosine, and if you look through our advertisement pages you will find the addresses of the makers.

LENS FOR POST CARD WORK.—Will you please inform me what is the most suitable lens for post card work in streets and other confined places, to take the exact size of pictures. Also, are ordinary and backed plates better than the rapid ones for general outdoor view work.—**D. K.**

Any lens that will cover a $5\frac{1}{2} \times 3\frac{1}{2}$ plate will do, and any of the newer anastigmatic lens listed for a 5×4 plate, and of about 6 or 7 in. focus, would answer. The question of plates is to some extent a matter of personal opinion; but we should prefer the backed ordinary plates, as not only are they much easier to work, but there is also greater latitude in exposure.

CELLULOID VARNISH.—Please give formula for making a celluloid varnish, and also the name and address of a maker of sheet celluloid. **PHOTOGRAPHER.**

A standard formula is:—Celluloid, 7–10 grains; amyl acetate, 1 oz. The quantity of celluloid must be adjusted according to the thickness of the varnish required. Another excellent solvent is a mixture of equal parts of amyl acetate and acetone. Guiterman and Son, 33, Aldermanbury, London, E.C., are agents for sheet celluloid. If the celluloid is required merely to make varnish, it would be preferable to obtain scrap celluloid, which can be had from several makers who coat rollable film.

BROMIDE.—We believe the cards are developed with ferrous-oxalate, well fixed and washed and then toned in hypo 1 oz., hot distilled water 6 oz.; powdered alum 50 grains, when dissolved

add 25-30 minims of a 10 per cent. solution of silver nitrate. Heat the bath two or three times to 120-140 deg. Fahr., allowing to cool in between. The temperature of the bath at the time of using should be 100-120 deg. Fahr.

SKIN TROUBLES.—Would you kindly inform me whether "sodium hydrate" in the enclosed formula would cause the fingers to fester? Because two of us, in working the same, suffered afterwards, one by festering and myself in my fingers. All round the bottom of the nails appeared holes like pricks from an instrument. I should be much obliged if you would tell me if it is dangerous to use the hydrate and metol mixed?—G. F. BURRELL.

It is much more likely that the trouble is due to the action of metol; but no doubt this would be intensified by the caustic soda softening the skin. We would suggest abandonment of the metol and the use of adurol, or ortol. Many people can use metol without any harm, but others it attacks at once. In any case there is no need to use caustic soda, as equally fine results will be obtained by the use of an equivalent quantity of carbonate of soda.

A. COUTTHARD.—We are unable to give you any assistance, without seeing a negative or two, as we cannot possibly understand how an unexposed plate will fix, and not a developed one. Are you sure you have not fogged the plates and are making a mistake?

COPYRIGHT.—Will you favour me by kindly telling me if I can copyright a photograph, taken by my predecessor whose business I have acquired, or could my predecessor make them copyright himself, and thus prevent them being sold by outside people?—COPYRIGHT.

As your predecessor is the author of the picture, it must be registered in his name. He can then assign the copyright to you. This must be done in writing, and the assignment should bear a sixpenny stamp.

TONING SLIDES.—Could you kindly either give me a formulæ or recommend me a book on the toning of slides and films. I desire a green, but whites to be kept clear.—E. J. L.

There is no work, so far as we can recall which deals exclusively with the toning of slides. There are several methods of obtaining green tones, one is given on page 647. Another, using cobalt salts, was given in our issue for February 3, 1905, but the prints by this are not permanent. Another method is by using uranium, 10 per cent. solutions of (a) uranium nitrate, (b) ferric ammonium citrate, (c) potass ferricyanide, (d) nitric acid. For use mix (a) 1 vol., (b) 1 vol., (c) 2 vols., (d) 2 volumes, water to 40 volumes. Wash afterwards till the lights are clear. Another method is to tone to a bluish green in $\frac{1}{2}$ oz. 10 per cent. ammonium ferric citrate solution, $\frac{1}{2}$ oz. potassium ferricyanide 10 per cent. solution, water 5 oz., wash well, and then transfer to a 10 per cent. solution of chromic acid. Another method is with vanadium, thus:—Oxalic acid sat. sol., 120 m.; ferric chloride, 1 grain; ferric oxalate, 1 grain; potass ferricyanide, 2 grains; vanadium chloride, 2 grains; water, 6 oz. Mix in the above order. The vanadium should be first dissolved in a little hot hydrochloric acid 25 per cent. sol. Tone to a blueish green, and then wash till the print turns green.

STUDIO QUERY.—I am constructing or altering my studio, length about 31 ft., width 14 ft.; single slant, Robinson's design; glass running up from 4 ft. 6 in. wall, ridge to be central. What do you think of iron sashes, with rough rolled glass? I am told the glass is very green. Would ground glass be

best. Studio faces west. Light is practically unobstructed about 6 ft. at each end; to be solid. The height of ridge will be 12 or 14 feet. Shall I have too much glass? Would spring blinds be suitable, and what colours? I am very anxious about alteration, since I know something of the trouble of working the studio after nine years, with the sun upon the present nearly flat roof, and side light running at an angle background end being the narrowest. Your kind consideration and opinion of the above will be much appreciated.—MEMBER P.P.A.

Rolled glass will do very well, and it is to be had almost colourless. There will be plenty of glass, but we do not well see how you can make it less, as you will use both ends of the studio. However, as it is of a good width you might make 6 feet 6 inches of the ends solid instead of 6 feet. Spring blinds will be the most convenient for that form of studio and a dark blue, or a medium green, will be a suitable colour for that aspect.

J. W. COLLINS.—Klimsch and Co., Frankfort. The Metotype Company, 147, Seven Sisters Road, will, we think, also be able to supply you.

BROMIDE PRINTING MACHINE.—Is there any machine on the market to expedite the printing of bromide postcards? Who is the maker?—AUTO.

Messrs. Marion and Co., 22, Soho Square, and Kodak, Ltd., Clerkenwell Road; also The Tress Co., 205, Oxford Street, W., make such machines.

THE Coming Eclipse.—If the astronomers of Europe and America are nothing else, they are, at any rate, good sportsmen, as their plans for observing the coming total eclipse of the sun show. The eclipse takes place on August 30, and already nearly a dozen parties of observers are hurrying to various uncomfortable and out-of-the-way places between Labrador and Arabia in order to take photographs of the sun in semi-darkness. The elaborate preparations that are being made will be appreciated at their full value when it is stated that the eclipse will only be visible for three minutes at the outside. During those three minutes scores of photographs will be taken. Perhaps the most interesting party will be that of Sir Norman Lockyer, the distinguished head of the Solar Physics Laboratory, South Kensington. Sir Norman is already on his way to Algeria, accompanied by Lady Lockyer, his son, Dr. Lockyer, and Messrs. Maclean and Payne, well-known amateur astronomers. The two chief objects of the expeditions are to take photographs of the "corona"—the sun and its streamers—and of the spectra, or lines of light seen through the spectroscope. These photographs enable the astronomers to determine the composition of the sun.

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EX CATHEDRA.

Picture Postcards. In a recently issued report of the Postmaster-General, some interesting figures were given as to the enormous increase in the number of postcards which had been dealt with during the past twelve months, which amounted in all to 734½ millions. This is attributed by Lord Stanley to the increasing use of picture postcards, for of the above enormous number no less than 80 per cent. were private postcards. It is unnecessary for us to call the attention of the professional photographer to this, which must obviously be an extremely lucrative branch of business, for we know that many professionals make a special feature of it. The point to which we would direct attention, however, is the greater profit accruing on account of the time and labour saved by the adoption of some machine for turning out these cards at a rapid rate, and, as will be seen from the report of the Darmstadt Congress elsewhere, no less than six machines for rapidity printing bromide cards were there shown.

Bromide versus P.O.P. These machines, like others on the English market, are for the rapid production of bromide cards, and it may be advanced that the average individual has by now become tired of the unvarying black and white and matt and semi-matt surfaces, and prefers the warmer tones obtained with P.O.P. This, however, cannot be maintained as a serious objection, for with the various makes of glazed bromide cards now obtainable; and the numerous methods of toning bromides, P.O.P. may be fairly well simulated. Although we have mentioned the various methods of toning bromides, the only two processes which are at all likely to give satisfactory results are the old hypo-alum bath and the sulphide toning processes, and of these, undoubtedly, the former is to be preferred, if P.O.P. tones are considered desirable. Though all these bromide toning processes are more or

less satisfactory, we yet await one which will give us the true purple of P.O.P., and render the path of the picture postcard producer still easier than it is at the present moment.

* * *

The Darmstadt Congress.

On another page we publish a report sent by our representative at the Photographic Convention at Darmstadt. The conference began on August 15, and closes on Sunday next, and the entire meeting appears to have been characterised more with that pleasant spirit which the natives call "Gemüthlichkeit," than by the extent or importance of the proceedings. Business has been blended with pleasure in the way of luncheons, dinners, and excursions to neighbouring places of interest. The only communications of importance given during the congress have been by Dr. König, of the Höchst Dye Works, on "Pinatype," the new three-colour process, and by Professor Schmidt, of Karlsruhe, on a new direct-printing carbon paper of extreme simplicity, which appears to give results between carbon and gum-bichromate. This paper will, we understand, be put on the market early in October next. In the apparatus section of the exhibition the firms of Zeiss and Goerz show a good display of novelties, while the "Geka" Manufacturing Company and E. Merck also have their specialities on view. The portraits in the exhibition appear to be good examples of German work, although not very numerous. They are mostly brown or warm black in colour, with a somewhat yellowish tint, not altogether pleasant. Pigment papers and matt-celloidin toned in two baths to a yellow black seem to be the most popular printing processes, and the framing is striking; large black or dark rosewood frames being very numerous.

* * *

The R.P.S. and Salon.

Our readers, who are also potential exhibitors at the forthcoming exhibitions of the Royal Photographic Society, or of the "Linked Ring," are reminded that the latest dates for entries are rapidly approaching. Exhibitors in the Pictorial and Technical Sections of the "Royal," must have their exhibits delivered at the New Gallery, 121, Regent Street, London, W., on or before Thursday, September 7th. Exhibits may, however, be delivered by hand, unpacked, on Friday, September 8th, between 10 a.m. and 6 p.m., after which time and date no exhibit will be received. In the trade section stalls must be erected and exhibits arranged between the hours of 10 a.m. and 6 p.m., from September 11th to 16th, after which time any space allotted, but unoccupied, will be disposed of as the committee shall decide. Entries for the Photographic Salon close on Monday, September 4th, when exhibits must be delivered (on

that day only) accompanied by their entry form and without packing or wrappers of any kind, either personally or through an agent. Messrs. James Bourlet and Sons, 17, Nassau Street, London, W., have undertaken to deal with exhibits on the terms stated in the entry form. Entry forms for the R.P.S. Exhibition can be obtained from the Secretary, 66, Russell Square, W.C. For the Salon the hon. secretary is Mr. Reginald Craigie, whose address, in consequence of the demise of the Camera Club, we presume to be now the Blenheim Club, St. James' Square, London, W. We have a limited supply of entry forms for both exhibitions and will be pleased to send copies to any of our readers.

British Goods on the Continent.

Elsewhere this week we publish an interesting letter from a correspondent in Genoa, who alleges lack of enterprise on the part of British manufacturers in not catering more fully for the Continental market. We assume, from the experiences of "Itinerant Briton," that he is stating the case correctly, but cannot altogether agree with him when he says:—"Advertisements of British makes are *rare aves* in Continental photographic papers." The English manufacturers are extensive advertisers in the German papers devoted to photography, while in the French and Italian journals, to which our correspondent more particularly refers, we find the advertisements of Ilford Limited, Kodak, Marion, Edwards, Velox, Illingworth, Thornton-Pickard, Wellington, Barnet, Cadett, and the Cooke Lens, of constant recurrence. English camera makers are not, however, so much in evidence as the manufacturers of materials, and it is this fact that has probably given rise to our correspondent's observations.

The Dangers of Celluloid.

Considerable and frequent attention has of late been called to this subject, and an interesting fact has just come to light. A short time ago a fire occurred at a certain film-coating factory in Germany, from, it is stated, the spontaneous ignition of some celluloid stored in tins. Close by were a number of barrels filled with celluloid, and the heat was so great that the staves were charred; but there was no explosion and no great mass of fire—nothing but a narrow flame about three yards in height. The fire brigade prevented all but one door of the store-room from being opened, and the fire was soon got under. From this it seems obvious that celluloid in a compact mass only burns slowly and does not explode, though doubtless the limited supply of air in the case in question had something to do with the matter.

Washing Soda.

It is by no means uncommon to find washing soda recommended for development, and presumably on the supposition that it is carbonate of soda, and so it is plus α , the unknown quantity. We note in the annual report of the Medical Officer of Health for Paddington that twenty-seven samples of this useful household commodity were analysed during the year, with the result that nine samples were found to be adulterated with sodium sulphate to the extent of 70, 68, 51, 50, 43, and 42 per cent. in six of them. It is obvious that if one of these samples, or a similar one, had been used for developing, serious trouble might have been caused, not on account of any deleterious action of the sulphate, but because of the deficiency of alkali. The only action, apparently, of sulphate of soda is slightly restraining, and it was strongly recommended about twelve years ago as an excellent substitute for sodium sulphite. It is true that it has been stated that sodium sulphate causes a deeper yellow stain when pyro is used;

but this statement was made on the supposition that it would be present in the developer as the result of the oxidation of sulphite, it is only reasonable to assume that the deeper stain was not caused by the sulphate, but by the reduced quantity of sulphite.

The Solar Eclipse.

On Wednesday next, August 30, thousands of photographers in various parts of the world will be busy observing and photographing the much-discussed solar eclipse, which is regarded by astronomers as one of the most interesting for many years. The period of totality is of fairly long duration, and the line of central eclipse passes through several regions from Manitoba to Arabia, most of which are conveniently accessible for observation. The duration of the total phase is greatest in Spain, where it is about $3\frac{3}{4}$ minutes, while it is about $7\frac{1}{2}$ minutes in Labrador, and a little less than three minutes in Egypt. In England the eclipse is partial, about three-quarters only of the sun's disc being obscured; but even this, at the moment of greatest obscuration, i.e., about three and a half minutes past one o'clock, will be extremely interesting to observe and photograph. Well backed plates or films should be employed, and a lens of the greatest focal length, as a tele-objective should be used. The working aperture can be small, and an instantaneous exposure of about 1-20 to 1-100 of a second given. Weather permitting, a great deal of spectroscopic and other information about the sun's surroundings will, undoubtedly, be obtained. Perhaps the most interesting observations from an amateur's standpoint, according to "Scientific American," are those that will be made in the search for a possible small planet nearer the sun than Mercury, by photographing the whole region of the sky near the eclipsed sun. This has been done at several recent eclipses, without result, only known stars being found on the plates; but the brilliant success of photographic methods in finding new satellites makes one feel that the search for an intra-Mercurial planet ought to be continued a little longer.

The British Association.

The visit of the British Association to Cape Town, which terminated last Friday, although notable in many ways has not brought forth the extensive number of papers of far-reaching interest that one usually expects from the meetings of this body. Of papers of any importance to photographic workers there were none; while the domains of chemistry and optics have been but scantily noticed. The attendance at the meetings was not striking, but it was felt that this has been more than made up by the keenness of the members to see all that could be seen of the country, and to profit by a closer acquaintance with its problems. In fact, the geologists, zoologists, botanists, and other ardent investigators of the party revelled in the opportunities afforded them for the exploration of the country round Cape Town, and the meetings suffered from lack of attendance in consequence. The authors of papers, however, have been amply compensated for their small audiences by the generous publicity of the newspapers.

The Tourist Photographer.

We have more than once previously had occasion to draw attention to the lack of good taste displayed by many tourist photographers, who, while making the most of their trip to a strange country, snapshot anything and everything without consideration for the feelings of the natives. The bad odour into which the English tripper of a certain class has brought himself in many countries, due, no doubt, to the competition between excursion caterers, is to be deplored. When this kind of tripper is accompanied by a hand camera, his

terrors increase considerably, as nothing is sacred to him. An example of the extreme limits to which the assiduity of the tourist photographer can be carried comes from "The Hong-Kong Press," wherein an account of a Chinese execution is given. The comments conclude:—"It is really too bad that while some Europeans are writing against these public executions, others, innumerable tourists and globe-trotters, should be encouraging them; and, fancy, for instance, the indelicacy of a 'lady' taking snapshots of such things. I know of one instance of a tourist bribing the executioner to hold his sword in the air above the condemned man's head for three seconds, so that a clear picture might be secured."

PRINTING PROCESSES.

XI.—ALBUMEN PAPER.

In the last article (see page 623) the manipulations of the albumen paper process were brought up to the fixing and washing stages. Here, with some papers, a trouble may arise, namely, the blistering of the albumen, and it should here be mentioned that the more highly the paper is albumenised the more prone it is to blister. This trouble may make its appearance at different stages of the work. Sometimes the prints, directly they are put into the fixing solution, become covered with innumerable minute blisters. Occasionally they may not become larger as "blisters," but they often leave dark spots where they have been. At other times they will spread into larger ones in the washing of the prints. Frequently the blisters do not form until they have been for some time in the fixing bath, then they usually assume a larger size in the washing waters. The most general period when blisters become strongly in evidence is in the washing of the pictures after fixation. Here they sometimes attain a large size, especially if the washing be a prolonged one. We have seen them occasionally, as large as half a crown. Often, prints with blisters that have formed in the washing waters, when not very large, may be saved by puncturing the back of the paper with the point of a pin, and then carefully pressing them down between blotting paper.

The most general cause of blistering is the transferring of the prints suddenly from one solution to another of a different temperature and of a different density. Say, for example, they are taken from the toning bath or from the after-washing water, which has become slightly warmed by the hands, then put directly into a freshly made-up hypo bath, which is very much colder. In these circumstances blisters may generally be expected, as they usually take the form first referred to. Another prolific source of the trouble is immersing the prints direct from the fixing bath, which is a tolerably dense solution, into the washing water, which may also be of a different temperature.

Having indicated the chief causes of the trouble, the way to avoid them is easily indicated. The temperature of the fixing bath should always be brought up to that of the toning solution before the prints are put into it. This is the best means of preventing the first stage of blistering. With a paper that has a tendency to blister, instead of taking the prints out of the fixing bath and plunging them direct into plain water, they should be taken out, and the solution diluted with an equal bulk of water, and then replaced in that for a few minutes, being kept in motion the while. In obstinate cases the hypo may be further diluted before the prints are put into the washing water. An alternative plan is to transfer the prints from the fixing bath to a strong solution of common salt in water, and gradually diluting that, as in the case of the hypo bath, before putting them in plain water. Even with the most

troublesome papers if these precautions are taken blisters may be avoided. With some paper it should be said there is no tendency whatever to blistering. Here is another way of preventing blistering that, in our hands, has never failed, even with the most obdurate paper we have ever had to deal with. It is to immerse the prints, before beginning to wash out the free nitrate of silver, in methylated spirit for a few minutes, and then proceeding in the usual way with the other manipulations. There are, however, two objections that may be raised to this method. The first is that the spirit renders the paper semi-transparent, so that the effect of the toning solution is not so easily judged. The second is the expense of the spirit; still it is a sure preventive.

Here is a trouble that may arise with some highly glossy albumen papers. When the prints are mounted they are seen to be reticulated, or rather covered with minute cracks. It is usual in drying albumen prints to lay them out exposed to the air; as they dry they curl up, and as they are straightened out for trimming and mounting the albumen cracks into minute fissures, hence the appearance. The remedy for this is to dry the prints between blotting boards so that they are kept flat all the while, or to mount them while they are still wet from the washing waters.

In this and the foregoing articles on the albumen paper process, we have assumed that the paper employed has been sensitised by the user, for many who work this process aver that the home sensitised paper yields better results than can be obtained on the ready sensitised ones, and there seem to be some grounds for this idea so far as deep tones are concerned. But the improvements made during the past few years by the manufacturers of ready sensitised papers leave little to be desired in this direction. This has led many who used to sensitise their own papers to now purchase the ready sensitised ones, in order to save trouble for one reason, and for another that it entails less waste through the paper going bad before it can be all used up.

With regard to the manipulation of the two kinds of paper there is very little difference, and what has already been said with reference to toning, fixing, general manipulation, etc., of the home-sensitised papers, applies equally well to those which are bought ready sensitised. There is, however, this difference between the two: The ready sensitised does not contain so much free nitrate of silver as do those of home sensitising; its place is largely taken by organic salts of silver—the citrate, or tartrate. The paper also contains a good amount of free acid, which, if not removed, somewhat retards the toning, especially as regards deep colours. This acid, if left in the paper, contaminates the toning solution and conduces to a reduction of the gold if the bath be kept for future use. It is therefore a good plan with this paper, after the free silver has been washed out, to immerse the print for a few minutes in a very dilute solution of carbonate of soda—say a crystal of common washing soda, the size of a walnut, to a quart or so of water, and then rinse in plain water. This, by neutralising any acid that might remain, greatly facilitates the toning, particularly if dark tones are desired. It also tends to preserve the toning solution from a spontaneous deposition of the gold if the bath be kept for further use. There is one point of difference between the two kinds of paper which may be referred to. In the last article on this subject reference was made to the hygroscopic conditions under which the printing should be conducted—that is with the home sensitised the paper should not be abnormally dry. This does not apply to the commercial ready sensitised papers, as the presence of the organic salts in the paper seems to make one more independent of conditions such as those referred to in the former article.

SUCCESS IN THE STUDIO.

THERE is no fixed rule for success. As in my recent article on "Novelties," all I can do is to give a few suggestions, which may be useful, one here, another there, to some photographer who is dissatisfied with his results. If my ideas set such a man thinking a little, they should lead to some definite result, and so achieve my purpose. For advice is usually suggestive rather than definitive, and can seldom be followed exactly.

Handling the Sitter.

How often, I wonder, do photographers consider their business from the viewpoint of their sitters? "Oh, he is a horrid man," exclaimed a fair photographed one to me recently. The trouble was that he had kept her under the skylight for forty minutes, posing and re-posing, now altering the hands, now adjusting some line or fold of the skirt. She was a somewhat nervous sitter, and at the end of the experience felt considerably tired. The photographer I know well; he is a man of artistic ideas and knowledge, but he is also a little nervous and fussy, and nervous people before and behind the camera are not good. The result is a loss to photographers at large, for the young lady will now have a feeling against being photographed. She will not understand that it was merely the failure of one particular photographer; she will fight shy of all studios.

I daresay that if a lady called by appointment and spent only three minutes under the skylight she would have a secret feeling that she was not getting value for her money, even if the pictures were an unqualified success. Tact is required in this as in all things, but a photographer should know his art and be able to achieve his results without tiring his customer.

Too Much Pose.

The same pose will not suit all people; but sitters may be classified into groups and the same set of rules applicable to all in one group—of course, with modifications. The lady who appeared before the horrid man has a thin face and figure. A full face, the lady sitting, would with a little judicious retouching have made a satisfactory picture. And she had no stated preference—she merely wanted a picture. But she was tried in half-a-dozen different postures, and under almost every possible lighting. And equally bad, she was worried about the pose of her hands and her manner of standing until she felt that her deportment was full of faults. To draw attention to a nervous fault inevitably intensifies it. Had the photographer conversed of anything rather than the pose he would have achieved better results. If he could not diplomatically have attained what he wanted without distracting

his customer so much, it would have been better to let the natural fault pass.

Flattery.

He made the mistake of making the poor girl "feel small." Now flattery is a rather difficult subject and should be handled carefully—it must not be laid on with a trowel. I do not know how American photographers rank in this art, but if they are anything like the general run of their compatriots they must be ahead of us. I have met a number of Americans on this side, and the way they make you feel a fine fellow is almost past belief. It is not till after they have gone that you suddenly awake, and smile to yourself. It comes natural to them. If the photographer has a good digestion, and likes his profession, he can have a cordial welcome for everyone who calls—and a genuine one, even apart from the money in it. Let the people "feel good," as those same Americans say, and it will be reflected in the portrait secured. Do not call attention to faults; rather emphasise the pleasure felt in the general appearance. And remember that men can absorb just as much flattery as women can. Sometimes a request for permission to exhibit one of the pictures in the window gives pleasure. It suggests that to do so is a privilege appreciated by the photographer, and the natural inference pleases the sitter.

Success.

Everyone follows the winning side. Indications of success lead towards it. The studio that looks business-like and clean, the photographer who is alert and expeditious, convey a feeling of business being done. And the sitter goes where she thinks others go, for the verdict of the majority generally rules. Non-success is a serious matter, but a confession of non-success is fatal. At whatever cost (and the cost is usually the direction of personal effort rather than cash), business appearance must be kept up.

The Dressing-room.

Articles are often written on the management and importance of the reception-room and of the studios, but we seldom hear of the indispensable room which comes between them. The dressing-room is often a very tiny place, but that is no deterrent. But I have seen dressing rooms calculated to scare away the most desirable class of sitters. I was in one recently where there was a tiny washstand and table with mirror. But by the wash-bowl was a dirty towel! Fancy a lady liking to use such a thing. If washing were necessary, at least a fair clean towel should be provided. It is not a pleasant subject to probe, and so we will let it go, merely saying that necessary as cleanliness is, it is doubly necessary in this little room.

ALEXANDER BRADFORD.

ALLEGED ESPIONAGE.—A telegram has appeared in the Berlin and Bremen Press in which it is stated that an English pleasure yacht which arrived at Wilhelmshaven on Saturday and left Monday was immediately followed by a German destroyer under the command of a captain. The destroyer had been sent in the track of the yacht because two members of the English crew, it was stated, had been seen taking photographs of the harbour defences. Both Englishmen, according to this report, had been arrested on a charge of espionage. The Hamburg correspondent of the "Daily Mail" writes, however, on Tuesday last, and says:—"I am informed that the report has been greatly exaggerated. The two Englishmen were allowed, after an explanation, to continue their voyage. Nothing is known of the incident at the Wilhelmshaven coastguard station."

New Rotary Show Cards.—The Rotary Photographic Company, Limited, of 12, New Union Street, Moorfields, E.C., have added to their already large series of attractive show cards a new set depicting

the "Muses." Discreetly draped models from the studios of Reutlinger, of Paris, adequately represent Clio, Thalia, Urania, Euterpe, Calliope, Melpomene, Erato, Terpsichore, and Polyhymnia, in pleasing poses. We can recommend this collection of fine bromide prints to photographic dealers, to whom a set will be forwarded on receipt of trade card. They will make a very striking display for the winter season.

A GIANT CAMERA.—The Hamburg expedition to observe the eclipse of the sun on August 30, says the "Express," has a giant camera, 70 feet long, by which, it is hoped, six photos may be taken on plates 34 in. by 34 in.

From Mr. Henry Ward, of 9, Belgrave Road, Leicester, we have received a price list of enlargements which he undertakes to make from customers' negatives. Various styles are listed, and the prices are moderate. A copy of the list will be sent free on application.

VIGNETTES AND VIGNETTING.

I.

THE poet sees in the face the index of the soul, and notes its expression in the eyes and mouth. Not that the neck, shoulders, and bust are disregarded; they are usually regarded more as the supports of the head. When our eyes scan the features of another the accessories become blurred, indistinct, and fade away.

In Defence of the Vignette.

Is not this a natural vignette? Is not the vignette the most natural expression of portraiture, the view that the eye itself sends to the brain? Yet what scant courtesy the art of vignetting receives at the hands of photographic writers. Emerson, at least, should know better; yet, because principally, if not solely, he once saw a mechanical printer "who did an extensive business in vignetted heads, and it was a source of great amusement to us to watch the mechanical application of the vignettes by the 'head' printer," decries the style altogether. He had some excuse, for he continues, "This is, of course, another source of the mechanical appearance of ordinary photographs; for by vignetting fifty different heads a certain uniformity must result, the loss of all individuality, character, and, of course, art."

How not to Vignette.

Nor do Robinson and Abney in their work on silver printing give much attention to the vignette. One method is described—a method I have never seen used in any printing room, nor am I likely to, for with all due respect to my worthy and approved good master of the days of my photographic beginnings, the method given in that useful little book is, of all methods of vignetting, the most mechanical, and of all mechanical methods the clumsiest and the worst. Nor do the dealers in photographic stores help one out. If vignetting is mechanical, and if it is accompanied by dull uniformity, what good can be got out of metal vignettes and glass vignettes? Surely the mechanical is made more mechanical still. One good thing—good, that is, if used in skilful hands—do they supply, and that is the vignette clipper. It is something towards a recognition of the fact that each portrait to be artistically vignetted must be specially vignetted. Each portrait must be treated on its own merits.

A Practical Method.

More than that, the cutting-out-and-clipping-round method is an especially good one for a cloudy day and in a cloudy country, more especially with silver printing. But when one regards the work of a busy studio in a sunny clime, where tissue paper in single or double folds must take the place of the white cloud in subduing the direct rays of the sun, the method about to be described here is undoubtedly best. But even in the bright but cloudy summer weather of England, it has much to recommend it. The frames may be turned towards the sun if there is sun, or should the sky become overcast, and platinum prints be jeopardised by not being finished ere the day closes, the tissue paper may be wholly or partially torn away. But enough of the introduction; let us come to the practical method and the tools required.

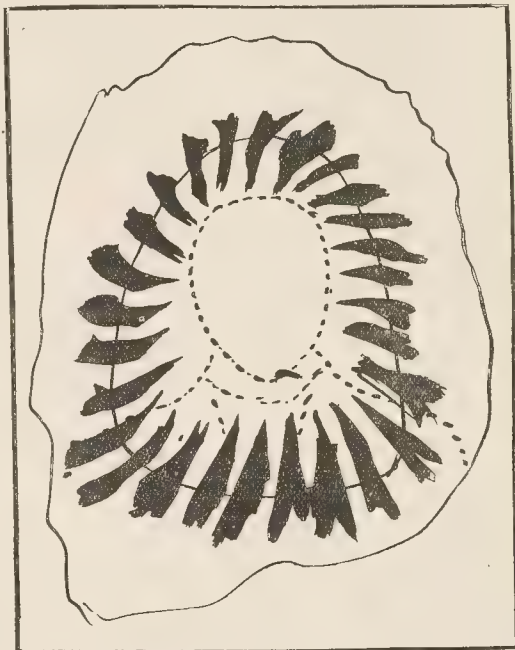
Printing Frames.

These need be only of the commonest type in teak or deal; for all sizes up to whole plate, in fact, the commonest type is the best. The depth of the quarter and cabinet (half plate, of course) generally averages a quarter of an inch; by depth, I mean the thickness of the ledge on which the glass rests; the thickness of the back is immaterial. The negative should never rest in the frame itself, but should lie on a sheet of glass, for you will then usually find that if you have the misfortune to drop the frame, it is the clean glass and not the negative that is cracked. This clean glass is, of course, a spoilt plate with the

film removed. A flat piece should be selected, thin as possible, where quarters and midgets are concerned; flat but thicker for cabinets. With whole plate frames the depth, including plain glass, should not be less than half an inch, and may be increased if desired by the thickness of cardboard forming the vignette.

The Vignette.

Cardboard, tissue paper, and paint, to be fixed in position by four or more ordinary tintacks. Spoilt mounts do very well for the purpose; they should be thin for midgets and quarters, thick for whole plates. The tissue paper to cover the opening in the cardboard is of the ordinary kind. This is affixed to the opening by pasting round the latter with ordinary paste or the starch mountant just discarded by the mounter as being a day stale. Paste round the opening in the cardboard and stretch the tissue paper over it. For the paint, I have seen ordinary



Brunswick black used, but it is rather messy; I prefer lamp black or Venetian red myself, and of the two I like the Venetian red best. Burnt Sienna may do as well, but I have not tried it. Whichever is used, the mixture of pigment and weak gum is a most handy thing to have by one. The pigment should not be stinted, as it is better to make an opaque mark on the tissue with one stroke that quickly dries, and the gum and pigment serves another useful purpose. Although it is not so good as Brunswick black or Nixey's black enamel for anti-halation purposes, it is all that is necessary in most cases.

Tools at Hand.

You have now your frame, protecting glass, and negative; your cardboard, tintacks, tissue paper, waste, and paint, with, of course, a paint brush. The brush may be either a very small bristle brush or a medium-sized camel's hair brush that has been a bit worn down. A small hammer and a pencil and a sharp, strong penknife completes your outfit. The printing-room

scissors, if sufficiently large, are a handy tool, for you can not only cut your paper with them, and even the cardboard to make your vignettes, but by gripping the blades they make a handy tack hammer if your aim is sufficiently true. You do not require to keep them sharp; a knife is good enough to cut your paper with, and for cutting cardboard for your purposes blunt scissors are as good as sharp ones. If sharpened they only get blunt again.

How to Make the Vignette.

Now, having got your tools together, not a very expensive assortment, the mechanical work you have to do can be thus detailed:—

1. Cut an opening of the required shape that shall take in all you want to be deeply printed and no more, leaving the spreading of the light to do the main work of gradating beyond.

2. Paste your tissue over the opening, and paint it to gradate the spreading of the light beyond. To do this you must hold the frame containing the protecting glass and negative face upwards, of course, at an angle of about thirty degrees with the horizontal, and apply the strokes of the brush from underneath. As you cannot actually see the brush through the paper, but only see the strokes you make, this is to some extent a matter of feeling; it is surprising, however, to find how soon you get used to a seemingly difficult task. The first trick of the tyro is to turn the frame over to look at his brush-strokes, and so endanger the safety of the negative, but he soon gets out of this clumsy proceeding. What the vignette looks like is shown in the accompanying illustration, where the portrait is that of a gentleman, full face, with a dark coat.

An Alternative Method.

Perhaps I should mention one other good method which "makes the punishment fit the crime," or, in other words, necessitates each negative being treated on its own merits. It consists in using an open cut-out and modifying the diffusion of light by judiciously tucking in cotton-wool. A cardboard cut-out is tacked on the back of the frame, the opening in the card being a little larger than would be used when vignette clippers are requisitioned. It is a good method, but too laborious for usage in a busy studio. The method of tissue paper and paint

has all the advantages and none of the disadvantages of other methods. You take advantage of direct sunlight when the weather affords it, for if the light is too strong, what is easier than to clap on extra tissue? Should the sky be overcast, the one thickness of tissue is no great disadvantage, for the bright clouds of England are as brilliant a reflector as they are a good diffuser. When the worst comes to the worst, when the sky darkens, when your platinotype paper is in danger of being spoilt if not finished before the close of day, what is easier than to rip out with the finger as much of the tissue as you think fit, so as to be able to pass your paper through the oxalate bath before closing the studio and going home? When morning comes you can replace the tissue and paper in a few minutes.

Rapidity.

One word more on this "mechanical part" so-called. A smart workman can and does actually cut tissue, and paint a cabinet or even whole-plate vignetting mask in ten minutes, but when cut-outs are plentiful and sorted into styles the time occupied for each cabinet should not be longer than five minutes. I have seen it done, not once as a *tour de force*, but continuously for three hours. Where? you ask. At the most fashionable studio in Cape Town a few years back, when fashionable lady, gallant officer, and enthusiastic Town Guard (Yes! capital letters, please) were flocking for their counterfeit presentations.

There is just another word to be said about the use of cotton-wool. It may in some cases be advantageously inserted between tissue mask and negative. The tyro may find it useful to further safeguard the spreading of the light when the sitter has worn a dark dress or black coat. The expert very seldom needs it; in his hands he appreciates at once the amount of masking and painting to be done. Any little improving he may leave to the actual printer who is watching the frames. A variation in the angle at which the frame is presented to the light will easily correct minor miscalculations.

But at this point a fresh chapter must be begun, and some directions given for special cases of the various types to be dealt with.

C. RAY WOODS.

THE WEEK IN HISTORY.

Camera Pictures in 1829.

As showing the progress which Niepce made by slow degrees, I quote here from a letter of his to Lemaitre, written ten years before the publication of the processes of Talbot and Daguerre. His brother Claude had died some months before, and the account of his work appears to have afterwards reached the sympathetic ear of Lemaitre. "I see with satisfaction," he writes, "that I am now reaching the end at which I have aimed. I have discontinued copying engraving, and am working direct from nature with one of Wollaston's perfected cameras. The periscopic lenses give me much better results than those I have obtained with ordinary objectives, or even with the meniscus lens of Chevalier."

An Early View of the Niepce-Daguerre Controversy.

The precise shares in the perfection of the process which finally became known as Daguerreotype was the subject of much dispute in the early days of photography, but my readers, at any rate, should be clear in their minds as to the credit which Niepce Niepce deserves. Certain it is that he worked out a complete though crude method of photo-engraving, and it is highly probable that Daguerre was largely indebted for his knowledge to the store of information which his partner had accumulated during his fifteen years' work. As showing how largely conjecture entered into the early criticisms of these early

photographic inventors, I cannot do better than quote a passage from the "Athenæum" of March 9, 1839:—

The specimens in the possession of M. Bauer and others, given at the time to Mr. Cussels, of Richmond, have been obligingly submitted to our examination. They may be divided into pictures copied from engravings and pictures copied from nature. The best specimen of a copy from an engraving belongs to Mrs. Cussels, and though somewhat different in its style and general effects, it is not, considering that it has been exposed for more than ten years to all the casualties of dust and damp, much inferior to similar copies shown to us, when lately in Paris, by M. Daguerre. M. Bauer possesses the only copy of a picture taken from nature, but this, so far from being equal to the specimens produced by M. Daguerre in 1839, is even more shadowy and indistinct than any of the earlier specimens of the art which we saw in Paris, and immeasurably inferior to the later works. That the early process of M. Niepce and the present one of M. Daguerre are essentially the same, though greatly improved, we cannot doubt. As M. Daguerre has good and sufficient reason for not making his secret known for the present, the pictures exhibited by him are covered to the very edge with paper; notwithstanding which we came to the conclusion that the material was either pewter highly polished or washed with silver, and all the specimens in the possession of

M. Bauer and Mr. Cussels are on pewter, apparently coated with a very thin coating of transparent varnish, but whether this varnish was applied before receiving the impressions or subsequently to fix them is not obvious. We incline to the latter opinion. The most curious fact in relation to the discovery yet remains to be told. It would appear, considering the character of the pictures all but impossible that impressions from them could be multiplied after the manner of an engraving. M. Daguerre, indeed, stated to us that it was impossible, and it is but reasonable to believe that he is as fully informed of the nature and extent of the

discoveries as M. Niepce himself. Yet in 1827 M. Niepce not only declared that it was possible, but produced specimens of such multiplied copies, and M. Bauer has now in his possession not only copies of engravings fixed permanently by the action of light, not only scenes from nature, but metallic plates engraved and engravings copied from them; and he understood and believes that no engraving tool was used, but that the drawings were fixed by the action of light, and the plates subsequently engraved by a chemical process discovered by M. Niepce.—The "Athenæum," 1839, March 9, p. 187.

HISTORICUS.

CONTROLLING EXPOSURE AND DEVELOPMENT IN MAKING BROMIDE ENLARGEMENTS.

III.

Practical Development.

For practical development we employ two developers—(a) well-restrained adurol (formula given above); (b) dilute rodinal unrestrained strength 10 minims to 4 oz. water.

Technique.

First soak the enlargement in clean water until it is quite limp, drain, then pour on the restrained adurol developer, and develop until our blacks are nearly the intensity we require them to be. Now rinse quickly for one minute. If the whites and white-greys are not sufficiently developed, as is most likely (for they are being held back by the potass. bromide), we pour on the dilute rodinal and develop until they are just what we wish. The rodinal will not appreciably deepen the black, being so dilute, but it will act on the portions that hitherto have been restrained (as rodinal is unsusceptible to bromide), and they will tend to jump to their normal degree of development; hence the use of dilute rodinal. This method allows us to control our gradations perfectly; it also allows for a considerable amount of over-exposure—in fact, it is better to be sure that the enlargement has received slight over-exposure, for if under-exposed the white will "hang-fire," and nothing will make a satisfactory picture.

Two very important points must be considered:—

1. We must have plenty of yellow light with which to examine the progress of development, otherwise we may find that, what looked perfect by weak yellow light is distressingly weak after fixing when viewed by white light. I find that if plenty of yellow light is used, when the appearance in the developer is the same as when viewed after fixing by white light. You will notice that directly you put the enlargement into the hypo it becomes much darker when viewed by yellow light; also, if you simply washed after development and then examined the picture by white light, it will appear very weak, although it was satisfactory by yellow light. Hence we see that the fixing bath actually darkens the picture, although we do not take it into consideration in judging the degree of development.

2. We must have our developer somewhere near the right temperature (65 deg. F.). I have found it impossible to get a good result when the developer was too cold, and, on the other hand, if the developer is too hot, fog may appear. We may represent what usually occurs when working with these two developers thus:—

(It is assumed in the diagram that there is slight over-exposure.)

ACD represents the work of the restrained adurol developer.

ABC represents the work of the rodinal developer.

AB represents the correct line of gradation.

XY represents the limit of development.

Consider three cases.

-1. Suppose we have given four times the correct exposure, but are not aware of the fact, we develop first in the adurol for some time until our blacks are nearly developed enough, then rinse, transfer to rodinal—a short application of which is needed to make the result satisfactory.

2. Twice correct exposure (though unaware of fact). Develop as usual for the blacks. Rinse. A longer application of rodinal is needed.

3. Correct exposure (though unaware of fact). Develop as usual in adurol for blacks. Rinse. Result, soot and whitewash effect; a much longer time in the rodinal is needed to soften or fill in the high lights.

So we see the method of procedure is exactly the same in each case.

I have here five prints, four of which are identical; the fifth differs somewhat:—

No. 1 was given the correct exposure and developed to the limit with rodinal (30 minims to 1 oz.), giving good gradation.

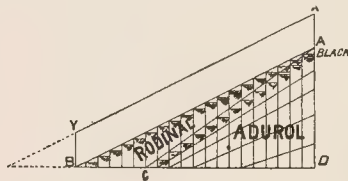


Fig. 6.

No. 2 was given the correct exposure, and developed as indicated in Case 3 above. Same result.

No. 3 was given twice the correct exposure and developed as above. Result, exactly the same colour and gradation as in No. 1.

No. 4 was given four times the correct exposure and developed as above. Result, exactly the same gradation as in No. 1, but more of an engraving black, not so blue as No. 1.

No. 5 was given four times the correct exposure and developed in the restrained adurol alone, until the high lights were developed to the same degree as in No. 1. Result, the blacks are blocked up. This shows that the limit of useful over-exposure had not been reached.

So we see that we have great latitude in exposure. Of course, I do not recommend this great over-exposure, but we see how safe we are when we use this method of development.

The same method, too, is applicable to a negative of normal or flat contrast; but if the negative is very hard, the method of procedure is somewhat modified.

Dealing with Hard Negatives.

The most satisfactory method of dealing with hard negatives is to reduce them with persulphate of ammonium. You should never produce such a negative, and if you employ the Watkins factorial system of development, you will never do so. If, however, you object to reducing the negative, there is a method which is quite satisfactory, which I will now describe.

We make quite sure that we have given sufficient exposure that the densest portions of the negative that we want to print have printed through.

Then for a medium reduction of contrast we immerse the undeveloped paper in a solution of potassium bichromate, strength 1 in 2,000 of water (5 gr. in 21 oz.). Now we wash quickly for one minute and then develop as usual, first in the restrained developer and then in rodinal; we will then get a perfect result.

This method of reducing contrasts was introduced by Mr. Sterry, of London. It works satisfactorily with Kodak, Barnet, Wellington, Empire, and Pearl papers. These are the only papers I have tried it with; probably it will work with all bromide papers. The time of immersion may vary with the paper employed.

Roughly, for medium reduction of contrast the times of immersion are:—Kodak, Empire, Barnet, 20 secs.; Pearl, 10 secs.; Wellington, 40 secs. These figures may not be quite accurate, but anyone can make tests. The longer the paper is kept in the bichromate solution the greater the reduction of contrast.

Explanation.

We will refer back to Fig. 2 (see B. J. last week). Suppose our negative or print meter to be too hard, and suppose we have given sufficient exposure, that our tones bordering on the whites are exposed enough; now our blacks will be blocked up.

AC represents the silver bromide, capable of being reduced if we carry development to the limit, and EB is the height of a black step. Then we see that the shadows from D to E will all be black and blocked up. If, now, we put the undeveloped print in the bichromate solution, the effect is to slice off a portion, ACE, and leave us with a limit line, say AE—that is, if we now develop to the limit we could only reach AE. So we see that the effect of the bichromate is tantamount to reducing the contrast of the negative. The longer we leave the print in the bichromate solution the flatter the line AE becomes. I find that the resulting colour is not at all influenced by the bichromate when using this weak bath. Now, the use of potass. bichromate does not interfere with the working of the developers, and so, if we have unknowingly over-exposed, we can still use the two developers and get a perfect result.

Hence we have full control over our gradations, and are not dependent on a correct exposure.

If we knew the exact exposure we could use rodinal, and not develop to the limit as before explained, and thus get a softer result.

But then we are dependent on a correct exposure.

Suppose we had unwittingly over-exposed, our whites would suffer if we started with rodinal. Hence the bichromate method is preferable.

We need not employ the bichromate method unless the negative is very hard, as daylight enlarging tends to soften the gradation. Thus a negative, which gave perfect gradation by contact when developed to the limit, would give a flatter result when daylight enlarging is used, and developed to the limit, even if the correct exposure was given. A negative too hard for glossy paper will give a perfect daylight enlargement without the use of the bichromate.

Sundr Notes.

1. I have illustrated the method of development with contact prints for convenience. I need hardly add that the argument applies exactly to enlargements.

2. The term "density" has been used in the commonly-accepted meaning as being synonymous with opacity, and not in the scientific meaning adopted by Messrs. Hunter and Driffeld.

3. I would advise those who intend to try this method of development to experiment on contact prints, until they find out the amount of yellow light to use, and the times for transferring the print from solution to solution. In practice it is delightfully simple.

4. Once the principles of development are grasped we can apply this method of development to other developers—e.g., we may use (first) hydroquinone, and then metol, or even apply it to a single developer of the intermediate class, such as amidol. In this case we would use the amidol developer, and strong and heavily restrained, and then for the second developer dilute unrestrained amidol, made very slightly, alkaline with sod. carb., good formulae being:—

Amidol	8 gr.	} For the first developer.
Potass. bromide	12 "	
Sulphite soda (cryst)	80 "	
Water	2 oz.	
Amidol	4 gr.	} For the second developer.
Sulphite soda (cryst)	40 "	
Sodium carbonate	2 "	
Water	2 oz.	

The latitude is as great as with the adurol and rodinal.

5. It is feasible when we want to block out irritating high lights, such as sky through trees, to apply locally some strong developer with a paint brush after development is complete; then, evidently, we must over-expose, or expose locally by means of keeping a card with a hole in it moving over the spot.

6. It is also feasible, after fixing and washing, before drying, to locally reduce where needed, with a stainless reducer, such as

Saturated sol. of iodine in alcohol	30 minims.
Saturated sol. of potass cyanide	40 minims.
Water	1 oz.

If it acts too quickly, dilute with water.

7. I prefer an acid fixing bath when properly compounded, such as

Hypo	16 oz.
Pot. metabisulphite	6½ dr.
Water	64 oz.

First mix the metabisulphite and then the hypo. This bath is quite stable.

If the paper is liable to blister add 75 gr. of chrome alum to the metabisulphite solution before adding the hypo.; the bath will then be perfectly stable. Some papers are already hardened; they will crack when straightening if alum is used.

8. If you add ammonium chloride to the first washing bath to the extent of 10 per cent., the hypo. will wash out in half the time, as ammonium thiosulphate is formed, and this is more soluble and more quickly diffusible than the sodium salt.

9. If you find the colour of the enlargement too warm, from over-exposure, you can change it to a cold or even blue-black by immersion in

Gold chloride	1 gr.
Ammon. sulphocyanide	20 gr.
Water	1 oz.

The toning is fairly rapid, much, however, of the blue disappears on drying; if the print is left in this for some time you get slight intensification also.

10. If you wish to tone by the sulphureting process it is well to use a rapid paper and over-expose as little as possible, also to use amidol.

If you wish to tone by the hypo-alum method you must over-expose and over-develop somewhat, because of the reduction in toning.

N. C. BECK.

PROCESS WORK IN AMERICA.

II.

Three-colour Abandoned.

MANY photo-engraving firms have abandoned the purely three-colour method, regarding it as an impossibility to attain good results, and were working four-colour processes in which the colour results were produced by the skill of the etchers, the photographic negatives playing a comparatively unimportant part. Where three-colour is being worked on anything like a commercial scale, dry plates are being used, these being of the panchromatic type. This naturally necessitates dense filters, and the exposures are very long. In the case of the red filter, they often leave the camera standing with lens uncapped overnight, so that the exposure may go on in the early morning light. In spite of these roundabout methods I must confess that the results I saw produced by such firms as the American Three Colour Company, the Electro-Light Engraving Company, the Zeese Wilkinson Company, the Colorplate Company, and others, were very fine. The extent and variety of the work being done by the American Three Colour Company, in New York and Chicago especially were simply marvellous. This concern is an immense organisation, devoted entirely to the production and printing of colour blocks. The greater part is three colour, but some excellent four-colour work was shown me.

Newspaper Illustrations.

The extent to which newspapers are illustrated in America is remarkable, especially when it is remembered that it is a practice of comparatively recent growth. It is quite exceptional to find any important newspaper without its art department and photo-engraving department. So surfeited have the public become with illustrations that it has given rise to a revulsion of feeling against the innovation, and I heard one business man in New York remark that he always bought the "Sun," because it did not contain any illustrations.

Coarse half-tones produced with a screen of 65 lines to the inch are used freely in the daily papers, and the wonder is that they come out so well, considering the rush with which the illustrations have to be got out. Most of these half-tones are relieved with an ornamental line border which is etched at the same time by cutting out the stripped films and fitting them together. It is really surprising to see the ease and facility with which the stripping operation is conducted, and one cannot afterwards wonder why they do not use prisms. A number of small films are laid down on one glass to form a large plate, and the etcher is given from about 45 to 75 minutes to carry the plate through. He adopts the dragon's blood powdering method, using the brush exclusively for forming the acid resist. The European method of rolling up with ink is scoffed at.

Etching by Machine.

In the office of the "Philadelphia Press," I saw an ingenious automatic machine, invented by Mr. Louis E. Levy, for performing this powdering operation, and it was remarkable to see the precision with which the plate passed under the powdering brushes, thence over a series of gas jets, which lit up as the plate reached them, and was finally cooled by an air blast. It took about five minutes to powder the plate four ways in this machine, and the quickest etcher would not claim to do it in less than eight minutes, whilst this would be a speed he could not maintain.

In the same room I saw Levy's acid blast-etching machine at work, and this was an equally marvellous piece of mechanism. The plate is fixed to the lid of the trough, the blast of a blower turned on with about 2 or 3 lbs. pressure, and this drove the acid through a large number of sprays in the bottom of the trough, so that it impinged on

the plate with great force. In 30 seconds the plate had been etched to a quite perceptible depth. A second etching of 60 seconds, and a third etching of 90 seconds, finished the plate to the required depth, in most cases. No fumes escape from the machine, and the acid is not so strong as would be used for the old hand tub etching. The work is also much cleaner and sharper. Both line and half-tone work is etched in the machine, the former requiring the longest time, but in any case being far quicker than the hand method. These machines seem likely to revolutionise the production of newspaper illustrations, if the men give them a fair chance.

Besides the artists and photo-engravers, the newspapers maintain a force of outdoor photographers, who are expected to bring in some sort of negatives with even the most unpromising opportunities, and these men have acquired wonderful smartness, not to say audacity, in getting results.

Newspaper Illustrations in Colour.

The Sunday editions of most of the important newspapers are printed in colours, and considering the speed at which the printing has to be done, are marvellous productions. The purely photographic three-colour process cannot so far be applied for this purpose, being too delicate. The colours are accordingly laid down by hand from a black key plate, with the aid of "shading mediums" (gelatine films having lines or stipple in relief on them and which can be inked and transferred). The printing machine is a wonderful mass of mechanism, the white paper being fed in from a reel at one end and coming out at the other printed in 4 to 6 colours, cut and folded as a finished newspaper at the rate of not less than 10,000 per hour. The colours are rather thin and tinty, but improvement is gradually being made in the printing, and in time it will no doubt be possible to produce the regular three-colour print, so that we shall eventually have daily newspapers illustrating current events in colour. If money can command such a thing it will be lavishly forthcoming, for no expenditure seems too much for the enterprising proprietors of these great American newspapers. Several of them have recently installed the Auto-plate, a machine which produces stereo printing plates with about the same speed and facility as a sausage-machine turns out its savoury product. I think you only realise what American hustle means when you go through these big American newspaper offices about publication time, and if you have any nerves you are glad to get quickly away.

Stereotyping and Electrotyping Illustrations.

Stereotyping is almost a lost art in the States, or possibly it has never been found. It only survives in the newspaper offices, and it is, generally speaking, poorly done, when it comes to handling cuts. Much better methods are being worked in England, where the plastic-moulded stereo and nickel-facing are ousting electrotypes for illustrated periodical work. In the States they have to use electrotypes for the colour presses printing the Sunday editions, and all book and periodical work is done by electrotyping.

Lithography, Collotype, and Photogravure.

Lithography is largely practised, and is almost monopolised by big concerns. One of the largest and most important houses I visited was the American Lithographic Company, who occupy a large block in the heart of New York. The whole of the roof is devoted to the photographic and process studios, and photography is applied in many ways to lithographic work. Collodion emulsion is here worked successfully by Mr. A. C. Austin, a well-known worker and technical writer on process work. They also have a process of making enlarged half-tone negatives for posters, the small positive being very evenly illuminated by means of a battery of six mercury vapour

tubes, no condensers, therefore, being required. This firm are attempting rotary intaglio photogravure, and have got so far as to show very promising results. But the most wonderful sight in this establishment is the rotary lithographic machine which prints six colours lithographically, and a black letterpress from stereo plates. The lithographic work is transferred to cylinders which are coated electrolytically with zinc. Very large sheets of colour work are printed from the web at a high rate of speed and of good quality. The machines have been designed and built on the premises, and are covered by about forty patents.

In regard to colotype, I only came across one firm working it, and that was in the heart of the grimy and windy city of Chicago, and I heard they were doing well. I know there are, perhaps, two or three other firms working this process, but no one takes colotype seriously. It is not commercial enough for the American, for there are times when the process baffles his efforts to hustle it along. Photogravure is also very little worked, because it requires too much of the "personal equation," and the American business man can see no money in it, though it is a curious fact that Uncle Sam's paper money is printed in the quaint old-world way in which photogravures are printed. If you go into the Bureau of Engraving and Printing in Washington you see a room in which there are hundreds of little copper-plate presses, each operated by a young man and a girl. The former inks and wipes the plate and pulls it through, whilst the girl lays on and takes off the paper.

Conclusion.

"What do you think of America?" is the question I have been asked over and over again with special reference to process work. I can only say that what impressed me most was the size of the firms and the excellence of their business organisation. Process was seen at its best when combined with artistic printing, and the most successful firms appeared to be those who best brought together these two kindred arts in the production of high class catalogues and commercial booklets. There seems to be a bigger and a richer

field for process work over there because everybody reads something, and everything readable seems to be illustrated. Advertisers spend money lavishly on process work, because they find it brings business. It is the commercial process work that pays in America, the purely art work is almost non-existent. The artist who is prepared to forsake the orthodox paths of art, and use his brush in the service of commerce can make money, and his brother of the quill who can write prose or poetry in praise of canned pork and beans, or other delectable commodity, will also find the dollars come to him easily. It used to be said of an English publishing house that they kept "tame artists and docile literary men" on the premises in little rabbit hutches; and the American firms have carried this sort of organisation to a great degree of perfection. I must confess my admiration for the way in which the art of "making things pay" has been developed in America. They do not seem to get better prices for their photo-engraving, and they pay more than double the wages we do, whilst rent and other expenses are higher than with us. How is it, then, that they seem to thrive well? I can only conceive that it is because they make a much bigger output in a much less time, and with a smaller staff than our firms do. There appears to be no waste time in an American shop. There is no "hustling," as we understand it, but the work goes smoothly and steadily on, passing from one department to the other, and the "business end" never lets it rest until it is out and in the customer's hands. Every man must keep up with the procession, or fall out of it, and keep out. I noticed that most of the hands in American photo-engraving shops were young men, or comparatively young men, and I asked what became of the old ones. "Oh, they generally go out of the business into something else when they can't keep up," was the reply. From which it may be imagined the lot of the American photo-engraver is not an easy one.

WILLIAM GAMBLE.

[The above notes conclude the account of photo-engravers' methods in the States commenced in our issue of the 11th inst. -ED. B.J.P.]

THE DARMSTADT CONGRESS.

THIS Conference, which commenced on August 15, and closes on the 27th, is being held in the Town Hall, Darmstadt. An account of the official formalities, reception, conversation, excursions, etc., although pleasant enough in themselves, is not of so much interest to readers of the BRITISH JOURNAL OF PHOTOGRAPHY as a brief report of new apparatus and other exhibits, so no further mention will be made of these functions.

New Apparatus.

The exhibition of new apparatus, etc., is not very large. E. Merck has a display of chemicals, and also of tablets and cartridges; Goerz and Zeiss are the only important lens makers represented. The latter firm show a new Palinos "Universal" camera. This has a bed that drops in the usual way to permit of the use of a wide-angle lens. It has no focal plane shutter as with the Zeiss Palinos camera known in England, but a between-lens shutter. The Zeiss Telephoto Attachment, and the Stereo-Palinos are likewise new introductions. A new film-pack is also shown by this firm. It is new in the way each film is sold in its own dark slide ready to be put into the camera. This slide is made of black paper. A special adapter is necessary, the ground glass of which is pushed back by the slide on the American principle. The films cost but a little more than roll-films, and the film-holders can be used more than once if desired. The films are Lumière and Agfa. This firm also shows a new folding camera without a focal plane shutter and a small stereoscopic folding camera, together with a stereoscope with short focus lenses, called the Double-Verant, which corrects the distortion of perspective in a picture made with the camera pointing upwards in a most remarkable way.

With a couple of minor exceptions the manufacturers of and dealers in goods for the amateur were not represented at all. This may have been due in part to the position of Darmstadt, which is on the border of the Empire; but the days of large exhibitions are

probably passed now that the Press brings the latest news and novelties before its readers so cheaply and quickly and satisfactorily.

The portrait photographer who has a high reputation for turning out artistic work, and a clientèle willing to pay for it, is still able to stick to his legitimate profession, but the majority of photographers in all countries are now being crowded on one side by the amateur who makes portraits and groups of his friends, and on the other by the wholesale production of cheap illustrated postcards; and there is nothing to be done but to adapt himself to the new conditions by selling materials to the amateur and developing and printing for him, and by producing and selling his own postcards. Germany is the native land of the postcard, and it was a significant fact that although there was not a single studio camera exhibited, there were half a dozen machines shown for the rapid production of postcards and other bromide prints. These machines, varied in price from 50s. to £15. They were all intended to be worked by hand by the professional photographer, and some of them could turn out several hundred prints an hour. They were made by the Gekawerke in Hanau (London agent, Staley and Co., of 19, Thavies Inn, Holborn Circus), by Gamber, Drehl and Co., Heidelberg, and by Alfred Brückner, Rabenau, by Dresden. The essential feature of the Geka Copying Apparatus is a rotating disc with two windows which serve as printing frames, and two corresponding openings underneath, one having red glass and the other white ground glass. The lamp is incandescent (methylated spirits or gas). The apparatus is used in the dark room, and cut bromide paper is employed. The red glass allows the operator to adjust paper and negative and vignette quickly and easily. Then the disc is rotated in $\frac{1}{2}$ to 1 second, by the white window back to its original position, when the paper is removed and a fresh piece inserted. For the slower chloride gas-light papers both printing-windows are used, one print being exposed while another is being put in. The machine is intended to fill the gap between the large machines using bromide

rolls and making prints by the thousand, and the ordinary print by hand in the usual way.

Artificial Light for the Studio.

Herr Hofphotograph Schmidt, Kaiserstrasse 11, Frankfurt, exhibits a very ingenious electric light for the studio. The light consisted of a reflector with a row of glow lamps and a double arc lamp in the centre. The novelty in the apparatus is in the arrangement for sending a very high-potential current through the lamps in the space of a fiftieth of a second, which gives a flash of such brilliancy that a full exposure is obtained. There is no noise, explosion, no singing of the arc light. The effect is exactly that of a flash of lightning in a well-lighted room, and the exposure is so short that the most fleeting expressions are caught. There is also a considerable saving in bills; for instance, one photographer and his monthly bill reduced from £2 to 6s. The carbons are specially prepared with a core of a salt of aluminium to increase the actinic power of the light. The chief trouble with the lamp is to be that it is difficult to convince the electric light companies of the truth of the statement of the inventor, who is an amateur electrician of great ability, that this powerful current does not injure the apparatus or circuit, because it lasts such a short time.

Another photographer with a hobby is Herr Friederich Broder, of Brandenburg, who has determined to find out all there is to know about flash-lights. This year he sent off ten of his electric contact flash-light lamps one after another in a total of less than 2 seconds. He showed some interesting pictures of the length of time required by various persons to press a ball after a signal was given, and stated that a flash-light does not burn so fast as is usually thought, the time varying but little with the amount of wood burned—between 0.15 and 0.2 seconds.

Only two new photographic papers were read, but both were very interesting.

Pinatype.

The first was on Pinatype, the new three-colour process (BRITISH JOURNAL OF PHOTOGRAPHY, October 14 and 21, 1904), demonstrated by Dr. König, of the Höchst Dye Works. Three negatives are made on usual behind coloured screens. From these three transparencies are made. From the latter three so-called printing plates are made. These are glass plates coated with bichromated gelatine without pigment. The gelatine remains soft where not exposed to the light—that is, in the shadows of the transparency, and becomes hard in the lights. It is then put into one of the three colours washed and then pressed upon a piece of paper coated with gelatine, to which it gives its colouring matter from the unexposed soft gelatine, leaving the light parts pure and white. The three colours are printed on to its one gelatine film, which is the novelty of the new method. Registration is very simple, and when the bother of making nine plates is over, the subsequent printing is very simple. The dyes used are permanent to light. The actual printing is done mechanically without light, and the process can also be used to make monochrome prints, for which purpose it is only necessary to make an ordinary single negative and transparency, and from the latter a printing-plate. From this any number of prints in any desired colour can be made by mere contact with the transfer paper.

A New Carbon Process.

The other paper described direct printing carbon paper to be developed in water without the use of sawdust, which preserves all the fine details, gradations, and half-tones. It can also be printed without a photometer. The paper was demonstrated by no less an authority than Professor Schmidt of Karlsruhe, who was very enthusiastic about it. The paper is prepared by putting a plain gelatine film on first, and over this a very thin layer of gelatine containing the pigment. It is sensitised in 2 per cent. bichromate, and developed by putting it into cold water and then warm, followed by a shower from a fine spray. It is then put into an alum bath and finally into a water-varnish and dried. A great many prints were exhibited by the makers, Emil Bühler, of Schriesheim. It is not yet on the market, but anyone interested can get samples by writing to the maker. The prints are perfectly matt and fine-grained, with all details and half-tones preserved. They do not have the rich, plastic appearance of the transfer carbon paper or the coarse-grain and washed-out look of the gum bichromate print.

An Exhibition of Photographs.

In connection with the Congress an exhibition of photographs was held under the patronage of the Grand Duke of Hessen, who gave two prizes, and opened the exhibition. It consisted chiefly of professional portraits and views, but there was an amateur exhibition, and a third group of competitors for a number of trade prizes offered by manufacturers and others to assistants and photographers in a small way of business. The pictures in this group did not rise above the common-place, but Prof. Bruno Meyer, in a masterly, critical report of the exhibition, stated that a competition of this sort attracted exhibitors who would not venture to test their strength with the masters of portraiture, and this resulted in a steady improvement from year to year.

Of the professional portrait work some small carbon portraits by Grienwaldt of Bremen were very pleasing. They depended for their effect upon nothing more than in making use of this finest of all the photographic processes in a perfectly normal manner with regard to posing, background, lighting, and framing. The jury that judged the pictures placed him directly after the two German masters Dührkoop of Hamburg, and Perscheid of Leipzig, who both exhibited some fine work. One of Perscheid's portraits may be taken as an example of a class of work very largely represented at the exhibition. It was a print on brown carbon paper with a canvas surface, varnished, made from a paper negative enlargement, and framed in a large black frame. One was struck at once upon entering the exhibition with the number of dark-brown large portraits in dismal heavy black frames that might have been cut out of an old, dark rosewood piano-case.

A second style that was exhibited by several photographers consisted of a small print mounted on a large dark-tinted mount, perhaps 16 by 22 in., glazed and framed in a narrow frame of natural oak, black or old gold; the print was seldom mounted in the middle of the mount, and was sometimes mounted first on a white or lighter tinted paper, leaving a narrow border. One mount appeared to be made of green felt such as is used to make Tyrolean outing suits; another was an ordinary bookbinder's board; and another, by Dührkoop—one of the prettiest pictures in the exhibition—was ordinary parchment paper on which a portrait of a lady in warm black platinum was mounted. There were a few pictures framed in the modern style of frame, with the top, bottom, and sides different. Frames of this sort claim a part of one's attention as a work of art in themselves, but if one's attention is to be so distracted from the picture, it is pleasanter to find the frame pretty rather than with the air of having been borrowed from a chromo in a country inn. A picture that would attract attention in a reception room or show-case was a large carbon print of the head of a collie-dog by Richter of Elberfeld.

Three-colour Work

An interesting collection of three-colour pictures was shown by the Neue Photographische Gesellschaft of Berlin-Steglitz. Among these was one of a lady in a dress covered with flowers, who, as Professor Bruno Meyer said, would have been the despair of the ordinary photographer. In this three-colour work, he said, lay the chance for the artistic photographer to produce work that cannot by any possibility be done on a large scale and cheaply. At the same time, he added, one must bear in mind the limitations of the process, since the more beautiful and delicate tints of some of the single pigments cannot be reproduced by mixing the three primary colours—a remark which leads one to wonder whether the three-coloured processes are destined to replace the handcoloured ordinary portraits. However, the effect of these coloured pictures was very striking. One was a still-life picture in which the red of a lobster, the delicate brown of a roll, the green of a champagne bottle, and the colours of some flowers were all reproduced very exactly.

Other Exhibits.

Professor von Jan had some interesting wave pictures, enlargements in green carbon paper, and Götz of Breslau some fine landscapes, enlargements on green gum-bichromate. Krauth of Frankfurt had a fine green carbon picture of two girls on a sofa, and Paetzmann of Dresden had two somewhat similar, one in black with a small matt frame to match of a girl in a satin dress, the other a dark-brown portrait of a girl in profile, with subdued lighting, with a brown frame. There were several portraits of girls on sofas in the exhibition, which were all very pretty. Freiherr von Schlippenberg of Dresden exhibited a landscape that showed the influence of Böcklin, a painter more admired by his countrymen than by foreigners, and also a gum-bichromate study of a head framed in the only black frame of the exhibition that appeared to me to be artistic. It was not so much a frame as a plain square piece of board finished in the piano-case polish referred to above, with an elliptical piece cut out of the middle and moulded in a moulding machine.

Bähr of Dresden, a member of the self-styled Photo-secession, showed an interesting bromide print of a winter landscape with the skyline above and outside the picture, framed in a white frame, of which there were too few in the exhibition to relieve the funereal sombreness of the black frames; and finally the combined School for Photography and Painting in Dresden showed a couple of allegorical pictures in modern frames which combined the two arts with such artistic feeling that one did not notice when the photograph stopped and the painting began. I find that I have said nothing about the backgrounds used, which is perhaps sufficient praise in itself. They were either plain, shaded here and there to set off the tones of the portrait, or they hinted at a panelled wall or an interior without attracting attention.

In closing this report I should like to express my thanks to the genial President of the Association, Herr Schwier, for the kindness and hospitality shown to me by him and many of the other members.

W. D. DAVENPORT.

BRITISH GOODS ON THE CONTINENT.

An Open Letter from Italy.

[We have received the following communication from a correspondent in Genoa, and, while not altogether agreeing with everything he says, cannot deny there is a deal of truth in his statements and soundness in his suggestions.—Eds., B.J.P.]

"Having been many years on the Continent, I am struck by the comparative obscurity into which British photographic products have sunk, and firmly believe this is largely due to the British manufacturer himself.

"He thinks that 'foreigners' ought to conform to his ideas, and if they won't, he leaves them well alone. Having been left alone some time, they have naturally bought other makes, and it will be difficult for the lost ground to be regained if more 'leaving alone' is continued. It may be won back without great difficulty as yet, and I am trying to point out some stumbling blocks in the way.

"I have been in Germany, France, Switzerland, and Italy, and have bought photographic supplies in these countries, and mention this to show that I do know something about the subject. Of these four countries three are full of advantages to the British manufacturer—Switzerland, France, and Italy; the two last especially so.

The Populer Camera.

"Frenchmen and Italians like a light, smart-looking camera, which ought to have a really good lens of sharp definition; and if there are rising fronts both ways so much the better, for amateurs are becoming aware of the necessity of this movement. The cameras ought to be built for the 9 x 12 cm. size, universally used over the whole Continent of Europe, and will then command a ready sale (which is not the case with the squarish quarter-plate the British manufacturer persists in sending out), for this plate is growing into greater favour every day, on account of its elegant proportion and convenient size. Such a camera, neat, tasty, wearing well, and capable of fine work, should cost about 60 francs with a good rapid rectilinear and T.I. variable speed shutters, together with slides for six plates. Camera and slides ought not to weigh more than 1.5 kg., and compactness is very necessary, far more so than in England.

Advertise, Advertise.

"But one point should not be neglected, as it is now: I refer to advertising. Advertisements of British makes are *rare ayes* in Continental photographic papers. In Italy, the note that the goods advertised are of 'Fabbricazione inglese' will draw the public, but for France some discretion must be exercised in the use of this note, though the 'entente cordiale' has prepared Frenchmen to lend a friendly eye to such announcements. A profusion of smart show-cards in the dealers' windows will be a great help, and the advantage of a rising front ought to be illustrated. The camera will then be quickly bought, and another order will ensue if the qualities it is stated to possess are proved to be actual.

Formulæ for the Continent.

"Plates and chemicals. The 'foreigner' is not so enthusiastic a photographer (generally speaking) as the Britisher, and I strongly recommend that the developing formulæ the British manufacturer pastes on his plate boxes be discarded, as they are rarely read, for few 'foreigners' know English, and when they do the effect is rather unfavourable than otherwise. I have known instances when people have refused to buy plates, because the maker said that best results were obtainable with the formulæ given. Now, everyone starts with the idea of getting best results, and few care to make up the formulæ. Sometimes the British manufacturer gets his instructions printed in the foreign language, and they then are often apt to bring a grin on the foreigner's face as he peruses them. Print the label in good

modern French (both for France and Italy), and leave out the developing instructions.

Developers.

"Few amateurs here compound their own developers, etc. They like the little packets, tablets, powders, and wee bottles German enterprise sends them, with instructions in their own language as to the number of cubic centimetres of water required to make a bath. I suppose such little packets, tablets, powders, and wee bottles are not made by the British manufacturer, or is the burden of supplying the British public so great as to prevent his giving a thought to the 'foreigner'? I do hope if he does deign to send more scraps down here, he will be so kind as to give instructions as to dilution in French and Italian (for the respective countries). By the way, minims, drachms, liquid ounces, apothecaries' weight, troy, etc., etc., are quite unknown to the 'poor foreigner.' He has been taught that a litre contains 10 decilitres, 100 centilitres, and 1,000 millilitres. This last is a cubic centimetre, and it is generally said that a litre contains 1,000 cubic centimetres. The foreigner also knows that a cubic centimetre of water at 4 deg. centigrade (pure distilled water) weighs 1 gramme, and that a litre contains 1,000 cubic centimetres, weighing 1 kilo. A centimetre is the 100th part of a metre. Having such a childishly simple system of weights and measures, applicable with equal facility to the finest operations of chemistry as to the weighing of groceries, it is not surprising that the foreigner looks with dismay at the extraordinary medley of measurements from England. Let the British manufacturer send out his products with instructions in French and Italian as to metrical dilution, supporting this with advertising and show cards. He will not repent it if the chemicals are good and cheap. Pyro developer is not popular on the Continent among amateurs. Quinol, metol-quinol, metol, and paramidophenol are mostly used. A 60 cm. bath is the thing for 9 x 12 cm. plates, and 100 cm. for 13 x 18 cm. plates. If a packet or tablet for 60 cm. solution can be retailed to foreign amateurs for 15 centimes (1s. 0½d.), a very large sale ought to ensue, for similar products of other makes are somewhat dearer. Of course, the solution must be full strength, and capable of further dilution if necessary.

Other Materials.

"Acid hypo baths are coming into use, and should be provided for. A large proportion of Continental amateurs use no paper but P.O.P., and the combined toner and fixer is the only one they care for. They generally complain of its cost, and, if moderately-priced combined baths in powder or tablet form can be placed on the market, there is nothing to prevent their coming into favour. The long instructions about toning and fixing should be omitted, and simple directions as to the use of a combined bath given. Papers which do not admit of ordinary combined baths being used had better not be sent out.

Suggested Co-operation.

"The British manufacturer would have a large part of the trade in France and Italy were he to combine with his brother makers (of cameras, plates, films, papers, chemicals) to establish a general dépôt at Paris for France, and at Milan and Naples for Italy. Through these dépôts he can reach every part of the country. These dépôts should alone be in touch with the dealers all over the country, sending them the goods ordered, and catalogues, leaflets, show cards—all these in the language of the country—looking after the advertising, which ought to be done on a lavish scale. If British prices can be maintained with home quality, sales will soon follow after a year's tentative buying on the part of the dealers. Perhaps plates can be sold at a somewhat higher rate, for, as a rule, British plates are very cheap, compared with Continental ones. Special rapid first quality plates at 2 francs the dozen will sell like hot cakes.

"I repeat that the establishment of such dépôts by a number of first-class makers combined cannot fail to succeed. The managers ought to be British, and have a thorough knowledge of the language they must needs use with the dealers and the public. As the expenses will be divided among several large firms, they will not be oppressive, and the profits will be relatively greater, as the prices will not have been lowered.

"ITINERANT BRITON."

LADIES AS PHOTOGRAPHERS.

An article bearing the above title the "Daily Telegraph" for Saturday last deals at length with the skill and success of Queen Alexandra, Princess Charles of Denmark, Princess Victoria, Princess Henry of Battenberg, and other members of the Royal Family clever picture-makers with the camera. Her Majesty has made some notable additions to her photographic record of historic scenes during the recent visit of the French fleet. Princess Henry has also added her camera on the Sheila, her own little yacht, which has been moving about a good deal during the memorable week, and the royal photographer, who has the advantage of being an artist, has taken some excellent pictures of the splendid sea pageant.

The Queen is rarely without her camera, which, by the way, is Kodak, and, as mentioned in last week's "Ex Cathedra," it is by no means uncommon for the irrepressible, so-called "camera fiend," while imagining himself securing a surreptitious "snapshot" of his sovereign's consort, to find himself in turn under Royal "fire." A case of this kind occurred when the Queen was staying at Lismore Castle. Most of the party were salmon-fishing, and her Majesty, with her camera, wandered off along a picturesque creek. Here an artist, also much interested in photography, was waiting, and, seeing the great lady approaching, devoted himself to locating her in his view-finder. What was his surprise, on looking up after "pressing the button," to discover that he, in the amusing posture assumed in his excitement, had just made an impression on one of her Majesty's films. Few notable scenes at which Queen Alexandra has been present have been left unrecorded in this way, and it is doubtful whether any more interesting and instructive collection exists than that which she has herself made.

The example set by her Majesty "in taking up photography as a hobby," says the "Telegraph," "has been followed by thousands of other ladies, who in enthusiasm and skill equal, if they do not surpass, men in the art. To the fair sex at every exhibition a large proportion of the prizes invariably are allotted. Especially is it interesting to note the class of subject to which they, as a rule, are most appropriately attracted. Their cameras seem to turn intuitively towards home life. 'The Old Thatched Cottage,' 'Youth and Age,' as depicted by the grandmother and her chubby, curly-headed descendant, are representative types of what the feminine photographer appears most to love. True, there is the lady Alpine climber, like Mrs. Le Blonde, on the one hand, who revels in snow-capped peaks peering through sweeping mists, and, on the other, the aesthete who lingers with joy on the view of a single graceful flower spray. Altogether, women show a remarkable daintiness of selection in what they do photographically as in other respects, because daintiness and refinement are essentially more prominent in them than in man. For its development, it must be confessed, much is due to the hand camera. It has, perhaps, educated a closer study of the beautiful in the ordinary surroundings of everyday life than anything else. Not every woman has had an opportunity of art training. But all who possess cameras must, consciously or unconsciously, undergo a certain amount of that education they otherwise might have lacked. As they proceed they must find that to be successful they must study composition and colour, although the reproduction will be in monotone. They must be continually on the look-out for what is artistically best in the scenes through which they pass. Lectures on art may do a great deal, but constant occasion to put art principles into practice will do infinitely more. The hideous old oleograph has passed away for ever, and its place has been taken by pictures infinitely better. In the last twenty years the general standard of public taste has risen at a marvellous rate, and its advance has, curiously enough, been coincident with the improvement of photographic apparatus."

PROPERTY IN PHOTOGRAPHS.

In the "Daily Chronicle" of Friday last appears a reply to the letter sent to that paper by the Secretary of the Photographic Copyright Union in reference to the Crooke-Irving case. We were also asked to publish this letter, a copy of which appeared in our last issue. The communication published in the "Daily Chronicle" is from Mr. Clement Shorter, who says:—"Will you permit me to say in reference to the circular issued by the Photographic Copyright Union that the whole of their criticism is based upon a misreport of what I said to an interviewer. In the first place, I did not describe photographers as robbers, the word having been used in a very limited sense, and many of these gentlemen being good friends of mine. In the second place I did not say that 'the history of the photograph was coincident with the process block.'"

"I was fully aware of the large sums of money that have been secured by photographers through the sale of photographs in the days before they were widely used in illustrated journals, but what I did urge was that the history of the photograph for the purposes of newspaper illustration was coincident with the process block, and I contended that the illustrated newspaper has given an enormous impetus to the commercial aspects of photography. Whereas in the old days large sums of money were made from the sale in shops of photographic prints of a popular politician or actress, to-day far larger sums of money are made from the sale of quite undistinguished people and incidents which involve scarcely any trouble whatever to photograph, and are of the most temporary value. All of these are now used not only in illustrated newspapers, but in the form of postcards, books, and a hundred and one methods of mechanical reproduction, which places the photographer of to-day in a vastly better position than he was a generation ago, when he was at the mercy of the man who bought a dozen cabinet portraits or cartes-de-visites. This change for the benefit of the photographer is almost entirely due to the existence of the illustrated newspaper."

An editorial note which follows Mr. Shorter's letter states:—"The interview with Mr. Shorter appeared in the "Daily Chronicle" on July 8, and no communication concerning a 'misreport' has been sent to us until now."

Mr. Shorter may be an extremely busy man, but we think it strange that until the matter has been given such extensive publicity he has not taken the trouble to acquaint the Editor of the "Chronicle" with the fact that he was "misreported."

PHOTOGRAPHER to her Majesty.—Her Majesty the Queen has honoured Mr. W. S. Stuart, of 2, The Quadrant, Richmond, with a warrant of appointment as "Photographer in Ordinary" to her Majesty. Mr. Stuart now holds seven Royal warrants, and three of these, viz., to her Majesty the Queen, H.M. the King of Spain, and H.M. the King of Portugal, have been granted within the last six months.

THE Coming Solar Eclipse.—A Reuter telegram from Madrid to the "Times," dated August 19, states that the British astronomers who have come to Spain for the solar eclipse will make their observations from Albocacer, between Vinaroz and Castellon.

THE Rotary Photographic Company, of 12, New Union Street, Moorfields, request us to inform the honorary secretaries of all photographic societies that they are prepared, as in previous years, to give demonstrations, not only of the use and manipulation of their various products, but also of their system of natural colour photography. Further, that early application is desirable, as their list of vacant dates is fast filling up.

Photo-Mechanical Notes.

An Antidote for Nitrous-Vapour Poisoning.

ZINC-ETCHERS, who have to spend a good deal of time under conditions in which it is difficult to avoid the inhalation of the nitrous fumes arising from the etching bath, may be glad to note an appendix to the report of H.M. Inspector of Explosives, in which an account is given of experiments made on chloroform as an antidote for the severer form of poisoning which is caused by the gases arising from exploded dynamite:—

"At a meeting of the Johannesburg Chemical and Metallurgical Society (Transvaal), Eric Weiskopf spoke on antidotes for poisoning by the gases arising from exploded dynamite. It was a matter of frequent observation in nitric acid factories that after inhaling nitrous vapours a man may feel perfectly well, but may be afterwards seized with fatal convulsions, and as a reason for this he advanced the view that the nitric produced by the explosion was oxidised in the blood to nitrous acid. He had found that three to five drops of chloroform in a glass of water, administered as a drink every ten minutes, formed a good antidote. Dr. Seyferth, Director of Troisdorf Powder Factory, near Cologne, considers the foregoing explanation of the action of chloroform taken internally as incorrect, and explains it as follows:—The convulsions which sometimes supervene after inhalation of nitrous or nitric vapours should be considered as a reflex action caused by the inhaled vapours setting up an irritation of the very highly sensitive motor nerve endings in the respiratory region. The convulsions effect the heart, lungs, and diaphragm—the vital organs, in short—and ultimately death follows. The effect obtained by E. Weiskopf, when chloroform is taken internally, follows from its well-known property of preventing or diminishing such a convulsive condition as is brought about by any means of stimulating a tetanising reflex action. According to the new edition of the Pharmacopœia Germanica III., the maximum single dose of chloroform (kept carefully from the action of light) is 0.5 gramme, and the maximum daily dose is 1.5 gramme. Special weighings show that the weight of three drops of chloroform is 0.045 gramme, and of five drops is 0.073 gramme, so that, following the Pharmacopœia, 33 doses of three drops or 18 doses of five drops may be administered in one day without danger to the workman. To prevent misuse or overdose of chloroform the following procedure is recommended: In every acid factory there are to be kept under a glass bell jar three dropping vessels of dark glass, each containing 0.5 gramme chloroform. In the event of an accident, therefore, neither the maximum single dose nor the maximum daily dose should be exceeded. The authorities of the Troisdorf Powder Factory have issued the following factory notice to their workmen: After inhaling nitrous gases, a man may feel perfectly well, though afterwards convulsions that may prove fatal are liable to follow. The following regulations are, therefore, made to prevent accidents; officials and workmen are directed to follow them implicitly. In the event of such an accident as the breaking of a bottle of nitric acid, should any one inhale the nitrous vapours, the foreman or person officially in charge shall make it his duty to administer to the person so attacked doses every ten minutes of three to five drops of chloroform, delivered from a dropping glass into a tumbler with water, since this drink has proved a valuable antidote. For this special purpose there are kept in the house under a bell jar a tumbler and three dropping glasses made of dark-coloured glass, each dropping glass containing 0.5 gramme chloroform. According to the Pharmacopœia (Germanica), the maximum single dose of chloroform is only 0.5 gramme, or the contents of one dropping glass; the maximum daily dose is 1.5 gramme, or the contents of three dropping glasses. Three drops of chloroform weigh 0.045 gramme, five drops weigh 0.073 gramme. It should be noted

that each dropping glass has a seal which must be broken before the chloroform is used."

Mounting Collotype Plates.

A design of moistening cylinder for collotype presses has been patented by Carl Wagner and F. Strange, of Berlin (Eng. Pat. No. 26,105, 1904), who advance it as extremely compact, and thus applicable to existing machines, to permit of printing equally large formes as previously. The arrangement consists of several cylinders near the printing cylinder seated in side bearing blocks formed correspondingly to the roundness of the printing cylinder, and so that they can be raised therefrom, the moisture being conveyed from the flannel or felt-covered cylinder through the medium of two cylinders, by which it is uniformly distributed over the printing plate.

Etched Plates without a Screen.

A German patent has been granted to E. Spitzer, of Munich, for a process in which the half-tone or grain screen is dispensed with in preparing an etched plate. A print is taken direct, from an ordinary half-tone negative or transparency on to a grainless sensitive printing plate, and this print exposed to the etching medium without the film being burnt in. Asphalt powder is then dusted on and melted in, the print thereby becoming more or less permeated by the etching fluid. It is thus etched not only in the unexposed but also in the exposed portions. Fine etching is applied in the process, the above description of which obviously needs supplementing with more detailed explanation of how a sufficient etched printing surface is obtained.

A Chemical Graining Process.

According to the process of Herr P. Glaser, of Leipzig, by whom a patent has been taken out, any surface to be grained is exposed to the vapours of substances which will unite with a substratum on the surface to form a grain. For example, a silvered glass or metal plate is exposed to iodine vapours, the silver being converted into silver iodide, which is sensitive to light, and is subsequently exposed under a negative or positive transparency. It is then exposed to mercury vapour, fixed, and, if necessary, gilded. The grain can be easily etched into glass with hydrofluoric acid.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for patents were made between August 8-12, 1905:—

COLOUR PHOTOGRAPHY.—No. 16,104. "Improvements in colour photography." William Norman Lascelles Davidson, 20, Middle Street, Brighton.

DEVELOPING DISH.—No. 16,111. "An improved form of dish or tray for developing photographic images on rigid supports." Joseph Hutchinson, 119, Turner Lane, Ashton-under-Lyne, Lancs.

SENSITISING DYES.—No. 16,227. "Manufacture of blue colouring matters of the quinoline group and photographic surfaces sensitised therewith." Oliver Imray, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London. (Farbwerke vormals Meister, Lucius und Brüning, Germany.)

CHANGING BOX.—No. 16,390. "Improvements in photographic changing boxes." Arthur Richard Kellaway Jeffery, 37, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

INSTANTANEOUS SHUTTERS.—No. 20,327, 1904. This is an improvement on the well-known roller blind instantaneous shutters, by means of which all the operative parts are enclosed in the shutter

box, and mounted upon the sides of the same. The Thornton Pickard Manufacturing Company, Limited, Altrincham, Chester; George Arthur Pickard and Frank Slinger.

PNEUMATIC BALLS.—No. 20,330, 1904. This is an appliance for application to the pneumatic ball of photographic shutters, constructed with two plate levers or the like pivoted or flexibly connected together, by means of which pressure may be applied to the ball; the idea is to ensure more even and regular results, and to obviate the difference in the amount of compression, causing a different amount of air to be expelled when used by different operators; thus ensuring more regularity in the duration of exposure when an adjustable air escape valve is employed. The Thornton Pickard Manufacturing Company, Limited, of Altrincham, Chester, and George Arthur Pickard.

PHOTO-PRINTING APPARATUS.—No. 20,386, 1904. This invention relates to improvements in photo-printing apparatus of the kind described in the Specification to Letters Patent dated October 21, 1902, No. 22,941, wherein the tracing or other transparency constituting the "negative," backed by a sheet of sensitive paper and a covering apron, is conducted round the surface of a glass plate of cylindrical form, in the focal axis of which works an electric lamp or other suitable light-yielding appliance. The primary objects of the present invention are to provide mechanical means, first, for driving the feed-rollers which actuate the covering apron and work the negative and the sensitive paper over the surface of the glass plate or printing table; and, secondly, for automatically lowering and raising the electric lamp during the printing operation, the means for accomplishing the latter object being also applicable to photo-printing apparatus of the ordinary type in which the negative, the sensitive paper, and the covering paper are stationary. Leonard Shaw, 39, Victoria Street, Westminster.

New Materials.

Ensignol. A new developer, sold by Houghtons Limited, 88 and 89, High Holborn, W.C.

The claims made for this new developer are that it is vigorous, clean, and economical. In these respects we find it very similar in action to Amidol, which it resembles somewhat in appearance. Normally exposed plates, or films, are fully developed in two or three minutes, the time of first appearance being very short. With bromide and gaslight papers very fine black tones are obtainable, and the simplicity with which the developer can be made up for use is in its favour. The normal developer is made up by dissolving 2½ oz. of crystallised sulphite of soda in 30 oz. of water, and then adding ¼ oz. of "Ensignol." This solution can be used repeatedly, and does not discolour even after prolonged exposure to the air.

The negatives obtained are of a clean bright character and a good black and white quick-printing quality. For bromide papers it will be found advantageous to dilute the developer with an equal bulk of water and to add a few drops of potassium bromide, 10 per cent. solution, otherwise the action is very rapid, and cannot be kept under control. We can recommend this developer as being at once economical and reliable.

"Platinochrom," a "Self-Developing" Platinum Paper. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

The novelty of this paper lies in the fact that although treated in exactly the same way as ordinary platinum paper up to the completion of printing, it does not require to be developed in the

usual manner in an oxalate solution. The prints, after being taken from the printing frame, are placed on one side in a damp atmosphere, and development takes place automatically without further attention. If it is desired to hasten matters, the prints can be held over the steam from a kettle of boiling water, when they will promptly develop out to full density. Even breathing on the prints will effect development, and in this way, by directing the breath through a short tube, some excellent vignetting effects can be obtained, or local development can be resorted to. The prints are fixed by washing in a weak solution of common salt (10 per cent.) or in water to which a few drops of hydrochloric acid have been added. Fixing is complete when all yellowness has disappeared from the paper, and a final rinse completes the process. If a packet of the paper has been open for some time, and the paper has taken up moisture from the air before being put in the printing frame, and it will then print right out. Sepia, red chalk, blue and green tones can also be obtained by employing the toning baths recommended by the makers. The new platinum paper should be very popular in view of its extreme ease and simplicity of working. It is not expensive.

Haystack P.O.P. Made by the E. F. Stack Manufacturing Company, Leyton, Essex.

We have received samples of this latest claimant for notice among P.O.P. users, and find on trial that it possesses characteristics that point to its usefulness during the darkening days of the forthcoming autumn. We refer to its quick printing qualities, and equally rapid ease of toning. The emulsion is rich in silver, and the paper appears to be carefully prepared and very evenly coated. Double toning with any of the usual sulphocyanide toning baths is conspicuous by its absence. Good tones are given by a combined bath, recommended by the makers, but this we do not advocate on the score of permanency. With a concentrated phosphate and borax bath brush-toning can be carried out with effect, and the resultant tones are very even. A noteworthy feature of the paper, as sent out by the makers, is the careful method of packing, every care being taken to keep the sheets from exposure to the air. The paper is supplied in the usual cut sizes, and is somewhat cheaper than the other makes on the market. Samples will be sent on application enclosing a stamp for postage. We understand that the makers are presenting handsome little gold and enamel brooches to the collectors of certain numbers of the coupons enclosed with each packet of the paper.

CATALOGUES AND TRADE NOTICES.

RECEIVED.—From Houghtons, Ltd., 88 and 89, High Holborn, W.C., "The Cherrill Printing Frame for Pictorial Photographers." From Messrs. Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C., "The Agfa Chromo Plate." Reports dealing with these novelties will appear in an early issue.

FOR Observing the Eclipse.—From Messrs. R. and J. Beck, Ltd., of 68, Cornhill, we have received a useful little dark glass screen for the purpose of viewing the sun during the eclipse on August 30. It is well and conveniently made for holding close to the eyes, and the sun, when seen through it, appears of a dull golden colour. The price of the screen is 1s., or post free 1s. 3d. It is a useful little piece of apparatus to have for solar observations at any time.

SOME attractive little circulars have been issued by Messrs. J. J. Griffin and Sons, of 20-26, Sardinia Street, Lincoln's Inn Fields, W.C., dealing with their well-known "Professional P.O.P." Hints as to the manipulation of the paper and other useful information and instruction are included in the leaflet, copies of which will be distributed to any of our readers on application.

A **TRADE** price list of photographic work has been issued by Percy J. Slater, of Sawtry, Peterborough. Prices for printing, toning,

mounting, copying, and enlargements are given, while developing, intensifying, and reducing, and making postcards from customers' negatives are also undertaken. Mr. Slater's prices compare very favourably with those of any in the trade.

"THE WELLINGTON" price list deals with the latest products of the famous Elstree firm, and contains particulars and prices of all grades of Wellington papers, plates, and films. Every photographer should write for a copy.

THE name of the Photochrom Company, Ltd., of Hosier Lane, Snow Hill, E.C., is associated with their photochrom work to such an extent that the fact is very often overlooked that they have every facility for the production of high-class half-tone blocks and three-colour work. The firm is making a special feature of their process department at the present time, and are securing excellent results. A postcard will bring full particulars.

Commercial & Legal Intelligence

PHOTOLINOL, LIMITED (LONDON).—Re-issue on July 20 of £200 debentures, part of a series created March 20, 1905, to secure £3,000, charged on the company's undertaking and property, present and future. No trustees. Total amount previously issued of same series, £1,700.

THE BURGLARY AT HOUGHTONS.—Walter Edward Sochon, a well-dressed youth of 19, who was said to have only just got married, and resident at Albion Road, Dalston, was charged at North London Police-court on Thursday of last week with breaking into a warehouse at Tudor Road, Hackney, and stealing 14 photographic cameras, worth £48, the property of Messrs. Houghtons, Limited, of Tudor Road, Hackney.—One of the principals of the firm identified a camera produced by Detective-inspector Smith, and said it was worth £7; but the prisoner was detected offering it for sale for 25s.—Herbert Holmes, manager at the works, said he secured the premises at 8.30 on Tuesday, and found that a forcible entry had been made when he went to business next morning.—Mr. Ernest Hinks, of Goodmayes, near Romford, said he dealt in cycles and photographic apparatus. On Wednesday the prisoner called on him and asked him to buy the camera now in Court. Seeing at once that the camera was worth a good deal more than the 25s. asked, he detained the prisoner in conversation whilst he sent for a policeman. The prisoner said at first that he got the camera in exchange for a bicycle, but afterwards said he had it given him.—Mr. Cowper, who defended, said his client had an answer to the charge. The police opposed bail, as the prisoner had several pawntickets in his possession.—The prisoner was remanded.

SARONY AND CO., LIMITED (Photographers, Scarborough).—Issue on July 31 of £150 debentures, part of a series created May 5, 1905, to secure £4,000, charged on the company's undertaking and property, present and future, including uncalled capital and premises in Scarborough and Harrogate. Trustee: J. Pirie, Scarborough. Total amount previously issued of same series, £3,150.

PHOTO DEVELOPMENT SYNDICATE, LIMITED (Tanbridge Wells).—Issue on July 27 of £80 debentures, part of a series created July 15, 1905, to secure £500, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £420.

AN Administration Order.—At the Bournemouth County Court, Percy Reginald Street, photographer, of 21, Charminster Road, applied for an administration order. Applicant's debts amounted

to £26, which he proposed to pay in full. Debtor had filed an affidavit to the effect that his average takings were 2 gs. a week, and his expenses, including rent, 18s., leaving 24s. to keep himself, his wife, and his two children. The debtor stated that the furniture in the house belonged to his brother, and his photographic apparatus to his mother, who had given it him, but had afterwards bought it from him. The Judge made an order for the payment of the debts by instalments of £1 a month.

No Fraud.—At the Skipton Town Hall, on Monday, Henry Stephenson, described as a canvasser, of Keighley, was charged with obtaining 11s. by means of false pretences from Mrs. Alice Chew, Sandylands, Cross Hills. The prosecutor was William Knowles, photographer, Keighley, who was represented by Mr. C. P. Cass, of Keighley. The evidence showed that the defendant had been in the prosecutor's employ as canvasser from July 14 to July 29 last, and received a salary and commission on orders. Prior to leaving Knowles's employ on the 29th ult., the defendant had obtained an order from Mrs. Chew, and the prosecutor received 2s. 6d. by way of deposit. On writing to Mrs. Chew and inquiring her convenience as to a sitting, the prosecutor ascertained that the defendant had called upon her and obtained 11s. The evidence of Mrs. Chew went to show that on the previous Wednesday the defendant called upon her, and, ascertaining that she had not sat for her photograph, assured her that it would not be necessary to go to Keighley for the purpose—he would take it for her at her own house. He brought a photographer with him, and the photograph was taken. The witness asked the defendant if he was then in the employ of Mr. Knowles, and to this he replied: "I am the man who took the order, and it doesn't matter so long as I carry the order out." After the photograph had been taken, the defendant asked for the money, and the witness, knowing from his answer that he was not at that time in Mr. Knowles's employ, paid him. The Court found that there was no false pretence inasmuch as Mrs. Chew knew that the defendant was not then in Mr. Knowles's employ. Stephenson was at once discharged.

EASTMAN KODAK COMPANY OF NEW JERSEY.—The usual quarterly dividends of 1½ per cent. (being at the rate of 6 per cent. per annum) upon the outstanding Preferred stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the Outstanding Common stock, have been declared by the Eastman Kodak Company of New Jersey, payable on October 2, 1905, to stockholders of record at the close of business on August 31, 1905.

ADVERTISING DESIGNS.—Messrs. W. H. Smith and Son have organised a special department for the production of original ideas and suggestions for designs appropriate for posters, catalogues, book covers, pamphlets, and the like. They are now holding a little exhibition in their new premises in Amberley House, Norfolk Street, Strand, of designs for posters, catalogue-covers, and other advertisement matter by several well-known artists, like Mr. John Hassall, Mr. Cecil Aldin, Mr. Lawson Wood, Mr. Lewis Baumer, Mr. Charles Dixon, M. Popini, Mr. Fred Taylor, Mr. S. E. Scott, Mr. Chas. Pears, and others. The department, which is under the control of Mr. H. E. Morgan, aims at being of real service to the man of business by telling what he wants and then supplying it; but such work as is now on view will also be of service to the public in giving them advertisements which can be looked at with pleasure. The reproductions in two-colour and three-colour and half-tone are good; in one case which came under our notice the print is even an improvement on the original drawing; and the firm has succeeded in producing one of the largest three-colour blocks ever made. It measures 20 in. by 30 in.

News and Notes.

THE South London Photographic Society are holding a conversation at Collyer Hall, High Street, Peckham, on September 4, at eight p.m., to inaugurate the new session, to which they invite anyone interested in photography. There will be music and singing, two or three lantern shows, and a number of selected pictures will be on view. Intending visitors will please write to the secretary, H. Breighton Beckett, 44, Edith Road, Peckham, when he will be pleased to send an invitation card.

THE "Kokka."—Among the many wonders of Japan not the least is the "Kokka," a monthly magazine dealing with the fine and applied arts of the Far East. Without going further in comparisons, which might seem invidious, observes the "Daily Telegraph," it may safely be said that no periodical to which the science and taste of Western civilisation have been devoted has been able to produce coloured plates or collotypes of a higher level of excellence and beauty than those which appear in the "Kokka." Nor is it by any means a novelty, for it has now been running for seventeen years. It had not been in existence long before it came to the notice of Western connoisseurs, and four years ago the experiment was tried of printing a portion of the letterpress in English. In consequence of the growth of the circulation among foreign subscribers, it has now been decided to issue a special edition, entirely written in the most widespread of the Occidental languages. The change was made in July, and the copies of the new "Kokka" for that month have now reached this country. An interesting preface declares that one of the chief objects of the English edition is to make Western nations as well acquainted with the power of Japan's arts as they already are with that of her arms. The price of the magazine is two yen a number, and the agent for its sale in Great Britain is Mr. Quarritich. It can also be obtained from the "Kokka" Company, No. 10, Yazaemon-cho, Kyobashi-Ku, Tokyo.

MESSRS. HOUGHTONS' Camera Works at Hackney were burglariously entered on the night of August 14, and a number of cameras were stolen. These included six of the more expensive models of the "Klito" camera, three Tudor cameras fitted with high-class lenses, a half-plate mahogany hand camera, and three Sanderson cameras. As all the Sandersons are numbered on the struts carrying the lens front, it is quite possible that some of our readers may be able to detect these cameras if they are offered for sale. We append the following particulars which Messrs. Houghtons have supplied:—1. Quarter-plate regular Sanderson hand camera No. 7,502, fitted with a Goerz lens; No. 1,457 on the mount. 1. Junior Sanderson hand camera quarter-plate No. 10,424, fitted with an Aldis lens; No. 1,043 in unicum shutter. 1. Quarter-plate regular Sanderson hand camera No. 10,722, fitted with a B. and L. lens in unicum shutter. If any of our readers come across one of the cameras mentioned above, we should be very glad if they would communicate with Messrs. Houghtons, Limited, 88 and 89, High Holborn, London, W.C. Some of the stolen apparatus has already been recovered, as will be seen by reference to our Legal and Commercial column.

WITH reference to our remarks in "Ex Cathedra" last week as to the risk of sending negatives by post, Houghtons, Ltd., call our attention to their Holborn negative posting box, which was reviewed by us some time back, and which we have found very efficacious and safe in use.

THE meeting for the official winding-up of the Camera Club was held on Monday last, when it was stated that over 200 members had signified their willingness to join the Blenheim Club; but the number

was still 30 short of that required to induce the Blenheim to undertake the building of the studio. Valedictory and regretful speeches were the rule, and there seemed to be a fairly general opinion that the arrangement would not be permanent, the most pessimistic giving it merely a twelvemonths' run. In response to numerous inquiries, it was stated that members desiring to acquire any of the club's property might privately approach the auctioneer; but that all members would receive an official communication as to the date of the auction.

IN an excellent article on "How I Photograph Lightning," which appears in the current issue of the "London Magazine," Mr. James Leadbetter gives the following practical hints on the same. Anyone wishing to take up this branch of the work will require a large space for his operations, from which he will be able to obtain a clear view of the heavens around him. As to the camera required, any ordinary camera will do, and the size is of no importance; stop used with the ordinary rectilinear lens, $f/11$; and use ordinary plates—backed for preference. Some prefer films, so as to avoid halation. A wide-angle lens is perhaps better, because you are more likely to get the whole of the flash, or, if two or three flashes appear together, to get them all. It is always better to hold the camera in the hand; but, in any case, it must be kept well covered to protect it from the rain, which will, of course, damage the lens. For focussing, the best method is to focus the camera on any object a mile away in the daytime, which is much less trouble than at night; and when you have done this accurately, mark the camera in such a way as to be able without difficulty to bring it into the same position. It is very important that the focussing should be sharp, otherwise, however lucky you may be in catching the flashes, your plates when they are developed will show that you have achieved nothing. As stated above, it is likewise essential that one should, if one wishes to be economical with plates, judge as nearly as possible the spot at which the flash is due to appear by observing the direction in which the storm is travelling. This may require a little practice and a good deal of patience at first when one finds that one has exposed the plate just too soon or too late, or a little too much on one side, to catch the flash. But in this experience is the best master; and the gratification of at least getting one flash squarely on the plate will well repay one for the time and plates wasted, to say nothing of being in all probability drenched to the skin.

Some time will probably elapse before one will be able to secure a picture of a flash at all; but with perseverance and coolness anyone should have a better showing than that of four gentlemen who, to the author's knowledge, expended six dozen plates one night, with lightning playing all around them like fireworks at the Crystal Palace, but in the morning there was not a single trace of lightning on any one of their plates. It is always as well to know the distance the storm is away, which will assist the photographer in judging the direction it is taking, and the speed at which it is travelling. If one second intervenes between the flash and the beginning of the thunder, the nearest part of the shining track is just 1,180 ft. If five seconds intervene, it is 5,900 ft., or a little more than a mile away. As a rough estimate, every five seconds of interval between the lightning and the thunder may be taken to represent a mile of distance.

THE Société Française de Photographie has shifted to fresh quarters at 51, Rue de Clichy, Paris, to which all communications should now be addressed.

PHOTOGRAPHIC Studio Burned.—About ten p.m. on Thursday last the studio of Mr. W. D. Hunter, photographer, of Denny, was discovered to be on fire, and, notwithstanding that the Fire Brigade was early on the ground, the premises and contents were entirely destroyed.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
26.....	Glasgow Southern Photo. Assn.	Outing to Pollok Estate.
26.....	Manchester Amat. Photo. Soc.	Trip to Holford Hall.
26.....	Bowes Pk. and Dia. Ph. Soc.	Outing to Whipp's Cross.
26.....	North Middlesex Photo. Soc.	Outing to Wimbledon Common.
28.....	Southport Photo Society.	Trip to Ambleside and Rydal.
31.....	Southampton Camera Club.	Print Competition.

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

ORTHOCHROMATIC RATIOS OF PLATES.

To the Editors.

Gentlemen,—I would like, if I may do so, to offer a few remarks upon Mr. R. S. Potter's letters. His criticism of the method of testing orthochromatic plates used by Mr. Kenneth Mees appears essentially to consist in pointing out that, while in this test the constituents of white light are divided into two groups, and the actual speeds to these found by a refined H. and D. test, he thinks the speeds should be ascertained to lights of equal luminous intensity,* instead of using them in the proportions in which they occur in white light.

If perfect orthochromatic rendering is to be aimed at the criticism is good, but if Mr. Porter knows anything of commercial orthochromatic plates, he must know that this is rather out of the question with almost all of them. Their chief use lies in landscape work in conjunction with a yellow filter of the type Mr. Mees uses in his test; and, therefore, I think that, considering the present qualities of plates upon the market, the tests published are those most likely to be of service to readers of the *BRITISH JOURNAL*.

Mr. Porter's own remarks do not appear to be above criticism. In last week's *JOURNAL* he starts by stating that for a plate that will render any subject correctly, irrespective of its compound colours, the ratio of the blue sensitiveness to the yellow sensitiveness is unity. But he neglects to tell us why he makes this assumption, and also what he means by yellow sensitiveness in this case.

There is, I have reason to believe, a great deal of misunderstanding of this term yellow sensitiveness. If one photographs through a yellow filter, such as Mr. Mees uses in his tests, then the photographic image, in nine cases out of ten, is not produced by the action of yellow, but of green light. For it must be remembered that the yellow light transmitted by the filter is compound, and contains but little pure light that is yellow, being chiefly made up of red light and green light, and of these the ordinary orthochromatic plate is not sensitive to red light.

It must follow from Mr. Porter's "ideally orthochromatic plate," which records all colours correctly according to their luminous intensities, that the yellow sensitiveness in this case is a sensitive-

* I use the term luminous intensity in preference to visual luminosity when speaking of the brightness of lights, because luminous intensity and visual intensity are coming to mean distinct things.

ness to all the components of the compound yellow. But suppose now, that the equality of (compound) yellow sensitiveness and blue sensitiveness were obtained with a plate of the common erythrosin type, it would mean that the blue sensitiveness would have to be about doubled to compensate for the absence of red sensitiveness. So that, although the ratio of blue to yellow sensitiveness would in both these cases be unity, the actions of the plates in photographing red or green colours would be very different.

The whole point is this, that if perfect orthochromatism is to be examined for, the speed tests must be made by red, green, and blue lights of equal luminous intensity, and not by compound colours such as yellow. It, therefore, becomes impossible to accept the preliminary definition laid down.

I would like to point out that, however useful Mr. Mees' tests may be as a guide to camera exposures, there are several purposes for which the knowledge given by an exposure to a spectrum is essential. Among such I may instance the selection of plates and adjustment of filters for three-colour work, the adjustment of certain types of orthochromatic filters and determination of the nature of the colour sensitiveness of plates.

There is only one point of criticism which I should like to advance upon Mr. Kenneth Mees' excellent tests, and that is that he, I believe, makes no allowance for the general absorption of his filters. In all probability the blue filter absorbs more blue light than the yellow filter does of the various coloured lights which it transmits. The point is a small one, as perhaps the most useful figures for outdoor work are the speed tests of the unscreened plate and the plate under the yellow filter.—Yours faithfully,

A. J. BULL.

L.C.C. School of Photo-Engraving, 6, Bolt Court, E.C.,
August 15, 1905.

PORTRAITS IN COLOURS.

To the Editors.

Gentlemen,—Referring to your note in "Ex Cathedra" on portraiture in natural colours, I have thought it exceedingly peculiar that no one in England has up to the present done anything in this direction. I have followed very closely all matters relating to colour work, and cannot myself see any reason why portraiture in natural colours should not be an accomplished fact.

I am at present privately working a process that is entirely practical, and that can be worked in any well-lighted studio; it only requires to be introduced in a high-class studio to a wealthy clientèle to enable it to be carried on successfully.—Yours faithfully,

BERTRAM T. HEWSON.

Elham, Canterbury, August 21, 1905.

THE ACTION OF METOL AND ORTOL ON THE SKIN.

To the Editors.

Gentlemen,—I note in the Answers to Correspondents you advise the use of ortol instead of metol where the latter causes skin troubles. May I point out that ortol has also the same effect on the skin in some cases, as I can speak from personal experience, and also in the case of others; and this may perhaps be explained by the fact that I believe metol is a derivative of ortol, the latter being an antecedent of both metol and hydroquinone.

I am not only interested in this question from the practical point, but also professionally, and shall be very glad to have particulars of any skin troubles set up by the use of chemicals employed in photography, as I think mysterious skin eruptions in photographers are sometimes due to certain chemical substances of which our knowledge is limited.—Yours, etc.,

A. R. F. EVERSHED.

[Our correspondent is not quite correct in stating that metol is

derivation of ortol; metol was introduced as a developer about 1892, ortol not till 1897. The former is the sulphate of monomethyl-*ortho*-amido-phenol; ortol is a mixture of one molecule of hydroquinone and two molecules of sulphate of methyl *ortho*-amido-phenol. We shall be glad to hear if any of our readers have suffered in the manner to our correspondent. We may state that we know of no case in which metol acts as an intense irritant, whilst ortol can be used with impunity.—Eds., B.J.P.]

CALCULATING ENLARGING EXPOSURES.

To the Editors.

Gentlemen,—The excellent article by Mr. Beck on this subject in our issues of August 11 and 18 is full of practical information of a thoroughly sound character.

It will be noted, however, that the necessary calculations have to be made by pen or pencil, six factors being considered. Now, when an actinometer is used for estimating an ordinary negative exposure, very few persons make the required calculation by pen or pencil, but the slide-rule provided with the instrument. If this is found convenient with a simple exposure problem involving only three factors, the convenience of the slide-rule method will be still more in evidence, when at least six factors have to be considered, as in an enlarging problem.

Our object in writing is to point out that the end desired by Mr. Beck—viz., to calculate the size of diaphragm to use to make the enlarging exposure equal to the actinometer exposure—can be attained by the scales both of our Standard meter and of the Bee meter without having to make a pen or pencil calculation at all. In the Standard instrument the six separate scales are provided, and it is only necessary to set actinometer and exposure to equal values (say, 1) plate, enlarging, and subject scales to their values, for the pointer D to indicate the right diaphragm to use, there being no need to consult any table of figures.

It will, perhaps be more generally useful to point out how the same result can be attained with the little Bee meter, especially as it has not previously been given in print.

The scales here provide only for the factors of plate, diaphragm, actinometer, and exposure, and two additional ones (subject value negative, and enlarging factor) have to be provided by consulting the table given in "Exposure Notes" and in our "Manual" as below:

Times focus from lens.	Enlarging diameters.	Thin Neg.	Medium Neg.	Dense Neg.
2	equal size	1	2	4
2½	1½	1½	3	6
3	2	2½	4½	9
3½	2½	3	6	12
4	3	4	8	16
5	4	6½	12½	25
6	5	9	18	36

The first two columns of the above table are alternate methods of expressing the enlarging factor, and only one of them is used. For instance, in Mr. Beck's second example the focus of the lens is 7 in., and distance from stop to easel is 28 in. This is four "times focus from lens," and if opposite the 4 in first column the figure under "dense neg." is noted it will be found to be 16, which means that the necessary exposure would be 16 times that worked out from the usual factors on a meter, or that a diaphragm of 16 times the area of the one indicated by the usual method must be used to make the enlarging exposure and actinometer exposure equal.

Now to explain how the scales of the Bee meter are to be used in conjunction with the above table to indicate diaphragm to use to make actinometer test and enlarging exposure identical:

Having noted the "times focus from lens" and the classification of the negative, note the resulting figure in the above table, which is 16 in the example quoted above. Look out this figure 16 on the plate scale of the meter (that is among the figures to the left, with dashes against them). Set *f*, 8 (as an indicating pointer) to this figure. Then against the plate speed number of the paper to be used will be found the required diaphragm to use—*f*/10 in above example with speed 22.

Mr. Beck's excellent general instructions can be followed. But as regards speed number of paper, it will be found that with so many factors for individual observation, no two users will find the same number correct, and whether taken from Mr. Beck's list or our own speed card, it may have to be very widely altered for each individual.—Yours truly,

WATKINS METER CO.

Hereford, August 18, 1905.

AN ACETYLENE QUERY.

To the Editors.

Gentlemen,—Can you inform me the number required, size of burners (and make), and best arrangement of them, for acetylene gas apparatus for portraiture (only), to be used in umbrella-shaped reflector. I am fully conversant with method of gas production, etc., but for coming winter wish to get shorter exposures than I could manage through last winter. The enclosed photographs required about twenty seconds with 12½-ft. per hour burners. Dallmeyer 2 B lens, slightly stopped down. Perhaps some of our readers could give a few hints. Thanking you in anticipation.—Yours truly,

August 21, 1905.

GEO. E. ORGAN.

[The specimens enclosed are excellently lit examples of studio portraiture, and little or no movement is shown, considering the long exposure necessary. Possibly some of our readers who have employed acetylene as a source of illumination in the studio will be able to give our correspondent some advice.—Eds. B.J.P.]

STUDIO CONSTRUCTION.

To the Editors.

Gentlemen.—In your "Answers to Correspondents" in the issue of the B.J. dated August 18 (*re* studio query of "Member P.P.A."), I would earnestly advise this gentleman not to have the ridge of his studio roof central. If he does, he will find that with a sitter seated at 9 ft. from light side (or 9 to 10 ft.) the blinds will have to be drawn down nearly half-way, thus cutting out half the light.

Another point I would mention is that Robinson's system brings the light nearer to the head of sitter, thus making it more harsh.

As against the ordinary span-roof building, the glass, in a single slant, with a central ridge, would be quite 2 ft. 6 in. nearer sitter's head.

Another point is that with spring blinds and the ridge central, the blinds would be difficult to keep flat, they would be always bellying.

As his studio faces west, I would urge him to have the ridge 12 ft. high and only 2 ft. from light side. He can then seat his sitters 9 to 10 ft. from light side, and use the whole of his light; and, further, he will be free from the sun half the day. As he lowers the blinds his sitters can approach nearer the light for stronger effects. In fact, he would do well to do away with all top light, carrying the side light up to 14 ft. high. He would then have no difficulty with his blinds.

Did your correspondent find any cure for the sun troubles? I have myself tried various supposed remedies, but still, in the height of summer, get the sun in my negatives.—Yours faithfully,

SPAN ROOF.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- S. Hill & Son, 170, Bolton Street, Bury, Lancs. Four Photographs:—Hospital for Incurables, Robinson Kay Home. Interior of Art Gallery, Bury. Entrance Hall, Art Gallery, Bury. Lancashire Fusiliers' War Memorial, Bury.
- J. H. Cartwright, 171, Orford Lane, Warrington. Photograph (Combination), Postcard "Widnes" in large letters with Eight Local Views.
- D. J. Scott, The Camden Studio, Theatre Buildings, Cambridge. Two Photographs of the Retiring Bishop of Ely, Lord Alington Compton.
- J. A. Stelling, "Modena," 60, Peckham Road, S.E. Photograph of the Rev. J. L. Campbell, D.D.
- F. Watson, Cheltenham Road Studio, Bristol, N. Photograph of the Very Rev. Dean of Bristol, F. Pigeon.
- J. E. Reeves, 48 and 50, Hermit Road, Canning Town, London, E. Photograph of West Ham United Football Team, 1905-6.
- J. Smyth, 55, Penn Street, Adelphi Street, Salford, Manchester. Photograph of St. John's Cricket Team, Salford, with Seven Clergymen.

GLASS FOR STUDIO.—Would you kindly say if "Hartley's rolled 4th plate glass" is good for studio light, i.e.—if it passes more light or as much as ground glass? Above rolled 4th plate is strong, moderate in price, and prevents anyone looking in studio. I do not like ground glass—it diffuses light overmuch.—HELIO.

The rolled glass will do very well, and it is largely used for glazing studios. If you get the whitest kind you will find it does not obstruct much light. We have not, practically, compared the two glasses, but we should think there would not be a great difference between them.

MAKER OF LENS.—Can you inform me the maker's name of a portrait lens lettered as follows:—"Pacsa, 43, Charterhouse Square, E.C., No. 3 portrait"? The lens is so made that when used without a stop the slot can be racked under the outer tube.—SPAN-ROOF.

We cannot say the name of the actual maker of the lens. It is probably a French one supplied by a company that, a good many years ago, had premises in Charterhouse Square.

F. F. HOWARD.—The miniatures are usually covered with thin sheet celluloid, not gelatine. Simple apparatus for the purpose is supplied by Jonathan Fallowfield, Charing Cross Road, London, W.C.

OWNERSHIP OF BLOCKS.—Kindly favour me with your advice upon the following:—A year ago I supplied to a firm a number of small hand-books containing views of their works, etc., etc., and to prepare these had a quantity of half-tone blocks made. They are now writing me demanding these blocks, and stating that unless sent at once proceedings will be taken. As in my quotation no mention of supplying blocks was made, I am not prepared to let them have them. I would like to know whether

they have any claim whatever to these blocks? I contend that they have no more right to blocks than they would have negatives taken for them to supply prints from.—NOEL.

It seems to us that the customer has no more right to the blocks than to the negatives, unless a special charge was made for them, which does not appear to be the case. We must say, however, that we cannot call to mind any case in which the ownership of blocks has been raised in a court of law. You are a member of the Professional Photographers' Association; you should communicate with the secretary; he may be able to answer you more authoritatively than we can.

THREATENED PROCEEDINGS.—My assistant called for an account of the house of a troublesome customer, at a time, which he understood, appointed by that customer; but, not having any answer to repeated knocks, he left a card (similar to enclosed) slipped in a crack in the porch. The customer threatens to take proceedings for exposure. Can this be done?—F. COLEY-SMITH.

This is simply a case of "bluff." The customer has no cause of action if the facts be as stated. If the man does not pay, take proceedings in the County Court.

D. P. A. E.—You do not state what toning bath you used, but we should certainly say that you somehow introduced traces of hypo into it.

E. H. LORD.—Your print was registered by us on January 2, 1903, and was sent us from Blackpool, so that there is no need for any search. We should think your claim is reasonable, but you might demand delivery of negative and a prints. In case of no notice being taken of your letter, you would have to employ a solicitor to fight the case; the "copyright law" will not take any action. If you were to join the Copyright Union, 23, Soho Square, W., or the Professional Photographers' Association, 51, Baker Street, W., they would take up all such cases for you, and in both cases the annual subscription is small.

EXPERIMENTER, GLASGOW.—Your idea, if practicable, would certainly be a boon, but the great difficulty with this process has always been, not want of register, but the difficulty of printing all three colours within a reasonable time and then insuring absolutely equal distribution of the ink over a long pull. As a matter of fact, this difficulty has practically knocked the process out, as it was found possible to obtain not more than about 25 per cent. of the pulls with equal distribution of each and all colours, therefore, although the cost is in the first place proportionately low, the rejection of at least 75 per cent. raised it to a prohibitive limit.

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EX CATHEDRA.

Another Poisoning Case by Bichromate of Potash.

Bichromate of potash has of late been getting itself into notoriety as a poison. A few weeks back we mentioned a case in which this salt was used by a suicide to put an end to her existence.

Last week an inquest was held at the East London Coroner's Court on the body of another unfortunate woman who had poisoned herself with the bichromate. It was not stated in the evidence what was the quantity of the salt the woman had probably swallowed; but it was presumably large, as the solution was taken from the stock of her husband, who is a French polisher by trade, and uses the bichromate for darkening wood, for which purpose a tolerably strong solution is generally employed. This is only the second case we can call to mind of bichromate of potash being used by suicides. In the first case, which we commented upon in our issue of July 28th, the doctor, called in, is reported to have said that one-fifth of a grain of the salt was enough to have killed the woman. As we said then, we doubted very much whether this was correct. Those who have much to do with the bichromate and crush it in a mortar must frequently swallow more than one-fifth of a grain in the shape of dust, and they must often inhale much more than that through the nostrils.

It is curious that in two cases out of the three recent fatal ones occurred in connection with the use of the salt in French polishing. In the first one the solution was drunk in mistake for beer.

While upon the subject, we may mention that in pulverising bichromate of potash the finer particles become disseminated through the atmosphere, and when inhaled produce an irritation of the mucous membrane, sometimes causing a violent sneezing. The best way of avoiding this nuisance is to sprinkle just a few drops of water on the crystals before commencing the pulverisation. It has been said that bichromate of potash used to be employed as an adulterant of snuff, to give it greater pungency. Be that as it may, it is a great irritant of the mucous membrane.

* * *

A New Direct Carbon Process.

The carbon process is, undoubtedly, far more extensively employed at the present time than it ever has been since its introduction, now some forty years ago. Its great drawback is, and always has been, the transfer operations. The procedure is certainly troublesome as compared with some modern printing methods; but still the results to be obtained, and the variety of colours available, are not surpassed by any other printing process, and, what is more, the prints made by it are without question the most permanent of all photographs. At the recent Photographic Congress at Darmstadt, reported last week, a demonstra-

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

PRELIMINARY ANNOUNCEMENT.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may occur to our readers as susceptible of improvement.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable new features of an informative nature will be added.

**** IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1st, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

tion was given of a new carbon process that does not involve any transfer, it being a direct printing process. Paper is first coated with plain gelatine, which, we assume, is of a somewhat insoluble nature, inasmuch as a second and thin film containing the pigment is applied. The paper is sensitised in a dilute solution of bichromate of potash. The development of the picture, after printing, is somewhat similar to the development of the Artigue paper, except that in place of the "sawdust soup" a fine spray of water is employed. Of course, with this the operator has great scope for local treatment and the production of varied effects. When finished, that is, after the alum bath, the prints are put into a water varnish, but for what reason we are not aware, as the pictures are said to have a matt surface, and not the rich appearance of ordinary transfer carbon ones. If this new process is capable of yielding results equal to the ordinary carbon process for general every-day work, there should be a great future before it, for there is no question that, if it were not for the transfer operations, carbon would be the most popular printing process of the day.

* * *

Photographic Portraits and Testimonials.

At the present time, as readers of "popular" journalism can see, the proprietors of quack medicines and other nostrums utilise photography largely in their advertisements. No doubt they consider that the portraits of beneficiaries from their preparations add materially to the value of the advertisement. Hence we see portraits of chubby children said to have been brought up upon Blank's food; of ladies with a profusion of hair, alleged to have been produced by a certain hair restorer or wash; portraits of persons in robust health, stated to have been brought about by taking some or other of the meat extracts, or perhaps some celebrated pill. There is, we think, little question that this kind of advertisement has weight with a certain section of the public, and in some cases also brings grist to the mill of the photographers who take the portraits. In some cases, we are informed, when a testimonial is sent the sender is asked for a portrait, with the intimation that the sitter's photographer will be paid for taking it, and a dozen platinotype copies presented to the sitter. The photographer often gets orders for enlargements from the negatives, or, sometimes, the negative itself is purchased for a good price by the advertisers. Special prints also are frequently wanted for process blocks. One photographer whom we know was told by the representative of a firm utilising photography in this way that, if he knew any one who would write a testimonial after trying the preparation, the firm would pay him, the photographer, for a dozen platinotype portraits for the writer. We understand this is the usual custom with those who embellish their advertisements with portraits.

* * *

Colour Photography for the Shop Window.

"There is always somebody looking in —'s window," was a remark we heard made of a photographer's establishment in a Midland town the other day, and we were not surprised to find that in addition to a few fine specimens of portrait photography, there were several good photographs of local happenings. An opportunity for turning to advantage the public interest in colour photography offers itself just now, and may well be seized by those who are looking for something to draw attention to their window. A finished and framed three-colour print, produced by the triple-pigment process, is offered by the Rotary Photographic Co. at a moderate figure, as a means of demonstrating to photographers the results obtainable by their stripping-film process of photography in natural colours. Given a central position in the window, and

supplemented by an explanatory ticket stating that it represents a process which is now before the public, such a specimen should make, for the time being, the exhibitor's establishment notable above those of his competitors.

* * *

Autumn Exposures.

With the close of August the summer of 1905 may be said to have terminated. Photographers, especially amateurs and others whose exposures have been mostly made out of doors, cannot have much cause for grumbling at the proportion of sunny days vouchsafed us during the past three months, and although we may yet, before winter sets in, have several periods of bright sunshine and even extremely hot days it will be noticed that the actinic value of the light will now begin to appreciably decrease. This will be observable more particularly before 9 a.m. and after 3 p.m., when the power of the light drops off in a remarkable degree. In the studio, daylight exposures that were possible at 6 p.m. a month ago are now becoming a matter of difficulty, and will soon be entirely impossible. This shortening of the photographer's working day during the autumn months is always a serious consideration with the man who has not an artificial light installation, and who is therefore forced to crowd the whole of his day's sittings into a much shorter time than during the summer, and it behoves the busy professional to look ahead, and bear in mind this daily curtailment of his working light when booking appointments.

* * *

A Film Patent.

A series of French patents taken out by the Verein Glanzstoff-Fabriken Act. Ges. includes the manufacture of a tough and transparent film from cellulose through the agency of the well-known ammoniacal copper solution. It is difficult to think that the process as described will produce a film of colourlessness and transparency sufficient for photographic purposes, but we give it as we find it:—Solutions of cellulose in ammoniacal copper solution are forced through small orifices into solution of sodium or potassium carbonate, and the product, which is thus coagulated, washed and dried under tension. It is immersed for about fifteen minutes in a strong solution of sodium carbonate containing 2 to 6 per cent. of ammonia, by which treatment, it is stated, a material of considerable elasticity, tenacity, and transparency is produced. It is freed from the whole or part of the copper it contains, and finally dried under tension. It is not pointed out in what respect elasticity in a film is a qualification for its use as the base of a photographic emulsion, and we do not anticipate in the process the key to the manufacture of the perfect transparent, flexible, but rigid support.

* * *

A German Professional.

We congratulate our handsome contemporary, the "Photo Era," of Boston, U.S.A., on the prominence given in its August number to the work of Herr Rudolf Dührkoop, professional photographer, of Hamburg. Few representatives of the craft in Germany could produce ten photographs as different in treatment as those reproduced in our contemporary. It has been our pleasure to have seen a good deal of Herr Dührkoop's work during the last few years, and we have marvelled at the great versatility of its producer. He has no formula for lighting, no trick of the studio by which to turn out portraits as by machine. He is not a photographer of men or of women only, but shows a refined strength in the choice of treatment for sitters of varied types. A number of his portraits are made in direct sunshine, and others in the homes of his clients. Herr Dührkoop, with one or two more of his countrymen, such as Perschied, Müller, and Raupp, sets a standard in Ger-

many which the rank and file of the profession in that country do not appear to value sufficiently. Certainly, if we may judge from the work of the average German studio as we have seen it, there does not seem any disposition to emulate the example of these leaders.

Plate Packing.

A word of commendation of British articles of manufacture comes from Port Antonio, Jamaica, where the United States Commercial Agent reports that the photographic plates come chiefly from England. He attributes the satisfaction which users have found in the British manufactures to the greater care in packing as compared with plates from America. The English plates come enclosed in waterproof paper, and are well protected against the light and moisture of the West Indies. American plates are stated to have been unsuitably packed and to have been sold in a condition in which good negatives could not be obtained. When so much criticism is levelled against the allegedly conservative methods of British manufacturers in their dealings abroad, the British photographic factories may compliment themselves on having obtained and kept the business in plates and papers by a keen recognition of technical requirements.

SOME ASPECTS OF PHOTOGRAPHIC COPYRIGHT.

The fact is sometimes dwelt upon by those professing themselves dissatisfied with the law as regards artistic copyright that photographic works are in all respects entitled to the same degree of protection as those of the draughtsman, painter or engraver. And this equality sometimes seems to be regarded as a sort of grievance by those who would have us relegate the photograph to a plane beneath that of the work of the graphic craftsmen, whose methods are wholly that of the trained hand. Whether photography is or is not a mean thing in comparison with the other graphic arts does not, however, in our estimation, bear upon this discussion of copyright law; or perhaps we ought to say that it cannot do so as long as the law grants copyright to the authors of works (drawings, etc., not photographs) which by no stretch of imagination can be brought within the class of works to which the term Art is commonly applied. The amateur and immature painter in water-colour may produce a sketch of some scene of nature or evolve something out of his own inner consciousness, and either may be artistically as bad as you like—under the Act he has the copyright in it. Therefore, until a distinction is drawn between what is art with a capital A and what is merely painting or drawing, good or bad, it is idle to talk of herding together drawings, works of art, paintings and the like as the sheep on the right hand to receive the blessings of copyright protection, and standing photography on the left as the goat to be delivered to the destroyers. We waive for the present occasion any claims which photography may have to be regarded as fine art, and to be capable of originating works which have individuality equal with that of the painter's; our argument is of a lower order, and while in the foregoing we have referred to a point of copyright law which takes away the force from the criticism which disputes photography's claim to copyright on the ground of its alleged artistic sterility, we would now proceed to mention other considerations which are perhaps not recognised as much as they should be in relation to the question of copyright.

An authenticated photograph is a certificate of fact. We say authenticated because of certain practices which we will refer to directly. But for the moment, without qualification, a photograph, as everybody knows, implies the existence of a material object or the occurrence of an actual incident. This character of a photograph, which is not

shared by the work of an artist in whatever medium, imparts a character to it which may in a large proportion of instances give it a very considerable value. In illustration the modern craving is for facts. That demand from the public is supplied in popular journalism of all kinds. If a photograph of a notable event is obtainable it is preferred to the work of an artist, for the reason that the public know enough about photography to understand that it certifies as well as illustrates the incident. Indeed, the public has probably an exaggerated idea of the accuracy of which the photographic record is capable, and of the trust which is to be reposed in it in regard to details. But the main issue is that the photographer must have been on the spot, while the artist in a studio on the Thames Embankment can give his fancy rein in anticipating the fall of Port Arthur or the disaster to Admiral Rojestvensky's fleet. This "certificate" character of the photograph, therefore, confers upon a photograph a value which may be out of all proportion to its technical excellence or to its qualities as a work of art, and the Copyright Act, defining copyright as it does as property, rightly safeguards the interests of the author, quite apart from the legitimacy of the work as Art. In thus granting copyright indiscriminately the Act places no definite value on copyright. The market of artistic wares fixes that, and in the end painter, black-and-white artist, and photographer obtain the reward of their labours as the state of the illustrative world determines. If a photograph is infringed, the Courts fix the penalty, but, in the natural order of things, are governed in their rulings by the custom of the trade. And so it comes about that in the case of a photographer who has the sole copyright in two photographs, one an ordinary view of the Law Courts, and the other one in which the principals of the current divorce scandal are seen leaving the gates, the former is practically valueless, because there are hundreds more like it, but the latter is a more or less valuable property from the fact of the parties represented. The second photograph, moreover, has cost the photographer very likely as much as half a day's preparation and lying in waiting. He has had to put himself in a position to recognise Lord A—, and has wasted an hour or two in getting his exposure. That form of labour represents a certain value in the copyright, and the money spent in creating a photograph by such means can often be assessed with fair approach to accuracy. In some cases this expenditure may amount to large sums. A photographer returns from parts of the world little explored with a series of negatives. His exposures represent capital laid out in the creation of copyrights, and nobody will surely take such an inequitable view as to argue that because there is nothing artistic in the prints that, therefore, they can be copied with impunity, or that they have not a value many times greater than that of the average subject which can be photographed by anybody with very little trouble and expense. Apparently French law grants copyright in photographs only to those photographers who have shown themselves capable of work possessing individuality, but we should be very interested in hearing how a French Court would view the rights in photographs which an explorer may bring home from his travels. If there is any market for such photographs they are at least worth what they cost, and we would insist again that their value is enhanced for modern illustration purposes by the fact that they are photographs, and from their very method of production obtain a value peculiarly their own.

In reverting to this latter point we may, in conclusion, briefly refer to a matter hinted at in a previous paragraph, and that is the existence of "faked" or bogus photographs. How can a photograph be any guarantee whatever of facts, when reproductions of photographs alleged to be taken of actual events have been shown to be frauds, or when actual

photographs have been shown to have been doctored to an extent unsuspected by the public? That query is partly legitimate, but it disregards the fact that the bogus or "faked" photograph is almost invariably the production of those who afterwards give it to the world through the printed page. It is easy enough to doctor a photograph of some event without the fraud being discoverable when the picture takes the form of an indirect photograph from a half-tone block. The production of a direct photographic print which does not bear on itself the marks of faking is a much

more difficult matter, and, as the business in photography is done through originals, the publication of the bogus photograph does not directly affect the question, except that such reprehensible practices do the most serious injury to the profession of photography for illustrative purposes in general by destroying public confidence in photography. The total effect, however, of the "faked" print is no great enough, in our judgment, to diminish appreciably the growing value of photographs as pieces of pictorial evidence.

VIGNETTES AND VIGNETTING.

II.

The Head and Shoulders.

"Place aux Dames."

I ONCE heard a man who knew no French translate "Place aux Dames" as "Please the Ladies." I treasured up the saying, and if ever a saying, an accidental and even stupid one, came in handy, it does so now. "Please the ladies!" The photographer has to do this or his occupation is gone, for although I will scarcely venture to assert that when a man enters the studio of painter or photographer there is necessarily a lady in the case, it does so happen in ninety-nine hundred and ninety-nine cases out of a hundred, as a South Kensington professor was wont to remark until pulled up by the smile of his students, that some lady is interested, may even be the arbiter of the photographer's success or otherwise. Of all ladies, the most difficult to please is the matron; I dare not say why, although I could. "The young person" is an awkward sitter, but easy to please; how her awkwardness is best got over is for the young and good-looking operator in the studio to say. Somehow or another he makes the printer's task an easy one. Mrs. Merdle, Dear Little Buttercup, and Tante Sannie (*vide* Olive Schreiner's "South African Farm") are a task which the printer has to deal with, and often suffer from.

Not a small matter either is the undoubted fact that one of the most important, if not the most important factor that the ladies' photographer has to deal with is the dress or costume, and the task is often further complicated by the hat or bonnet or something that goes by the name of "toque."

The Vignettes for Portraits of Women.

The fact that a lady likes her dress to be seen, even in a vignette bust, may explain to some extent why the vignette has to be carried down lower in the case of the lady than the gentleman. It must be done; the rule has hardly an exception, but the exception is more often made the rule, owing to the use of the mechanical vignette. The mechanical vignette may pass muster for most males. Where ladies are concerned, its use is an atrocity to be shunned, except in such rare cases where the lady has no waist. I almost despair of making my meaning manifest. The matron is, photographically, the most difficult subject the photographer has to tackle. Apart from her age, her sex, and her position, you have got to bear in mind that photography must be truth or nothing, even though truth disguised and only half a truth. In the case of the matron, it is more a matter for the studio to deal with than the printing room. In any doubtful, even only slightly doubtful, cases the man who has taken the cap off should say a word on the special subject to the printer; if he does not there is trouble ahead. The artistic sense of the operator, if he has any—and there is scarcely an "if" in the case should he retain his job longer than the very first week of his engagement—will determine the style in which his sitter appears to most advantage; and, if he be a man who values his own position, reputation, and situation, he will give directions and cautions to the printer in doubtful cases. Certain broad rules may, however, be laid down for the printer's behoof.

Maxims for Vignette Printers.

The shaded background must appear well round the head must invariably appear above the head in proportion to its extension at the side of the face. You can scarcely go wrong for the lady sitter always does have hair: she takes good care of that—but how she does it is no particular business of yours. The shoulder and the junction of the arm she will also take care of; in fact, the arrangement of the dress in a case of head and shoulders only may safely be left to her. A somewhat ungainly style of shoulder-joint to the dress is sometimes in fashion, and is dignified with the name of "epaulette" (save the mark!). This must certainly appear, if you wish to represent yourself as a "fashionable" photographer, but it is the special business of the vignetter to tone this down, to vignette especially the portion as it were and make it less intrusive. Here the brush method of vignetting is invaluable. A few fine strokes close together rather than only one or two big ones will allow all of fashion's minute detail to appear without giving them undue prominence by heavy printing. Of course, it is the operator's duty to see that there is no ungainly pucker; and, in this, as well as in the manipulation of drapery generally, he will do well to call in the assistance of the presiding goddess of the reception room. This little detail, however, is a matter with which the printer has nothing to do, but it is as well to mention it lest the printer be blamed for what has been the result of careless or superficial scrutiny of the sitter on the part of the "operator."

Full face and Profile.

In a portrait where the lady's figure is square on, or nearly square on, to the lens, the buxom charms of the lady entail no trouble on the printer's part, but it cannot too strongly be insisted that the vignetting mask suitable for the mere man is unsuitable for his better. The tapering of the body towards the waist must be indicated but not defined, and, of course, the pattern, if there is any pattern, of the dress material shown. If this last point is attended to, the necklet, the brooch or locket, and the chain will all find due prominence in what the lady will choose to consider a successful portrait.

The treatment of the feminine side view is the most awkward part that the vignetter has to undertake. The lady with a full bosom, the one who is really vulgarly fat (if she only knew it), is exactly the lady most apt to pride herself on the possession of a fine and commanding figure, and to insist strongly on a form of portraiture to which her figure is least suited. You cannot get out of it, and must make the best of a bad job. Do not vignette too close up to the figure, nor let the vignetting be too graduated. Leave sufficient background to tone down the figure projected against it. Nor do not cut off the background too high up or you may only make bad worse. Should the indication of the figure stop short at the point where it turns in towards the waist, the check at a critical moment is only too suggestive of "to be continued in our next."

Portraits of Men.

The full-view bust portrait of a gentleman is the favoured style and the easiest to vignette. Perhaps this is the chief reason why it is usually done worst. The mechanical vignette is the rule, and is clapped on the frame regardless of special fitness. The portrait is fully printed nearly down to a line joining the armpits, and then graduated off. All very well in its way, provided that the coat fits well, is neatly joined at the shoulder, showing no imitation of the lady's epaulette or ungainly droop between the neck and the shoulder—this last being an obstacle for the operator, not the printer, to overcome. The chief trouble in the use of a mechanical, or general, vignetting mask is that it makes too little allowance for hair thinning or a cranium that has reached the stage of baldness. Nothing looks worse than a bald head against a lot of dark background. Bring the strokes of your paint brush on the vignetting mask well down to the outline of the head. The head will make itself prominent enough without your letting the hairless dome stand out like a whitewashed Dutch tomb on a lonely farm. Just an opposite thing must be done if the sitter has a luxuriant head of curly hair. To please him and all concerned in its reception you cannot make a really good head of hair stand out too prominently.

Perspective and the Vignette.

In all cases where the figure is not taken square on to the camera, the use of the mechanical style of vignetting mask cannot be too strongly deprecated. The comparative sizes of the two arms and shoulders—in plain words, the perspective—is already too prominent. The number of old-fashioned lenses built for rapidity that are still in use is large, and the photographer who can afford and has a long studio, where he is

not cramped for room and can use a lens of longish focus, is to be congratulated. However exaggerated the perspective may appear any endeavour in vignetting to disguise it will only make matters worse. The vignette must have the same perspective as the portrait; there is nothing else to be done. For my own part I have a decided liking for a pose in which the shoulders are at an angle with the camera and the face is turned nearly full towards the lens. The very fact that the vignetting requires more attention is nothing to its disadvantage, but the contrary, if it can be managed without exaggerated perspective. But a first necessity for its skilful adoption is that someone with artistic ideas keeps a sharp eye on the printing room. Where the printing is left to the prosaic conceptions of some irresponsible boy or girl, not only the printing room but every department of the business may be as mechanical, as wooden, as possible.

Profile Vignettes.

Vignetting a profile is a comparatively simple matter, far more so than the taking of what the public usually terms "side face." From up high in the back to down low in the breast or chest is the general rule for vignetting a profile. Should the sitter be soldier, sailor, or athlete, or a lady well set up in the back, the vignette may be brought down well below the shoulders and almost level with the front. The straightness of the back must indicate the starting point of back to front view. Alas! Most of us poor humans get so round-shouldered in the course of time that should our facial outlines be good enough for profile representation, the only safe plan to adopt is that of the statuette, which may be described in the words of the directions most of us gave to the barber ere the close-clippers came into vogue—"Short behind and long in front, please!"

C. RAY WOODS.

SOME NOTES ON THE USE OF THE TOURNIQUET.

THE tourniquet is a turntable which can be rotated horizontally about a fixed pivot. On the turntable is an adjustable sliding carrier for supporting a lens, so arranged that the pivot of the turntable is always exactly under some point on the principal axis of the lens. Any point on the principal axis can be brought over the pivot by sliding the lens and its carrier to and fro upon the turntable, and the effect of rotating the lens about certain points on its principal axis can therefore be readily tested. Various effects being produced by bringing either the nodes or the centres of the pupils over the pivot, the positions of these points can be determined by tentative experiment.

To Find the Nodes.

With the ordinary method of using the tourniquet a distant point is focussed on a screen, and the position of the lens upon the turn is shifted tentatively until the image shows no movement when the turntable is rotated. The vertical axis of rotation then passes through one of the nodes of the lens and the position of that node can be recorded, either by marking the lens mount, or by noting the distance of the node from some fixed datum. This method is often somewhat troublesome. The movement of the lens to and fro upon the turntable necessitates frequent refocussing, and in daylight the apparatus cannot be conveniently used unless fitted with a camera body to protect the screen from extraneous light, while with artificial light it is difficult to secure a satisfactory theoretically "distant" test object without the aid of further complications in the way of apparatus. The following method is in many respects more convenient. It obviates the necessity of preserving focus; is applicable in the brightest daylight without the use of any

form of camera body; and is very readily and quickly carried out.

Fix the lens on the carrier of the tourniquet and direct it to a distant object, such as a church spire. A spire seen against the sky is about the best object that can be selected. About eight to ten inches behind the approximate position of the principal focus of the lens set up a vertical screen with a pinhole, arranging matters so that the pinhole is as nearly as possible on the principal axis of the lens. On looking through the pinhole a very clear and bright inverted image of the spire will be seen, provided the pinhole is at the distance of distinct vision from the principal focus of the lens, a little adjustment may be necessary to secure a perfectly clear image. Arrange the whole apparatus so that spire, pinhole, and lens are truly in alignment, and tilt it, if necessary, to bring the top of the spire in the centre of the lens aperture. Next, arrange a fine needle vertically between pinhole and lens at about the position of the principal focus, and adjust the needle until its point appears to just meet the apex of the steeple as seen through the pinhole. This completes the arrangement of the apparatus.

Rotate the tourniquet through an angle of about five degrees, and note if the image of the spire and the needle point still appear to meet. If they are separated move the sliding carrier in the direction that will bring the spire back to the needle point, then swing the turntable slowly from side to side. The spire should now remain over the needle point, and it should retain that fixed position while the tourniquet is rotated in both directions through a certain limited angle. If this is the case the node is exactly over the fixed centre of rotation, and

its position can be recorded. The second node is found by an exactly similar process carried out with the tourniquet turned through an angle of 180 degrees, so that the direction of the lens is reversed.

It may be found with a poorly corrected lens that it can only be rotated through a very small angle without producing any apparent movement of the image. There is a limit to the angle in all cases, and even with a high quality lens the spire may move very rapidly away from the needle when the limit is reached, though that limit will probably be a wide one. With certain lenses of complex or nonsymmetrical form it will also often be noticed that the movement of the spire is very irregular and hesitating. It sometimes momentarily reverses its movement at one particular angle, and then recontinues its original course.

If the lens has a flat field the image of the spire should lengthen considerably as the lens is rotated, owing to the fact that the focal length of the lens is greater for oblique than for direct light. If this effect is not observed, curvature of the field almost certainly exists. If the image becomes distorted laterally during the rotation of the lens it is equally certain that the lens is not well corrected for distortion. With an approximately level apparatus the image of the spire should be perfectly vertical at all angles with a lens free from distortion.

Measuring the Focal Length.

Having found the node of emission, adjust the tourniquet so that the principal axis of the lens intersects the pinhole as nearly as possible, then observe the needle and image of the spire through a second pinhole situated at one side of the hole previously used, and about quarter inch from it. If the needle and spire do not coincide move the needle to or from the lens on the line of the principal axis until coincidence is secured. When the needle and spire coincide through either pinhole the needle is situated at the principal focus of the lens, and the distance from the needle to the node of emission is the focal length. This is a very quick and easy method, and it is also a very accurate one, provided the lens is free from any serious amount of spherical aberration.

Another method available with one pinhole is to remove the needle and substitute for it a piece of ground glass. If the glass is carefully adjusted until a sharp image of the spire is observed upon it when looking through the pinhole, the focal length can be measured from the node to the ground glass. So long as observation is made through the pinhole the image can be observed fairly well without screening the glass in any way, but the method is not quite so satisfactory as the former one.

A third method is to remove the needle, substitute a piece of white card for the pinhole screen, and move the card up to the lens until a sharp image of the sun is secured. This is simple enough if a view of the sun can be obtained, but neither this nor the preceding method is preferable to the first one, unless the lens shows spherical aberration, and in that case the following method has advantages.

If the position of the node of the lens is recorded by its distance from the back of the fixed flange on the lens mount, then the distance from the node to the focussing screen of the camera can always be easily determined by removing the lens, measuring from the screen to the face of the loose flange on the camera front, with the aid of a rule inserted through the flange aperture, and adding that dimension to the known distance of the node from the fixed flange. Hence, if the node has been determined and recorded, we need only fix the lens in the camera, focus on a distant object, and then measure the focal length. The back of the fixed flange is always the best datum for nodal and other constant measurements, for it is always in close contact with the face of the loose flange, and the sum

of measurements from screen to flange and flange to node can always be easily determined. This method of measuring exact focal distances is especially useful when it is desired to adjust the camera for copying to an exact scale.

To Find the Pupils.

Every lens system has two "pupils," or true "effective apertures," and one at least of these pupils is always a virtual image of the diaphragm, formed either by the complete lens system, or by one of its component combinations. In the case of a single "view" lens the diaphragm aperture is one pupil, and it is called the "entrance pupil" or the "exit pupil," according as it is turned either towards the object or towards the image. The other pupil is a virtual image of the diaphragm aperture formed by the lens, and is the apparent aperture seen when looking at the diaphragm through the lens. This virtual pupil is the exit pupil when the stop itself is the entrance pupil, and vice versa.

In a doublet made up of two positive combinations with an intermediate stop both pupils are virtual. The entrance pupil is the virtual image of the diaphragm formed by the front lens, while the exit pupil is a virtual image formed by the back lens, and each pupil can be observed by looking through the lens responsible for its formation. In a well corrected lens a virtual pupil should be a well defined image of the diaphragm aperture, and if observed from a fixed viewing point it should retain the same position, and show no lateral movement (other than a slight contraction from a circular to an elliptical form) during the horizontal rotation of the lens through a small angle about the centre point of the pupil. The position of a virtual pupil can therefore be determined on a tourniquet by a method similar to that adopted for determining the position of a node.

Set up the apparatus as described for determining the nodes, but direct the lens to some parts of the sky so that no terrestrial objects come in the field of view. Stop the lens down to its smallest aperture, and arrange the needle so that it bisects the apparent aperture. Turn the tourniquet through a small angle and note if the needle still bisects the aperture. If not, slide the lens on the turntable until the aperture is once more bisected by the needle, then rotate the lens to test the fixity of the apparent position of the aperture. If no movement is observed the vertical axis of rotation passes through the centre of the pupil, the position of which can be recorded. This will be the exit pupil if the front lens of the objective is directed to the object, and the entrance pupil if the objective is reversed. With the very small aperture the pupil should retain its fixed position during a fairly wide angle of rotation, if it does not the lens is very likely to give distortion.

The test is very easily carried out with a small aperture, but not so readily with a large one. Several apertures should, however, be tested to see if the position of the pupil centre is the same for all. It should be with a well corrected lens, but big differences are likely to be found with poor lenses, which seem to generally possess curved (concave) pupils instead of plane ones.

To Test the Constancy of the Aperture.

When the pupil has been determined, the apparatus should again be directed to the spire, and the lens be once more rotated on the centre of the turntable. If the apparent aperture and the image of the spire both remain stationary the lens is one of "constant aperture," but if the one moves while the other is fixed the lens is of "inconstant aperture," which means that the actual diameter of the effective aperture varies when the distance of the object in focus is altered, and, as a consequence, that exposure, depth, and perspective are not governed by the ordinary rules when the object is very near. When this is the case (and it always is so with a single view or landscape lens),

the distance between the entrance pupil and the node of admission should be carefully measured and recorded, as it forms a constant that is useful to determine by calculation the precise behaviour of the lens on near objects. The fact that a lens is of inconstant aperture is also indicated when the effective aperture of the lens is found to vary according to the side of the lens that it is measured upon. This is also an easy test, as aperture is very readily measured without the aid of any special apparatus, but this test does not give the aperture constant, and the information it affords has only a negative value.

The tourniquet test reveals the inconstancy of the aperture, and also gives a measure of the degree of inconstancy, therefore it is far more useful. From the nature of the test it is apparent that when the aperture is constant the entrance pupil and node of admission coincide, as do also the exit pupil and node of emission. Hence the test for constancy can be made in the first instance when finding the nodes. If there is no obvious movement of the aperture it is unnecessary to make a separate test for the positions of the pupils.

C. WELBORNE PIPER.

THE WEEK IN HISTORY.

The First Sulphocyanide Toning Bath.

PERHAPS it is not generally known that toning with gold and sulphocyanide grew out of the use of sulphocyanide as a fixing salt. At any rate, it is a fact that M. Meynier, who introduced the former twenty-two years ago to-day, had communicated to the French Photographic Society, some six months previously, a note on the employment of ammonium sulphocyanide for fixation in place of the highly poisonous potassium cyanide. I conclude from this that M. Meynier was led to discover the functions of sulphocyanide in a gold-toning bath, although he himself gives no hint of this in communicating his formula to "Photographische Archiv" for September, 1863:—"I have compounded a toning bath with ammonium sulphocyanide for positive paper prints which gives a rose-violet tone. I add a solution of one gramme chloride of gold to one of twelve grammes ammonium sulphocyanide in one litre of water. The yellow colour of the bath after mixing gradually disappears. As soon as the solution is colourless it can be used in the same way that the usual toning baths are employed."

Dry Plates of 1856.

I suppose many even of my younger readers have used a dry collodion plate put on the market several years ago as the "Hill-Norris." Possibly many of them were not aware of the time to which the process of their manufacture dates back. It was exactly forty-nine years ago to-day—on September 1, 1856—that Dr. Hill Norris applied for a patent for rendering collodion films capable of being used in a dry condition. Dr. Norris's process was based on preserving the porosity of the collodion film, and in this respect was an advance on the work of Muirhead, Gaudin, and the others whose leading idea was to preserve the film in a moist condition. Describing his process, Dr. Norris wrote:—"I introduce into the pores of the collodion film, while still wet from the nitrate of silver solution (or after washing) certain substances soluble in, or penetrable by, watery solutions, which substances, occupying the pores of the collodion film, prevent its condensation on drying, and retain it in a sensitive and pervious state, and by this means I am enabled to produce beautiful pictures, either negative or positive, on perfectly dry and hard collodion films, which films are capable of retaining their sensitiveness for an unlimited period. . . . The substances I employ to satur-

ate the collodion films are very numerous, but the process may be described as follows:—Having produced in the film the sensitive iodide of silver by any of the ordinary known means, I immerse the film for varying periods in a solution of gum arabic, or of dextrine, starch, gelatine albumen, gum tragacanth, vegetable mucilages, caseine, gluten, or other such little substances capable of fulfilling the above-named conditions; the films are then dried, and are ready for exposure to light, or may be kept for any convenient length of time and used as desired." Probably the dry plates which came upon the market between 1856 and 1866 were produced by the process as above described in Specification No. 2,029, 1856, but in later years Dr. Norris, from his factory at Stechford, Birmingham, issued very rapid dry collodion plates, as rapid as a first gelatine plate of ten years ago, and owing their speed to silver bromide. But at what stage of his lengthy researches Dr. Norris lighted upon the sensitive properties of silver bromide I cannot say.

Sidelights on Daguerre's "Researches."

One gets some interesting glimpses of the way in which the Parisian scene-painter was making random shots at the secret of fixing the camera image in one or two letters from Nicéphore Niepce to his son Isidore. Writing on September 2nd, 1827, the father says:—"M. Daguerre has been successful in fixing some of the colour rays of the spectrum. He has already succeeded in combining three, and he is working to unite the remaining four. But the difficulties which he encounters increase in proportion to the modifications which one substance must undergo in order to retain many colours at the same time." We hear no more of Daguerre's adventures in colour photography, but this same letter gives an illuminating description of the process which at that time appeared to suggest itself to the scene-painter as containing the elements of success. Here is what M. Niepce says:—"The chemical compound used by M. Daguerre is a very fine powder which does not adhere to surfaces to which it is applied. This powder on the least exposure to light becomes so luminous as in some measure to illuminate the interior of the camera. Its behaviour seems to resemble, so far as I can recollect, that of sulphide of baryta, or Bolognese stone, which likewise retains certain luminous rays."

HISTORICUS.

A MATTER of Minutes.—Australian photographers have shown that when the opportunity offers, or the occasion demands, they are quite equal to any emergency required of them, and the "Australian Photographic Journal" has reported several instances of very rapid photographic performances. Perhaps the last incident of particular note occurred during the visit to Australia of the then Duke of York—now Prince of Wales—when large batches of photographs taken of the various functions, between the hours of two and four o'clock in the afternoon were got ready and dispatched by the

five o'clock mail the same afternoon. It is, however, worthy of mention that the other day, on the occasion of an installation ceremony at a local masonic lodge, Messrs. H. L. Orr and Co., of Sydney, took a flashlight photograph of the proceeding, and, in a corner of the room, developed the plate, made a bromide contact print, which was properly mounted and afterwards handed around for inspection (and orders) within fifteen minutes. Needless to say that in "striking the iron while it was hot," a very large proportion of those present placed orders with Messrs. Orr and Co. for copies.

TWO-COLOUR PRINTS AND TONALITY.

THE following article, by Bernard C. Roloff, which appears in our New York contemporary, *The Photographer*, may be read by those who are interested in its nominated theme, and by others to whom the *modus operandi* is of importance for quite different purposes:—

The writer, when making exposures of outdoor views, has always made it a habit to secure two negatives of the same view, exposing one for the sky, and the other for the foreground. While it is admitted that by increasing the exposure to a sufficient extent it is possible to so develop the plate that the sky will not become too dense before the foreground has reached proper density; yet such negatives in the writer's opinion, have a tendency to flatness and lack that brilliancy so necessary to perfect negative. Prints from such a negative may be made on contrasty paper to secure the needed brilliancy, but through this the sky again loses its tonality.

It would seem reasonable to suppose that if two negatives are made of the same view as stated, from exactly the same position, one for the sky (a short exposure), and another for a landscape, or foreground (normal exposure), they may be developed separately to secure the desired effect in each, and later in printing, the ordinary methods of printing-in a sky may be resorted to with more telling effect than if the sky is printed-in from a stock sky or cloud negative.

Now, while the ordinary methods of printing-in skies (and there are plenty of them) will serve the purpose in connection with the above outlined plan, the writer calls attention to his method of printing-in skies in connection with the above plan as being considerably different and somewhat more effective than most of the others that have come within his knowledge.

The method presupposes a working knowledge of carbon printing, and if by chance any who read this are disposed to discontinue because they have no knowledge of the process, then let them immediately secure a dozen carbon papers (assorted) and plunge boldly in, taking the precaution, however, to ignore in the beginning all the minor details of the directions given by the manufacturers, except only the most important and necessary steps, which are few and exceedingly simple.

The Method of Sky-Printing.

First, in developing the two negatives secured as above directed, endeavour to secure a strong, nicely graded sky, in the negative exposed for the sky, ignoring the landscape entirely and taking the precaution not to develop too far. The landscape negative, on the contrary, should be developed far enough to produce a somewhat dense sky; if it is possible to do this without sacrificing the landscape, the latter, however, being developed carefully to secure the desired effect, even if at the expense of the sky.

When the negatives are finished and dried the sky negative should be placed in a printing frame provided with a shade fastened at one end and bent up. This should be so adjusted that there will be no chance for the thin landscape portion of the negative to print, and so that the sky will be printed strong at the top, and gradually weaker towards the horizon.

Exposing a Test Piece.

A trial with a piece of printing-out paper will show if the shade is adjusted correctly, and this will also give the printing time required, as the carbon should be printed until all the necessary details show in the trial print. Of course, if printing-out paper is used, the printing should be done in as strong light as it is possible to secure, except in direct sunlight. If the sky-print is to be made on some developing paper, such as Rotox (used by the writer) or Velox, the printing should be performed in very much diffused daylight, instead of, as is usually done with the papers, in strong artificial light, the object being

to prevent the shade throwing a shadow over the sky portion of the negative. Additional diffusion is secured by covering the front of the frame with a sheet of tissue paper before tacking on the shade, and small pieces of cotton may be placed between the tissue paper and the glass side of the negative to roughly cover the landscape portion of the latter.

Making the Carbon Print

Insert a piece of sensitized carbon tissue of the colour that the picture is to be in (green for landscapes with an abundance of foliage to preserve the natural effect) in another printing frame with the landscape negative and print the required length of time, afterwards soaking, placing in contact with the temporary support, developing and drying. The sky print upon the printing-out, or developing paper, is now toned and fixed in one case, or developed and fixed in the other, washed and placed in a bath of equal parts of saturated solutions of ferricyanide of potassium and ammonio citrate of iron, to which add two ounces of water to every two ounces of the saturated combined solutions and a few minims of hydrochloric or similar acid. This will tone the sky print to blue, and the intensity of the tint is determined by the depth of printing and the strength of the above-named solution. Wash to eliminate the yellow in the high lights and place in a solution of formaline $\frac{1}{2}$ ounce to 8 ounces of water to harden for 15 minutes, after which rinse and dry.

Now transfer the carbon print to the sky print in the usual manner for double transfer, treating the sky print similarly to double transfer paper, dry and strip. This process will give a print in two colours by the combination of the carbon with some other printing process.

Two-Colour by Carbon Throughout.

If it is desired to utilize the carbon process throughout in this method it is only necessary to make the sky print in carbon of the desired colour (blue, if desired for a two-colour print, or a print the same colour as the landscape is intended to be printed in), squeegee into contact with a piece of ordinary single transfer paper, and develop in the usual manner, and after developing harden in the formaline bath previously given. The resulting print should be a well-graded sky, shading down near the horizon to almost white. If there are trees, etc., projecting into the sky a few touches with a camel's-hair brush during development will cause them to merge gradually into the sky. The landscape negative may now be printed to a sheet of carbon tissue of the proper colour as before described, the sky portion being dense enough to prevent much pigment from adhering thereto. When about to develop, immerse the last printed sheet, viz., the landscape, in cold water with the previously developed and dried sky print and if the precaution has been taken to previously mark the sky portion of the landscape print so that it will not be upside down on the transfer, it is only necessary to bring the tissue and sky print together under water, squeegee as usual, and develop later in the ordinary manner.

Again, some objection may be made to the use of two negatives in producing the sky effect, but this may be obviated by placing an ordinary landscape negative in the printing frame under tissue paper and the shade referred to adjusted so that the sky will print somewhat longer than the foreground, removing the shade to allow the light to strike the foreground for a portion of the exposure. This is an old way of carrying this into effect, but in order to secure the two-colour effect it is necessary to print each separately, either from separate negatives or from one negative as desired; but it is surely no great hardship to make two negatives of the desired view instead of one, as many of us will often make three and four to make certain of a good thing.

Other Suggested Methods.

Place the desired negative in a printing frame prepared as shown in the sketch and as previously described. Insert a piece of ordinary blue-print paper (rather heavy weight) and print the sky to the required depth, *i.e.*, overprint slightly, and finish the print by washing in water and drying. If the plan of two negatives is followed, proceed in the same manner. With a tuft of cotton dipped in an oxalic acid solution or similar bleaching agent (carbonate soda), carefully take out trees or other objects projecting over into the sky, rinsing well after this operation to remove the yellow stain. To prepare this print for single transfer, prepare a solution of

gelatine 1 ounce in 20 ounces of water. Do not make up too much of this as it will not keep, $\frac{1}{4}$ ounce in 10 ounces of water being probably sufficient for one batch, unless it is desired to coat a large quantity of paper. Float the print on this solution or coat it with a soft brush, taking care to secure an even coat. When the gelatine is set it may be immersed in a solution of chrome alum, which will render it insoluble.

Use this paper in the same manner as described for the sky print in carbon, making a carbon print from the negative in the desired colour, and transferring to the blue print, having previously marked the sky portion of the printed carbon tissue to indicate where the sky should come.

MAGNALIUM AND OTHER LIGHT ALLOYS.

EDITORIAL NOTE.

[At a time when no means are left untried to reduce the weight of photographic apparatus to the minimum, the following paper, communicated to the Yorkshire Section of the Society of Chemical Industry, on practical trials with commercial light alloys deserves a place in our pages, even though the particular circle interested is a small one. For the report we desire to acknowledge the "Journal of the S.C.I."]

THE magnesium-aluminium alloy, known as magnalium, is interesting from its lightness, and further that small amounts of heavier metals, such as nickel or copper, may be added to it without raising its density above that of the fundamental metal, whilst at the same time considerably altering its mechanical properties.

Commercial Magnalium Metals.

At the present time, three magnalium alloys are in regular use, denoted by the letters X, Y, and Z. The first of these is for forging or for castings in which strength is a primary consideration. Forging is done at about 330 deg. C., special care being taken to avoid oxidation. The second, Y, is ordinarily used for casting. To secure good results, oxidation must be carefully guarded against, the melted metal must not be agitated or over-heated, and after pouring the casting should be cooled as quickly as possible. The melting point is slightly above that of aluminium. The castings when properly made are clean and sharp. The third alloy, Z, is used for rolling and drawing. Rolling is done between 300 degrees and 350 degrees C. Frequent annealing is necessary unless very hard sheet is required. Apart from the method pursued in rolling, it is stated that soft sheet can be made springy by heating to about 390 degrees C. and slow cooling. Rapid quenching makes it soft. Similar considerations apply to drawing into rod, wire or tube. Frosting is done, as with aluminium itself, by alkaline liquors.

Magnalium v. Aluminium.

It will be noticed that, except for its greater tendency to oxidation when hot, the treatment of magnalium by the foregoing processes is very similar to that required for aluminium. Magnalium has, however, two advantages at least over pure aluminium. Its tensile strength is decidedly higher. This is said to range from 8½ to 10 tons in the case of ordinary castings (Y), up to 23 tons for Z when rolled hard. The most conspicuous advantage is in its behaviour with cutting tools. As is painfully familiar to all who have had to use aluminium, such operations as filing, turning, drilling, and screwing are far from satisfactory with the pure metal. It drags and tears and clogs the cutting edges. Very small cuts have to be taken at high speed, with good lubrication. The case is very different with magnalium. It works cleanly in the lathe. When turned at a surface speed of 100 feet per minute, without any lubri-

cant, long spiral shavings come off and the surface left is free from any signs of dragging or tearing. It is also free from tool-marks, a circumstance which suggests that the softness of the metal makes it flow on contact with the cutting edge. This idea is supported by the curious way in which the metal builds up on to the tool-edge when being turned or drilled without a lubricant. I find that a cutting edge, whose angle is about 65 degrees, such as would do for steel, serves very well for magnalium. A less acute angle, such as is used for brass, is not so satisfactory. When turned in the manner here described, a silvery-white surface is produced on which any polishing operations seem superfluous.

In order to see if the presence of magnesium would render aluminium susceptible to corrosion, I made a comparative test by exposing sheets of magnalium to the laboratory atmosphere for three weeks, side by side with sheets of aluminium, zinc, copper, and brass, all the surfaces being in a precisely similar condition. The magnalium showed no special signs of corrosion, and the laboratory atmosphere had decidedly more effect on the zinc, copper and brass.

Analysis of the Alloys.

As to chemical composition, careful qualitative analyses have been made of drillings from ingots of X and Y alloys and of a piece of soft sheet which is presumably Z. Complete quantitative analyses have also been carried out, but in the case of Y, which was done before the special difficulties of the analysis were fully realised, no great reliance can be placed on the results, which are therefore omitted. The chief trouble was caused by the relatively enormous proportion of aluminium, which appears in each alloy to exceed 94 per cent. In the qualitative analyses, the bulky character of the aluminium hydroxide prevented large amounts being taken and so rendered the detection of minor constituents difficult. Moreover, it was found that in spite of re-precipitation, the aluminium hydroxide carried down large quantities of other metals. For instance, after a second precipitation with ammonia in presence of much ammonium chloride, the nickel (in alloy X) was still present in apparently larger quantity in the aluminium hydroxide than in the united filtrates. It was noticed that on boiling the liquid containing the precipitated hydroxide as usual to expel excess of ammonia, a marked darkening occurred. In consequence of these facts, in all the qualitative work, and also in the quantitative analysis of X, the re-precipitated hydroxide was digested with pure sodium hydroxide solution in a platinum basin. Nearly all the aluminium was thereby dissolved and, after diluting and filtering, the residual precipitate, brownish-grey in colour, was dissolved in acid and then analysed for all metals beyond the "hydrogen sulphide" group in the usual course.

In order to avoid this lengthy procedure, Mr. J. B. Murray suggested the preliminary treatment of the alloy with sodium hydroxide

solution in order to remove the greater part of the aluminium before commencing the ordinary analytical separation. He applied this method to the complete analysis of the sample of soft sheet, presumably Z, and found it very satisfactory. The alkaline solution of sodium aluminate was found to contain most of the tin, which was, however, easily precipitated by sulphuretted hydrogen after acidifying. The results of the analyses may be stated briefly as follows:—

Alloy X contains copper (1.7), magnesium (1.60), nickel (1.16), and antimony and iron in smaller quantities.

Alloy Y contains copper, magnesium, tin, lead, a small amount of iron, and a doubtful trace of antimony. As far as I can judge, Y is intermediate in composition between X and Z, except as regards nickel. Alloy Z (soft sheet) contains tin (3.15), copper (0.21), magnesium (1.58), lead (0.72), and the usual amount of iron, about one-third of 1 per cent.

Traces of titanium were found, presumably derived from the bauxite. Indications of other rare metals were obtained, but the difficulties in the way of taking large quantities of the samples for analysis prevented any confirmatory work. Alloy X dissolved in *aqua regia* left an insoluble residue amounting to 0.38 per cent.

The most noteworthy result of the analytical work is that in no case was as much as 2 per cent. of magnesium found. The highest result was 1.86 per cent. in the soft sheet. This result was obtained by precipitating (twice) the magnesium as the double phosphate from an alkaline solution in which the aluminium was retained by the presence of alkali tartrates. But I have reason to believe that this result is too high. The alloy dissolves very vigorously even in diluted hydrochloric acid, and considerable care is needed in this operation. It is little affected by nitric acid.

Zisium and Ziskon.

"Zisium" and "ziskon" are two light alloys prepared for use primarily in scientific instrument making. Zisium was first named zalum, but it was found that this name could not be registered. Both alloys are silver-white in colour and make good castings, in which form only they are supplied.

Zisium is the lighter, having a density of 2.95 as compared with 3.35 for ziskon. The latter is, however, much harder and stronger. The tensile strength of the metals (cast in sand) is stated to be nearly five and 11 tons per square inch respectively, according to tests made at the National Physical Laboratory. My experience of their working properties is confined to the making of turnings for the purpose of analysis. Zisium cuts like very soft brass, in short curly chips, using a tool as described for magnalium. Ziskon seems to have a texture resembling that of cast-steel, though, of course, much softer. It needs to be cut at a lower speed than zisium and gives long shavings.

Want of time has prevented my doing more than making a qualitative analysis of each of the two sample castings of these alloys which I have had. The results show, as might be expected, from the specific gravity, that both are aluminium alloys. Zisium, like magnalium, appears to be essentially aluminium, modified by the presence of small amounts of other metals. I find in it zinc, tin, and copper, with a trace of antimony, and a minute trace of bismuth and possibly thallium.

Ziskon has a different character. It is a zinc-aluminium alloy, containing perhaps one-fourth its weight of the former metal, as far as could be judged by a rough weighing of the zinc sulphide obtained in the qualitative analysis.

Other Aluminium Alloys.

Zinc-aluminium alloys have been studied by Mr. J. W. Richards. He confirms the previous statements of Durand as to the remarkable

mechanical properties of one containing one-third of its weight of zinc. It is very hard, resembling tool-steel, and its specific gravity is given as 3.8. On the other hand, alloys containing only one-sixth of zinc or less are soft enough for rolling or drawing. An alloy intermediate in composition, containing 25 per cent. of zinc, is said to give excellent castings, easily worked, and to be much used for scientific instrument making. Its specific gravity is given as 3.4, thus closely agreeing with that of ziskon. These statements, I think, confirm the result of my examination of ziskon.

A great many other aluminium alloys, containing such metals as zinc, copper, nickel, and tungsten, have been patented in recent years, and some are in actual commercial use.

The numerous aluminium bronzes do not come within the scope of this paper, as they are not light alloys, since aluminium is not their principal constituent.

In conclusion, I must express my indebtedness to Mr. J. B. Murray for a great deal of valuable assistance, and to Mr. J. Arthur Williams, of Hatton Garden, who has rendered indispensable help in the supply of specimens and information.

R. E. BARNETT, B.Sc.

Discussion.

Mr. C. P. Finn asked if Mr. Barnett had made experiments towards the examination of magnalium by micrographic methods of analysis. The results of such an examination of the structural changes produced in the alloy by chilling, etc., would be of great interest. What method should be used in soldering magnalium? How did the co-efficient of expansion of the alloy compare with that of aluminium?

Mr. J. W. Cobb said the alloy appeared to be soft, and so would easily scratch and flow, and be difficult to polish. Decreasing hardness made polishing increasingly difficult, as for example in the case of lead. This would, no doubt, interfere with the obtaining of polished surfaces suitable for photo-micrographic study. Were the aluminium laboratory paints used to prevent corrosion of apparatus, etc., analogous in composition to magnalium? He could appreciate the difficulties of securing good separations by double precipitation, as, in analysing magnesite, he had found three or four precipitations necessary to secure satisfactory results. Since small quantities of molybdenum and tungsten converted steel into a high-speed cutting steel, with special properties, the presence of titanium even in small quantity might produce its own effect in magnalium. For this reason, he thought it should not be concluded, that because the titanium was probably introduced through the bauxite, from which aluminium was extracted, it would not have some effect on the properties of the alloy.

Mr. T. Fairley suggested that there was a possibility of the amount of magnesium in the alloy, diminishing in the working or casting. If 2 per cent. were originally present, the final percentage might be much lower owing to oxidation by the atmosphere during heating. He had given students analyses of aluminium paints for exercises in examinations, and in certain cases the results showed the presence of about 3 per cent. of tin. He supposed magnalium, like aluminium, was affected by caustic alkalis.

Mr. F. W. Branson said, that while at King's College he came across an aluminium alloy which contained a little silver.

Mr. R. E. Barnett said he had done nothing to test the suitability of magnalium for photo-micrographic study, and had seen nothing on this point in any description of the alloy. He thought Mr. Cobb's view would be correct. In turning the metal, the remarkably even surface suggested that it flowed in front of the cutting tool. To get a surface for metallography, he thought something like casting on to glass, and then breaking away the latter, might have to be resorted to. The alloy would have to be soldered like aluminium;

flux should be used, but a special solder of aluminium with some other metals. Scraping under the molten solder with the bit, or even with a wire brush, would be necessary to remove oxide. Other alloys of aluminium and magnesium, such as magnalium powder used for flash light purposes, probably contained more magnesium. The analytical results were curious, showing remarkably low percentages of magnesium, and there were puzzling discrepancies between these results and published statements. If the amount of magnesium originally put into the alloy was the published percentage, this discrepancy might be explained by Mr. Fairley's suggestion, that the magnesium was lost through oxidation in the heating and preparation of the alloy.

ADVERTISING FOR PHOTOGRAPHERS.

"SCANDLIN'S Business Brieflets" is the title of a smartly written little pamphlet which reaches us from 345, Sixth Avenue, Brooklyn, New York. The author of the "brieflets" is Mr. W. I. Scandlin, well-known in American photographic circles, and now describing himself as "Specialist in Advertising for Photographers." The contents of the little book are so good, and so much to the same point as that advocated in our recent series of articles on advertising for photographers, that we venture to quote a few of the happy paragraphs. For instance:—

"You know how to make a good photograph; it does not follow that you know how to make the public believe it. You have only to convince the public that this is so and the public will pay your price for it, your stock bills, your help, and, if you convince it hard enough, it will buy you an automobile or a yacht—both, if you want both. Good advertising is the only salvation of photography to-day. The technique is good enough, but business is not. Good advertising will improve the only weak spot in the business.

"A good business man is like a good fisherman. Both throw out a large bait and then leave it up to the fish to bite. If you could catch one-fifth of the people of your community who haven't been in a gallery for five years, you would be kept busy. A lot of them will rise to the right kind of bait. Why not go fishing?"

"The right kind of publicity will increase the profit of a business the right kind of fertiliser will increase a crop. Probably not one in twenty of your community is photographed once in every two years. If one in ten could be brought to the studio once every second year, or one in twenty induced to come once each year the business of every studio in your community would be doubled. If the publicity that doubled the total volume of business comes from your studio alone, your share will be more than doubled. There is a profitable business in the future for the photographic studio that will after it in the same business-like way that others employ.

"You may as well try to run a photographic gallery without water without publicity. It can't be done in these days. If you don't talk about your own work, and if you don't keep constantly before the people of your community, they will forget you when they get ready for a sitting. They will go to the other fellow who has been hammering his name into their minds while you have been sleeping (?) a few dollars.

"If your business is fair without publicity it may be prosperous without it.

"Publicity of the right kind may be made profitable in any business.

"The public loves dainty illustrations. The photographic studio can supply an endless variety. Illustrated studio booklets are effective and logical methods of publicity.

"If you want people to know of your existence it's better to remind the same person three or four times, than three or four times many persons once. A billion drops of water falling on the same

spot will wear away solid rock. The same quantity, poured from a bucket over its entire surface won't make an impression.

"We pay too much attention to making photographs and far too little to making a demand for them.

"A large part of every additional dollar's worth of business you can do, without increasing your help, is velvet. If you can get a few more people coming your way each month, you'll soon note a difference.

"A two line reading notice in your local paper is often worth more to you than a four-inch space in the advertising pages. A bunch of short, bright locals costs little.

"A genuinely 'swell' booklet given out to your best people makes them think that you are the man to give them the best satisfaction when they want photographs. It also reminds them that they need some right now. These two thoughts ought always to be harnessed together."

Needless to say, Mr. Scandlin takes care to impress upon his readers the fact that he is the right man to prepare advertisement matter for those who cannot successfully undertake it themselves; and a gentle hint to that effect is embodied in most of the "brieflets," as for example:—

"It isn't that people don't want photographs, it's simply that they don't realise the need. They must be reminded. Keep the thought of photographs, your photographs, constantly before them. Let them see your name on your work or something that shall suggest your studio on every possible occasion. If you don't know how to remind a person of the same thing in fifty-seven varieties of style and finish, try Scandlin. He does.

FORTHCOMING EXHIBITIONS.

August 24 to September 21.—Berwick-upon-Tweed Arts Club. Hon. Secretary Pictorial Photography Section, H. Hancocks, 38, Ravensdowne, Berwick-upon-Tweed.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 17-18-19.—Isle of Wight Photographic Society. Hon. Sec., V. Howard Burgess, 53, Pyle Street, Newport, I. of W.

October 18-21. Rotherham Photographic Society. Hon. Secretary, H. C. Hemmingway, Tooker Road, Rotherham.

October 19-21.—Grangemouth Amateur Photographic Association. Hon. Secretary, Robert Marshall, 3, Park Terrace, Grangemouth.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November.—Bristol and Clifton Arts and Crafts Society. Secretary, R. H. Parr, 5, Grove Buildings, Blackboy Hill, Bristol.

November, December, January.—Second American Photographic Salon. H. Snowden Ward, 6, Farrington Avenue, London, E.C.; Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

November 3, 4, 5.—Motherwell Young Men's Institute C.C. Hon. Secretaries, James Dunlop, Myrtlebank, Motherwell, and Archibald Matthews, 24, Enfield Place, Ladywell, Motherwell.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 25-December 2.—Glasgow Eastern A.Ph.A. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarock Street, Parkhead, Glasgow.

December.—Muirkirk A.Ph.A. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. MacLachlan, Blairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph.A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

February 3-February 25, 1906. Marseilles Fourth International Salon. M. Astrer, Sec. Gen., 11, Rue de la Grande-Armée, Marseilles.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, M'Neill Street, Larkhall.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 19-24, 1906. Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

FORTHCOMING COMPETITIONS.

September.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 15.—Lantern Slide Competition, Association Belge de Photographie. Secretary, Palais du Midi, Brussels.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour; (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

February 6-9, 1906.—Guisbrough Fine Art and Industrial Society, Photographic Section. Hon. Sec., G. H. Angus, 34, Westgate, Guisbrough.

Photo-Mechanical Notes.

Intensifying Collotype Negatives.

PROFESSOR R. NAMIAS advises, in the "Zeitschrift für Reproduktions-technik," a process of intensification which can be employed in conjunction with the stripping method, introduced by him, in which the gelatine film is treated first with basic chrome alum and afterwards with an acidified solution of a fluoride. It is found, however, that negatives intensified with mercury are more or less reduced by the basic chrome alum, whatever darkening reagent be employed. On this account the following procedure is adopted:—The negative is bleached in the ordinary mercuric chloride solution, and thoroughly washed; if a considerable intensification is required, a little potassium bromide may be added. The bleached and washed negative is then treated in the basic chrome alum solution, and then in the acidified fluoride. The detached film is washed in clean water, and then transferred to weak ammonia, in which it blackens. It is then attached, with a solution of gelatine, 1 to 2 per cent. in strength, to its final support of glass or celluloid.

Professor Namias finds that the mercuric iodide intensifier is not open to the objection that the results are altered by the chrome alum, but he considers that the intensification by this process is too great, and unsuitable for collotype, a view from which one may legitimately dissent.

Reverse Blocks.

Writing to the "Illustrator," the official journal of the International Photo-Engravers' Union, G. S. Busk says:—When you have a line job and want a reverse of it, such as black background and white letters from a regular drawing or printed type, you do not have to make a negative and a positive from it and make your print, but make your negative, then coat your zinc with a good coating of sensitizer and make a print as usual and ink up. Develop in the regular way, then grain or frost, in very weak nitric acid, wash off ink with turpentine and cotton, so as to be sure it is clean, and then ink up as though you had just made a print, and develop in four ounces of muriatic acid, twelve to fourteen ounces of water, as though you were just developing first print again. Where the lines were black they will come up white and leave black background, and the same if you have black background, you can make black letters and white background.

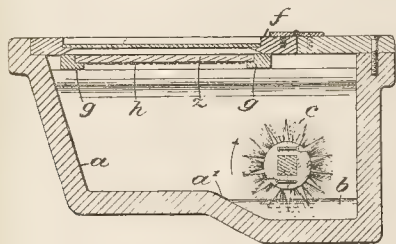
Autochromes.

Although this name is protected, the process is not, and it is also known as "autocolour," "combination," etc., and is chiefly used in Germany, according to Herr Bauer, for the production of pictorial postcards, of which from twenty-five to thirty are printed at once on one sheet. Imperfect originals and bad photographs are more often received than not, and therefore they are worked up or faked, and this is best done with an aerograph as follows:—A mask of tracing paper is cut out, so that it shall cover all those parts which are not to be worked up and accurately fitted to the print. Then a light grey wash is evenly put on with the aerograph, and then, after the removal of the mask, the outlines corrected. A broad brush must be used if one has not an air brush, but the work is more difficult. On many cards the sky is cut completely away in the half-tone plate, but this should not be done, as the cross-lines add a grey to the blue, which then harmonises better with the distance. For making the negatives a screen of from 70 to 80 lines per centimetre is used. Two or four originals are generally reduced at once, but they must all be about the same tone. The negative should be rich in contrast, but the dots should show, even in the deepest shadows. Printing is done as usual on zinc or copper, and in etching

care must be taken to keep the drawing and bright parts, particularly the sky, light. From the finished plate the so-called "klatsche" is prepared, as in ordinary lithography, and on papers with different grains for each colour. The chromolithographer now draws the yellow plate on coarse-grained paper with chemical chalk and ink, the red on a finer grain, and the blue on the finest grained paper. With these three colours perfect colour rendering and effects are obtainable. It is better and simpler to fasten transparent grain paper on the black half-tone pull and to lay the colours on this. Only white or glazed or chromo cards are used. The "klatsche" is transferred to stone, and from this further transfers made and etched according to the black half-tone pull. In order to obviate the use of grained paper, the prints can be made on ordinary transfer paper, and then transferred to stones of different grains, and for photographers this may be more convenient. The autochrome process will give excellent results, and may be used for ordinary illustration purposes, if absolutely faithful colour rendering is not required but rather the embellishment of a monochrome image by colour.

Spray Etching Plates.

An apparatus for applying an etching fluid to a plate has been worked out and patented by Mark Smith, of the Guardian Printing Works, Reddish, by whom absence of undercut, with other advantages, are claimed for the method. As described in the specification No. 25,744, 1904, the etching chamber contains a rotating brush (c) which throws a spray of acid against the plate (h), which latter may be held horizontally film downwards, as shown in the figure, or inclined at any suitable angle.



Spray Etching.

The liquid which is thus sprayed against the under face of the plate drops or runs off and falls to the bottom of the tank for re-use, draining to the well (a') if such well be employed. The liquid may be renewed as desired.

When the etching has progressed sufficiently the plate may be moved, either for finishing or for further treatment.

A flat plate has been indicated as under treatment, but a curved cylindrical or partly cylindrical plate may also be etched, such plate preferably having rotary motion imparted to it during the spraying. With such a plate the best result would be obtained by screening the cylindrical plate from the indiscriminate action of the spray by means of a screen placed below the cylinder, such screen being formed with a narrow opening extending the length of the cylinder and about parallel to its axis.

A New Matrix for "Electros."

Casein and albumen are mentioned as new materials for the formation of a matrix from printing blocks, and the plastic mass of which one or other of these substances forms the chief constituent is said to take impressions very readily, and to shrink very little. The casein or albumen is employed in conjunction with a hardening material, after it has first been moistened with a liquid which does not completely dissolve it. Hexamethylenetetramine has been

found particularly suitable as a hardening agent. A number of formulæ for suitable mixtures are given in the patent specification (No. 27,090, 1904), in which the inventor, Louis Collardon, of 32, Friedrich Liststrasse, Leipsic, describes his process: In preparing a printing block the procedure is the same as in the formation of celluloid "electros," the somewhat softer casein or albumen plate being rendered plastic by heat or steam, applied speedily to the cold matrix, impressed with a sharp pressure and allowed to cool.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for patents were made between August 14 to 19, 1905:—

PRINTING FRAME.—No. 15,526. A gaslight postcard printing frame. William Wilkinson, 21, Silver Street, Durham.

DEVELOPING.—No. 16,576. Improvements in developing apparatus for photographic plates. Jesse Dougherty Lyon, 18, Southampton Buildings, Chancery Lane, London.

SHUTTER.—No. 16,593. Curtain shutter for photographic cameras. Ernst Branburger and Optische Anstalt, C.P., Goerz Act. Ges., 31, Bedford Street, Strand, London.

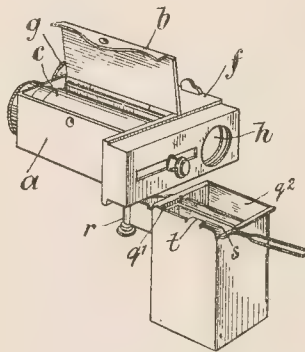
ELECTRO-PHOTOTELEGRAPHY.—No. 16,796. Improvements in devices for electrographical long-distance transmission and the reception of drawings, photographs, and the like. Herr Carbonnelle, 322, High Holborn, London.

CAMERAS.—No. 16,857. Improvements in photographic cameras. Arthur Samuel Newman and Newman and Guardia, Limited, 115, Cannon Street, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

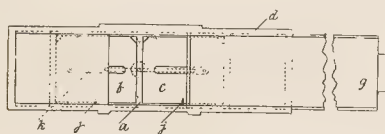
DAYLIGHT LOADING PLATE CAMERA.—No. 17,155, 1904. A magazine camera to receive, in daylight, a charge of sensitised plates, to carry a focussing screen, to convey successively the several plates from the magazine to the exposure chamber and, in the transference,



to cause the plate to automatically displace the focussing screen and occupy the situation thereof and, after exposure, to drop into a vessel containing a developing solution from which it is enabled to be transferred to a bath containing the fixing solution;

the entire operation being adapted to be performed without recourse to a dark room. The apparatus is specially adapted for the production of ferrotype positives, and an important form of construction will be one suitable for taking miniatures. *A* is the magazine chamber, receiving a charge of sensitised plates contained in a case *c*; *f* is the exposure chamber, fitted with a lens, *g*, and focussing screen, *h*. Beneath the camera case, comprising the magazine and exposure chambers, is movably mounted a vessel formed with two compartments *q*¹ *q*². This vessel may be mounted to slide in guides, but preferably it is pivoted in such a way as to turn in a horizontal plane about a vertical axis *r*. The movable solution-holding vessel contains a cradle *s* perforated at the bottom, which cradle is adapted to receive the plate just previously exposed and facilitate the transference from the compartment *q*¹ to the compartment *q*² when the vessel has been temporarily withdrawn from the home position beneath the camera case. The specification describes the mechanism whereby the plate is transferred to the exposing chamber and thence for development and fixation. Herbert Edward Hickon, 297, Haydon's Road, Wimbledon, Surrey.

DARK SLIDES FOR COLOUR PHOTOGRAPHY.—No. 20,827, 1904. The patent is for a dark slide permitting the rapid changing of plates and filters used in the three-colour process. A carrier, *a*, having two compartments *b* and *c* slides in the grooved frame *d* the inner length of the groove being equal to one and a half times the length of the carrier *a*. The frame *d* is covered in behind as at *e*, and also at one-third of its length from one end in front as at *f*, and is provided with the usual draw-shutter *g* at the other end, a stop being provided to prevent it being drawn out further than to expose that one of the compartments *a* and *b* which is at the moment at the centre of the length of the frame *d*, and any suitable means may be employed for bring-



ing the compartments *a* and *b* successively into this central position. A simple and convenient means for thus centralising the compartments consists in providing a longitudinal slot *h* in the back cover *e* in which is free to move a headed pin *i* attached to the centre of the back of the carrier *a*, the length of the slot *h* being such that when the pin *i* is at one extremity of the slot *h* the compartment *b* will be central, and when at the other end the other compartment *c* will be in that position. In the compartment *b* is inserted a red-sensitive plate with a red filter in front of it, the two being held in place by the catches *j* or any other suitable means and kept in register by the back springs *j*. In *c* is inserted first a green-sensitive plate, then a green filter, and outside of this an ordinary sensitive plate, face inwards. The slide is inserted in the camera, the shutter drawn, the pin *i* moved to one end of the slot *b*, the lens uncapped and the exposure made, which is suited to the sensitive plate in position. The lens is again capped and the pin run to the other end of the slot, the lens uncapped, and an exposure made on the contents of the other compartment of the carrier. Benjamin Jumeaux, Colebrook Road, Southwick, Sussex.

COLOUR PHOTOGRAPHY ON PAPER.—No. 21,208, 1904. The claim is for a "carbon transfer paper," consisting of a flexible support, a film of coloured soluble gelatine, and a film of easily soluble

matter between the two. The upper layer consists of gelatine with perchloride of iron and tartaric acid, and is insoluble until exposed to light. The intermediate coating is of gum, albumen, wax or varnish. Once the carbon transfer paper is made, it may be used at any time; since the colour is fixed, the paper may be wetted in cold water and be squeegeed on the surface on which it is to be printed. After being squeegeed upon the last-mentioned surface, the paper is removed, leaving an absolutely uniform film of a predetermined colour ready to be sensitised and printed under the negative, after which the unacted-upon parts are removed. After impermeabilisation or other protection of the print so made, another film may be squeegeed upon the support, overlying the first, and is then sensitised, printed, developed, and washed without staining the underlying image or print, since the second film is put on cold. After the impermeabilisation or other protection of the second print, a third film may be transferred in like manner upon the support and be sensitised, printed, etc., thus giving a final composite print in which no one film is stained or discoloured by another. In the old method, where the films are poured on hot, staining is very likely to result, and it is very difficult, if not impossible, to determine whether the film is uniform in colour or not, the presence of the images in other colours interfering with proper observations. Charles Louis Adrien Brasseur, 10, East Fifteenth Street, New York, U.S.A.

COLOUR-SCREEN HOLDERS.—No. 21,209, 1904. The claim is for a construction of screen holder, by which the screen can be pressed into actual contact with the photographic plate. Charles Louis Adrien Brasseur, 10, East Fifteenth Street, New York, U.S.A.

ALARM CLOCKS.—No. 22,221, 1904. The invention, which requires a number of figures for its explanation, consists in adapting an ordinary alarm clock so that it may be set in the dark by the sense of touch or by sound to give an alarm after predetermined intervals of time as used in photography, and also to cause an alarm at a distance by closing an electric circuit and ringing a bell, or causing the armature of its magnet to operate the release of the shutters of a photographic camera. Benjamin William Warwick, 104, Highbury Hill, London, N.

TRIPODS.—No. 23, 1905. The patent describes a construction of tripod in which a control rod slides through the head, and can be fixed in any position, thus serving the purpose of a taller tripod. The legs are separately adjustable, and held rigidly in position by a system of struts. The lower points of the legs may be spread out, as desired, by lowering (or raising) the central rod, and thus bringing the struts more or less near to a level position. The telescopic adjustment of each leg is therefore independent of each other, and also independent of the central pillar and the struts, so that when the stand is used in places where the ground is very uneven, any one or more of such legs may be lengthened or shortened to any extent to accommodate such unevenness. The whole arrangement folds into a small space. James Ashford, 179, Aston Road, Birmingham.

CHANGING FILMS.—No. 9,323, 1905. The specification describes (with fifteen figures) a system of changing films in daylight adaptable to ordinary apparatus, and embodied in a case containing a light receiver and a film magazine, and an exposing chamber into which the films pass before removal from the camera. Julien Charpentier, 20, Rue Delambre, Paris.

DAYLIGHT DEVELOPMENT.—No. 9,806, 1905. Describes a tank for development, the novel feature apparently being the rounded and weighted base on which the tank stands upright, or on which it can rock. Edward Rosell Petrie, 76, Second Place Brooklyn, New York, U.S.A.

New Apparatus, &c.

Cherrill Printing Frame. Sold by Houghtons, Limited, 88 and 89, High Holborn, London, W.C.

This printing frame which has been put on the market primarily in the interests of "pictorial photographers" is of ingenious construction, and, doubtless, in the hands of the photographer who wishes to "control" his negative or printing process, will be of great use. By a system of notches and pins perfect registration is assured between paper and negative, even after the entire removal of the former from the frame. This is achieved by the negative being affixed by a specially prepared adhesive medium to the back of the printing frame, which can be taken in one piece from the frame and replaced in exactly the same position it formerly occupied after the negative has also been removed and masked, or otherwise "controlled." To the worker in the gum-bichromate process it should specially appeal. The chief difficulty in multiple printing with this process appears to be in obtaining exact registration after each coating. With the Cherrill frame this drawback can be overcome without further trouble, and as modifications can be made, not only to the print but also to the negative in printing, the pictorial photographer will be able to achieve an endless variety of effects with this reliable piece of apparatus. He will also take heart of grace from some of the illustrations in the book of instructions, in which the fundamental laws of pictorialism are well set forth. For instance:—"It is evident that by the alternate use of masks made as indicated any amount of control may be exercised, so that the resulting print may be made to assume a character totally different from that which could be obtained in an ordinary printing frame. . . . It is possible from an artistic point of view, desirable to reduce the excessive coarseness and painfully cut detail so often found in negatives made with modern high-class lenses."

It is, however, in combination printing, that is, in producing a print made up from parts of several different negatives, that the Cherrill frame is most likely to score. The frames are made with every part interchangeable, so with a series of frames, each containing a different negative and suitable masks, the print, affixed to the back of the first frame, can be placed in register over each negative in turn until the complete picture has been secured. Needless to say for work of such precision the frames are well made, and the price for printing from negatives up to whole plate is 12s. 6d. includes negative and mask carriers, etc.

"Tress" Rapid Bromide Printer. Made by the Tress Company, 205, Oxford Street, W.

This latest introduction by the Tress Company embodies several features of novelty that should appeal to the busy worker, or to the photographer who desires to rapidly produce proofs for customers' selection. Indeed, the claim made for this piece of apparatus, that it is the only machine of its kind specially designed for the production of prints from the wet negative "while you wait," appears to be fairly substantiated. The apparatus is not only ingenious, but its simplicity is a great point in its favour. In construction it is a box about ten inches cube with a removable top panel, which forms the printing frame with hinged back. This printing frame takes carriers to hold any size negative up to half-plate. In the bottom of the box is fixed a four-volt electric lamp and reflector. This lamp is supplied by a small battery contained inside the box. Contact is made with the negative by means of a metal spring fixed in the rebate in which the printing frame rests, but the weight of the frame is taken by four other springs placed at intervals round the rebate. When the negative

and bromide paper are in position in the top frame, it is only necessary to press this part down (a matter of half an inch), the contact is made, the lamp lights, and the exposure is complete in about three seconds with a negative of ordinary density. By removing the pressure of the hand, the top frame returns to its original position, the contact is broken, and the light goes out. The delightful simplicity of this exposing machine has only to be tried to be appreciated. For exposing wet negatives, sheets of thin celluloid are supplied. The negative is taken from the fixing bath, slightly rinsed, and placed in the carrier of the printing frame. A sheet of the celluloid is now placed over the wet film and a piece of dry bromide paper placed in position on this. The hinged back is returned to its place, and the whole frame pressed down into the box for three seconds. After the exposure, the bromide paper is removed and developed in the ordinary way, and the celluloid is taken off the negative, which then receives complete washing; or many other prints can be obtained from the wet negative, without in any way injuring it. The apparatus costs £1 17s. 6d., and the lamp, which will burn for five hours continuously, can be recharged for a few pence.

We have received three sets of "Keene's Nature Studies," published by Mrs. M. Keene, 95, Egerton Road, Bristol. They include reproductions from original photographs of budding plants, flowers, fruits and seeds in various stages of growth, also birds and their nests and other natural history subjects. The sets are published at 2s. 6d. each, and the complete series contain thirty different studies. The prints are excellently produced, and depict the various subjects in a manner that will render them of undoubted educational value. The plates are $8\frac{1}{2}$ by $6\frac{1}{2}$ in size, and are printed with broad white margin. We understand that these studies are being used already at the leading British and colonial schools, and are highly recommended by eminent educationalists.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
4.....	South London Photo. Society ...	{ Opening of Winter Session and Conversation.
4.....	Bowes Pk. and Dis. Ph. Soc. ...	{ Competition of Chisford Marshes
5.....	Manchester Amat. Photo. Soc. ...	{ Outing Prints. Lecture, "Bromide Enlarging," Mr. H. C. Bird.
5.....	Rotherham Photo. Society	{ "Making Enlargements." Mr. C. J. Atkinson.
		{ Lecture on "Crystallisation." Mr. J. Leadbeater.

ABERDEEN PHOTO ART CLUB.—This club held its annual business meeting at 62, Fonthill Road, on Friday evening last. Mr. G. L. Smith occupied the chair. The secretary and treasurer's report showed the club to be in a satisfactory condition both financially and in membership. The following were nominated and elected for the ensuing year:—President, Mr. G. L. Smith; vice-presidents, Messrs. Jarvis and Dalgity; lanternist, Mr. Stephen; assistant lanternist, Mr. Bow; secretary and treasurer, Miss Dalgity; assistant secretary, Miss M. R. Smith; committee—Messrs. Stephen, Bow, Christian, and Mundie; Misses M. M. Thomson, Grant, Smith, and Clerihew.

CAPE TOWN PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held on August 3, in the Oak Hall, Y.M.C.A. Buildings, Cape Town, under the presidency of Professor W. S. Logeman. The secretary (Mr. A. J. Fuller) read the 15th annual report, which was

very satisfactory. He said:—"Considering the very great business depression which has prevailed in the Colony since the last annual meeting, the prosperity of the society is phenomenal, for the membership keeps up well, and the meetings during the year had been far better attended than during any previous year. The educational advantages arising from the exhibition which was held in the Easter week in 1904 are becoming more noticeable by the increased earnestness of many of the members, and the character of the work which is now being done by them, and although the exhibition cost the society a considerable sum, yet it has turned out to have been money well and usefully spent, having regard to the objects of the society." The forthcoming exhibition and its extent were then discussed, and the events of the past year reviewed, including the visit of the secretary and Mr. J. P. Edwards to England to the Photographic Convention and the conversazione given in their honour on their return. Lectures from the R. P. S. had been read, and the thanks of the society were due to the authorities of the South African College for the use of their laboratory and lecture-room for demonstration purposes, and to the board of the Y.M.C.A. for the continued use of their building. Mr. Fuller further said:—"The efforts of the Copyright Section have been rewarded by the passing of a Copyright Bill for the Colony during the last session of Parliament, but unfortunately, through the long delay of the Government in putting it into force, the members have not yet been able to avail themselves of its much needed provisions; this is the more to be regretted as several members have suffered considerable pecuniary loss thereby, and unless this is speedily rectified it may seriously interfere with the success of the forthcoming exhibition." The chairman said that the society was lucky in having such a secretary as Mr. Fuller. In the name of the committee he had been empowered to ask for permission to present £25 to Mr. Fuller as a token of gratitude. That would not be anything in the shape of a salary, but simply as a token of appreciation. The following were elected office-bearers for the current year:—President, Sir David Gill, K.C.B., F.R.S.; vice-presidents, Mr. J. D. Cartwright, M.L.A., Rev. W. Forbes, Mr. E. Noakes, and Professor W. S. Logeman; committee, J. P. Edwards, H. S. Jaegar, E. Naude, E. C. Matson, E. H. Oakley, H. W. Schonegevel, E. J. Steer, P. Mowbray Turquand; lanternist, G. Ainslie; secretary and treasurer, A. J. Fuller. The membership of the society now numbers about 190.

THE death is reported of Mr. Alex. B. Cunninghame, of Blaydon, which took place at Brotton, near Saltburn. Mr. Cunninghame was very well known in local photographic circles, having held the position of honorary secretary of the Blaydon and District Camera Club for several years. Deceased was also one of the prime movers in the formation of the Federation of the Photographic Societies of Northumberland and Durham some four years ago and has since served on the Council of that body. He was only thirty-five years of age.

SNAPSHOTS on a Cowcatcher.—Mr. C. R. Noble has just returned to London with 18,000 ft. of films, after a tour through the wilds of South America in search of photographic copy for the Urbanora Bioscope Company. In order to photograph the scenery the enterprising photographer travelled across the Andes to Paraguay on a cowcatcher.

TRIBUTE to a Dead Queen.—According to the "Daily Mail," Sir Benjamin Stone, M.P., paid a visit to Peterborough Cathedral on Saturday, where he was much interested in the tomb of Catherine of Aragon, first wife of Henry VIII. Sending out to a florist, he ordered a mass of lovely flowers, which he arranged over the tomb, and then photographed it.

Commercial & Legal Intelligence

MIDLAND Camera Company Limited.—This company has just been registered with a capital of £10,000, in £1 shares, to acquire the business carried on at 64 and 73, Slaney Street, Birmingham, as the Midland Camera Company, to adopt an agreement with C. How and G. L. Moore, and to carry on the business of manufacturers of photographic cameras, apparatus, materials, accessories, etc.

A COMMERCIAL Traveller.—At the Bristol Bankruptcy Court Frederick Ernest Etches, of Berkeley Road, Westbury Park, Bristol, appeared on a bankruptcy petition. A deficiency of £529 was shown, liabilities to rank at £336. The alleged causes of failure were "Insufficient capital to properly work my business, the out-of-pocket expenses of which are heavy." The bankrupt, who is thirty-three years of age, stated that for some years he had been manager for several photographic publishers, but began trading on his own account in March of this year, with a capital of £100 borrowed from a friend, and which was still owing. The bankrupt on May 23 last borrowed £40 upon bill of sale, the security given consisting of household furniture, some of which was not paid for, and a motor-car which he used for the purposes of his business in travelling about the country taking photographs.

PHOTOGRAPHER'S Canvasser Pawns a Camera.—At Aberdeen on August 22, Charles Paterson, photographer's canvasser, of 78, Rosemount Viaduct, was charged with having, on August 18, in a shop 178, Rosemount Place, occupied by James Rennie, photographer, received a camera from Rennie in order that he might show it to a customer, but which he pawned. Accused, who had been previously convicted, pleaded guilty, and said he was drunk at the time. The Sheriff said this was another act of the same sort the accused had been carrying on since November, 1898, and he had had plenty of warning. He would have to go to prison for sixty days.

MILITARY Raid on Photographer's Tent.—At the Lincoln County Court on August 23, Thomas Gilbert Hickingbottom, publisher and photographer, of Lincoln, sued Sergeant E. A. Parker and Sergeant J. A. Kelly, of the Lincoln Militia, for £3 15s. 8d., damage done to his photographer's tent. The plaintiff had established himself in a tent at the encampment at Louth where he was taking photographs. One night when he had left the tent in charge of two friends, the defendants came up in a state of hilarity. They threw his chemicals about and damaged the tent. His Honour, in giving judgment to the plaintiff, expressed very great surprise that the adjutant was not present in court. He believed the War Office had given order that some officer must be present to represent the regiment at a trial.

PHOTOGRAPHIC Lenses.—In the Court of Chancery on the 1st August, Messrs. Perken, Son and Company, Limited, of No. 1, Hatton Garden, London, wholesale opticians and manufacturers of scientific instruments, brought an action against the firm of Brickell and Jones, of 259, High Road, Brondesbury, London, wherein they claimed an injunction restraining them from offering for sale or passing off as the goods of Perken, Son and Company, Limited, any lenses or other photographic apparatus which were of inferior quality or foreign manufacture, and not manufactured by Perken, Son and Company, Limited, and from representing, or causing to be represented, the lenses and other photographic apparatus not manufactured by Perken, Son and Company, Limited, but sold by Messrs. Brickell and Jones as the manufacture of Perken, Son, and Company, Limited. It was ordered by his lordship, Mr. Justice Warrington, and with the consent of the defendants and their counsel, that the motion for injunction should be treated as a motion for judgment and the defendants, by their counsel, giving a perpetual undertaking. It was ordered that Messrs. Brickell and Jones do not sell or offer for sale or pass off as the goods of Perken, Son and Company, Limited,

lenses or other photographic apparatus which were of an inferior quality and of foreign make (and not manufactured by Perken, Son and Company, Limited) as the lenses or other photographic apparatus manufactured by the plaintiffs. And not to sell or offer for sale the lenses or other photographic apparatus manufactured by Perken, Son and Company, Limited, under the prices fixed by them in their trade discount lists, catalogues, or invoices furnished to Messrs. Brickell and Jones, and not to print, publish, issue, circulate, or distribute any catalogues, circulars, or price lists containing any plates or illustrations or descriptions of lenses or other photographic apparatus manufactured by Perken, Son and Company, Limited. The defendants were ordered to pay the costs of the action and 40s. damages.

ALLEGED ARTFUL SWINDLE.—At the Lambeth Police Court on Saturday last, Henry Andrew Spinney, describing himself as a clerk, of Somerleyton Road, Brixton, was charged with stealing, by means of a trick, 60 oz. of silver nitrate, value £5, the property of Messrs. John Griffin and Sons, Limited, of Sardinia Street, Lincoln's Inn Fields. On Friday morning last they received a telephonic message, in consequence of which they sent Mr. H. W. Apperton, a young clerk in their service, to a house in Valentia Road, Brixton, with 60 oz. of silver nitrate and 1 lb. of cotton wool. In his evidence, Mr. Apperton stated that upon arriving at the house in Valentia Road, he saw the prisoner in one of the rooms. He asked for Mr. Andrews, and the prisoner then said Mr. Andrews had been there, but had just left. The accused added that he would go and see whether Mr. Andrews had left the money. He returned and said Mr. Andrews had left £5 for the silver nitrate, and he would pay the 1s. 6d. for the cotton wool and would sign the invoice as having received the silver nitrate in good condition. The prisoner went on to say that if he (Mr. Apperton) presented the account at a house in Canterbury Road, Brixton, he would receive the money. The silver nitrate was left on the table in the prisoner's room, and the prisoner went with him to the corner of Canterbury Road, and pointed out a house as being the one at which he was to call. He went to that house, but finding that it did not bear the number stated by the prisoner, he immediately returned to the house in Valentia Road, and found that the prisoner was not there, and that the silver nitrate had gone. At night he saw the prisoner in the Brixton Road, and gave him into custody. The landlord of the house at Valentia Road stated that the prisoner had engaged a room on Friday morning.—Bail was refused.

THE STATEMENT OF AFFAIRS OF J. E. L. REES (trading as the Gwalia Photographic Company) of the Drill Hall Yard, Pentre, Glamorgan-shire, photographer, late chemist's assistant, shows net assets figure at £78 12s. 6d., the deficiency being £165 6s. The bankrupt states that between August 14th, 1904, and December last, he earned as a chemist's assistant £40. He accounts for this amount and his deficiency. The bankrupt (age 25 years) has lived in premises at 45, Carne Street, since February last. Before that he lived at No. 75, Llewellyn Street, Pentre, and previously for certain periods in several towns in England and Wales, during which time he was employed as a chemist's assistant.

WOOD, LIMITED.—Registered August 22. Capital £500, in £1 shares. Objects: To acquire the business of chemists and druggists carried on at 31, Hillidge Road, Hunslet, Leeds; by S. R. Mundell, and to carry on the same and the business of herbalists, opticians, druggists' sundriesmen, dealers in photographic apparatus and materials, etc. Registered office, 31, Hillidge Road, Hunslet, Leeds.

"POETRY" is not often enlisted in the photographer's advertisement, but we have been interested in a circular of the sixties, in which an offer of a photograph complete with frame for 1s. is supported by some lines commencing:—
Wonders every age arise,
Excel before our wondering eyes.
Some aerial wonders make us laugh—
But ponder o'er the photograph.

News and Notes.

GLAZED STEREOSCOPIC PHOTOGRAPHS.—The "Photo-Critic" gives the following practical hints:—In the first place, one must decide on the size and shape the stereo is to be, whether the two as a single print made by cutting the negative and reversing, or two single prints mounted as is the custom to-day. If two separate prints have been decided upon, then squeegee plates of the exact size must be used, and pressed down in the usual manner, but care must be taken so that the right and left can be easily detected, so as to make no mistake in mounting. This can be overcome by cutting the outer lower corner a little round, which will come in the centre of the card and remain unnoticed. After the prints are pressed to the plates, which have been polished well with a few drops of benzole, 4 oz., paraffin 10 gr., using a large wad of cotton, they are allowed to rest a moment, when paste is applied as usual, but just enough to stick. Both prints are now mounted on the card, and placed under a weight for at least five minutes, when the print is placed away to dry in a cool place. (Glazed prints should never be allowed to dry in a warm room, if so they will always curl.) The tins will then fall off when dry, and the result will be a clean job, bringing out in the stereoscope those delicate lines that we all so wish to see. This late method of glazed stereographs has come to stay because of the fine finish that does away with that so-called matt surface which is so common in the old style. Of course, glazed stereos made on a large scale are mounted in forms fixed to a table so as to do the mounting quickly, but the method described is practically the same.

It is understood that the Sunderland Photographic Association intend holding a big exhibition in the Wearside borough some time during the winter. Photography appears to be in a very flourishing state in Sunderland, says the "Newcastle Chronicle," as may be judged by the fact that there are at least three societies with an aggregate membership of something like 250. For a few years back the Sunderland Camera Club and the Photographic Association have held open exhibitions on alternate years. This is a very good plan, as each Society has endeavoured to emulate the achievements of the other, with the result that Sunderland has been treated to a succession of exhibitions equal to any held in the provinces.

PROPERTY IN PHOTOGRAPHS.—A letter from Mr. William Grove, hon. sec. of the Professional Photographers' Association, appeared in the "Daily Chronicle" of August 24, in reference to the interview with Mr. Clement Shorter, to which we have already referred. Mr. Grove says:—"The attention of the Committee of the Professional Photographers' Association has been directed to an article which appeared in your issue of July 8, wherein Mr. Clement Shorter, in commenting upon a legal case in which he was interested, took the opportunity of reviewing the present system of dealing with photographic copyrights from his own point of view. He has since disclaimed an historical statement attributed to him, and has explained that in applying the term "robbers" to photographers he did so only in a limited sense. Mr. Shorter is notoriously no friend to photographers as a body, whatever he may be to a few individually, and the reason is a natural one—his interests and theirs clash. He, as conductor of certain illustrated papers dependent upon photography, desires to obtain the pictorial matter for his paper at the lowest possible rates. Photographers, as men in business, want to sell their wares at the highest possible rates. This accounts for the warning which Mr. Shorter gives to public characters not to allow photographers to acquire the copyright in their portraits. Photographers generally would heartily welcome the change in the

present system that would be involved in everyone acquiring the copyright in his own portrait, for that would mean that everyone who wanted a portrait would have to pay for the sitting. But a small proportion of photographers are able to cater for the Press, for the business is a speculative one. To do so entails giving free sittings, not only to persons who have become celebrated, but to hosts of others who may have a remote chance of doing so, and if there are prizes there are also a great many blanks."

GENERAL BOOTH and the Camera.—Our comments in last week's JOURNAL on the irrepressibility of a certain class of photographers are well exemplified in an account of General Booth's visit to Stockton as supplied by a special correspondent to the "Daily Telegraph." He says:—"The farther General Booth travels the more numerous become the camera fiends who lie in wait for him at every turn and corner. Sometimes they climb lamp-posts and trees, and sometimes they scorch after him on cycles, and take a snapshot at random. One man, perhaps a little more audacious than the rest, having erected his tripod, got two small boys to hold a string of flags right across the road, and thus compelled the car to pull up. On Monday morning the General appeared at South Shields market-place a quarter of an hour before the time for starting in order to say good-bye to the people. No sooner had he begun his address than a photographer, aided by a group of assistants, wormed his way through the crowd, and, within a few yards of the car, put up an elaborate tripod, some 9 or 10 ft. high, with a step-ladder. From this position he took portrait after portrait while the General was speaking. The veteran stood it for some time, and then burst out: 'In spite of the weather, so unfavourable for motoring, I enjoy myself. I have a religion that is not affected by weather. There is only one thing that does annoy me, and that is when I want to speak to people's hearts a photographer comes and sticks up his camera just before me. The photographers have never done with me. They ask for "one moment," and you give them a quarter of an hour, and then they have not done.' (To the photographer): 'Hurry up, please, and when you have finished, pull your concern down. What right have you to spoil my last few minutes with these people? In all probability, I shall never see them again.' Notwithstanding the protest, the man remained where he was until the crowd insisted that he should go away."

BURGLARY at the City Sale and Exchange.—The large sheet of plate glass of the photographic window of the Fleet Street branch of this well-known house was early on Sunday morning last (26th) smashed by some person or persons at present unknown, the object being apparently burglary. Owing to the promptness of the police, who, without doubt, disturbed the thieves before they had time to complete the transaction, the large stock of valuable cameras on show was left undisturbed. Several pairs of valuable opera and field glasses were, however, taken. That they left hurriedly is proved by the fact that they left behind them the heavy iron jemmy with which the window was broken. The police have the matter in hand.

DEATH of a FRENCH ARTIST.—The death of M. Bouguereau, in his seventy-ninth year (says the "Globe") will be almost as much regretted in this country as in France, for his pictures have always been much sought after by British collectors. He was probably the best exponent of the academic tradition who has been seen in our time, the most severely accurate in draughtsmanship and the most precise in methods of handling; and in the long series of pictures which he painted during the fifty-six years of his working life he never showed any inclination to modify his manner. That he ever attained to any great heights of imagination in his art can hardly be said, but he deserves to be remembered as an accomplished and learned craftsman and as a master of technical practice.

Correspondence.

*** Correspondents should never write on both sides of the paper, notice is taken of communications unless the names and addresses of the writers are given.*

*** We do not undertake responsibility for the opinions expressed by our correspondents.*

THE ACTION OF METOL AND ORTOL ON THE SKIN

To the Editors.

Gentlemen,—Your correspondent, Mr. A. R. F. Evershed, is quite correct in stating that adurol has the same effect as metol on some skins. It has on mine. The last time I used metol was about eighteen months ago. Owing to its irritating nature on my skin, discontinued its use, and did use adurol as a substitute. However, I found that this latter has acted in exactly the same way. Consequently, I had to give it up as well.

Since about a year I have been using Lumière's dianol (which, I understand, is amidol). This latter has acted on my skin in the same manner as metol and adurol did, and I have now both my hands covered with cuts and blisters, and quite incapacitated from doing anything. This dianol has acted on the skin of an assistant I had as well. The worst of it is that it not only attacks the fingers, but that now is spreading up my arms, and shall be grateful if anyone could mention an efficacious remedy. A doctor has given me some oleum deoline for a cure, but since I have been using it my hands are getting like burst fried sausages.—Yours truly,

J. MALLIA.

285, Oxford Street (Oxford Circus), London, W., August 28, 1905.

To the Editors.

Gentlemen,—Metol, even in small quantities, or if mixed with other developing agents, always causes me irritation for five to nine days, and the skin peels off. This is especially noticed on the third and fourth fingers of the left hand, but it is only round the fingernails that the trouble ensues. Respecting ortol, I have used many pounds' worth, and except a yellow-brown stain, have had no inconvenience. Using large plates and larger paper, up to 30 by 20, the hands necessarily are immersed in quite a reasonable quantity of solution.

ARCHER CLARKE.

20, Larkhall Rise, S.W., August 25, 1905.

To the Editors.

Gentlemen,—I see complaints are still made of the ill-effects of metol on the fingers of some who would like to use it, presumably, on account of the early appearance of the image, and the small amount of alkali needed. If hydroquinone is used alone, or eikonogen, strong alkali is required, or development is slow, and strong alkali is bad for fingers and films. But to secure the accelerating effect of metol, a very small quantity only is necessary when used with other developers, and then no ill-effects need be feared. Four grains of metol are quite enough for forty ounces of developer, and my favourite mixture at present is:—4 grains metol, 40 grains eikonogen, 20 grains hydroquinone, 4 grains potass. bromide, dissolved in 20 oz. water to which $\frac{1}{2}$ oz. soda sulphite and 10 drops sulphuric acid have been added. No. 2 solution is simply soda carbonate crystals 1 oz., water 20 oz., and equal parts are used. This allows of short exposures, secures early appearance of the image, and produces ample density in four to five minutes, and, with good plates, will not cause fog.—Yours truly,

E. WILLIAMS.

Highgate, Hawkhurst, August 26, 1905.

THE ACETYLENE LIGHT.

To the Editors.

Gentlemen,—In reply to the letter re "acetylene gas" from Mr. E. E. Organ, in the current issue of the B.J.P., the following notes may be interesting:—

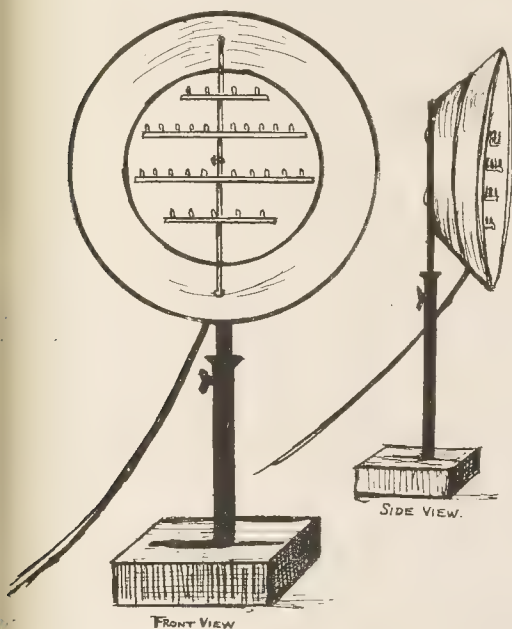
About eighteen months ago we received an order to attend at a private fancy dress ball and open a studio during the night.

There was no means of having either gas or electric light laid on, the house was situated about two miles from the nearest town.

We therefore had to resort to acetylene, which could be generated on the spot. Numerous trials were made with five, ten, and fifteen burners, but all unsatisfactory. As we only had two days' notice, our apparatus was somewhat crude, there being no time to get properly-made apparatus.

After the numerous trials we decided upon and got a local iron-rounder, etc., to make us the following apparatus:—

One ordinary circular splash bath was fixed upon a stout bar of iron and made to raise or lower by a clamp at the back. Then a piece of tin was fastened round the rim of the bath, so making it



deeper, as it were, and also concentrating the light more upon the subject. Then acetylene burners were placed in the bath in rows as follows:—Top row, four; second row, ten; third row, ten; fourth row, five, and these were made to turn up or down altogether by a screw at the side. There was also one burner in the centre on a separate tap, by which to focus.

The whole of the apparatus was enamelled white. The gas was generated upon a lawn about twenty yards from the room, and carried up through the window in an ordinary garden hose pipe.

By the use of a large mirror as a reflector to lessen the shadows, excellent exposures were secured at five seconds, using a Barnet extra rapid plate and a Voigtlander's euryscope (portrait) lens, worked at $f/22$.

Trusting these notes will be of use to your querist, I am, gentlemen, yours faithfully,

H. ESSENHUGH CORKE.

39, London Road, Sevenoaks, August 25, 1905.

Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- J. P. Blair, 19, L'Avant Street, Petersfield, Hants. Photograph of an Explosion by Royal Engineers at Longmoor Camp.
- A. Simmons, 258, Westminster Bridge Road, S.E. Photograph of a Group of Members of the Terriers' Association. Photograph of an Illuminated Address.
- M. H. E. Currie, 16A, Brunswick Street, Teignmouth. Five Photographs of Teignmouth Lifeboat Day, 1905. Photograph of the Teignmouth Water Polo Team, 1905.
- E. Cooper, 69, Duke Street, Southport, Lancashire. Photograph of the Southport Corporation Band, 1905.
- S. H. Greenway, 27, Abington Street, Northampton. Photograph, Group of Australians and Northants. Cricket Team (County Championship).
- J. McPherson, 63, Gellatly Street, Dundee. Photograph of Part of the Tay Bridge after it fell into the River Tay.
- W. Fletcher, Port St. Mary, Isle of Man. Photograph of Chicken Rock Lighthouse, Port St. Mary, Isle of Man.

G. E. S. (Dublin).—If you will look in the "Almanac" you will find announcements of dark slides of the kind you require. Practically all of them can be fitted to any camera.

WAGES ABROAD.—Would you do me the favour of publishing in your next issue of B.J.P. the wages a good class printer earns in South Africa or Canada?—S. B. A.

We can only name figures in isolated cases, which would not assist our correspondent. Perhaps some Canadian or South African readers will let us hear from them.

PERIODICALS.—It would oblige me very much if you would answer the following questions in your valuable column:—Where can I obtain the paper called "Kokka" from in England, as mentioned in last week's B.J., also the value of two yen? Could you also tell me of a few American photographic papers and prices of same, and where obtained? Can they be obtained from Smith and Sons, the railway newsagents?—J. R. BOARD.

If you will look at the paragraph again you will see that the paper can be obtained from Mr. Quarritch, 15, Piccadilly, W. You will find a list of the American photographic papers in the "Almanac." They cannot be obtained in this country except on order. Messrs. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C., can get any of them for you.

F. B. (Scarborough).—It is against our rule. We must leave you to guess.

J. MALLIA.—We acknowledge your suggestion, but we fear it is not practicable.

ALBUMEN.—I should like to ask your advice in selecting albumen from three samples sent (if they are good ones) No. 1, No. 202, and 282. I find a difficulty in getting it clear, strong, and easy to melt. I mean getting it as good as is possible. They send me different stuff each time. I have it from a large firm, but they do not make it. It costs 2s. 10d. or 3s. per lb. in 10 or 15 lb. lots. Do you know of any firm where I could always

get the best possible without trouble? I find the orders do not always come as good as the samples. Would it be difficult for me to desiccate it myself? Have the samples any other substance mixed with them—if so, what?—TREDEGAR.

We have compared them with samples which we know to be good, and can see no difference. You can dry your own albumen by exposing the white of egg in shallow vessels to a temperature not exceeding 120 degrees Fahr.

PHOSPHATE BATH.—A short time ago you were kind enough to give me a hint with regard to getting cold sepia tones with platinum on collodion paper, and recommended the phosphate bath diluted. Would you kindly let me know what you consider the best formula for this bath?—EXPERIMENTALIST.

Potassium chloroplatinate, 2 gr.; phosphoric acid (sp. gr., 1.12), 3 drachms (fl.); water, 10 to 20 ounces.

GOLD MEDAL FOR RETOUCHING.—I shall be greatly obliged if you can give me a little information upon the means negative retouchers have to take to obtain a gold medal for their work. Also, if it is necessary for them to have a practical knowledge of photography before they can obtain it.—QUERY.

No gold medal is awarded for retouching alone, so far as we are aware. The City and Guilds of London Institute grant a gold medal annually for general photography. You will obtain particulars from the Secretary, Exhibition Road, London, S.W.

RETOUCHING (reply to Max).—Your touch is excellent for brightness, delicacy, and solidity, and many firms would hail you as a very fine retoucher; but if you value your own artistic well-being, at once discard the excessive flattery you indulge in, and treat your subjects more naturally. "A" is beautifully worked, as far as mere work is concerned, but the character is rejuvenated away, and he might pose as a testimonial to a skin soap or lotion. "B" is in the same category, and we prefer the unretouched for truthfulness and effect. "C" is very nice, but you should have knifed or pencilled the neck to better form—it is ragged. With more attention to the likeness and character, and greater variety of touch to suit the subject, you will make a really first class retoucher, worthy of the highest firms.

IODINE HYPO ELIMINATOR.—Some years ago I came across a method of eliminating hypo with an iodide salt. Can you give me the formula, or refer to a back volume of the JOURNAL in which it appears? I want to prepare some prints very quickly.—E. H. MAX.

Probably our correspondent refers to an iodine salt suggested by Mercier in 1898, the formula for which was: Iodine, three parts; salt, thirty parts; sodium carbonate, thirty parts. Mix well, and dissolve in 1,000 parts of water, and allow to stand, or heat, till colourless. The action of this is extremely doubtful, and it was pointed out by Bolton (B.J., Vol. 44, p. 520) that if any silver thiosulphate remains in the film, it will be precipitated as iodide. Further, that this salt had a considerable reducing action. It would be far better to use one of the commercial preparations, if necessary, which are mostly persalts, and have not such doubtful tendencies.

CARBON SUBSTRATUM.—Can you tell if it is possible to use any alcoholic or semi-alcoholic substratum for carbon prints? What I want is one that will dry rapidly and will not penetrate the surface of material much.—PROGRESS.

Possibly the following might answer the requirements of our querist: Dissolve $\frac{1}{4}$ oz. of Nelson's soft gelatine in 1 oz. of

glacial acetic acid by the aid of heat; also $\frac{1}{4}$ oz. of chrom alum in 1 oz. of water. For use, mix methylated spirit (non-mineralised) 50 drachms, water 20 drachms, and add gradually with constant shaking, and if any gelatine is thrown gently heat, gelatine solution $2\frac{1}{2}$ drachms, and then chrome alum solution 1 drachm. This can be flowed or painted over the surface; it has not much tendency to penetrate, and dries in about an hour.

J. W. H. B., H. S., and Others.—In our next.

COLOUR-PHOTOGRAPHY.—The week before last there was a notice about a studio being opened in Berlin for photographs in colours. I know nothing about it, but want to go in for it professionally. Can you give me names of books, etc., on it and place to buy colour filters, etc., so that I may begin to experiment in it?—NATURAL COLOUR.

Messrs. Marion publish an excellent work on colour-photography by Bolas, Senior, and Tallent, and you may get also Hübl's "Three-colour Photography," published by Penrose and Co. For particulars of a process now on the market, write the Rotary Photographic Company, Limited.

F. C. S.—Collodion dry plates have not proved a success on the market, and there are several good collodion emulsions. We cannot see that there is an opening for pellicle.

LIGHT FOR RETOUCHING.—Would you please tell me the best light, etc., for retouching after dark, as I have no time in the day for practice? I cannot have gas or electric light, as this town does not possess either.—P. W. WEBB.

Your only course appears to be to use a good oil lamp. Diffused daylight is, of course, the best light for retouching, and then electric light, but as you cannot employ these or gaslight, a paraffin lamp with argand burner and a reflector will be the best for your purpose if you have a reliable retouching desk, with either a mirror and ground glass, or with clear glass and white opal reflector.

DEVELOPING P.O.P.—I shall be glad if you can give me a formula for a developer for partial-printed P.O.P. postcard that will not stain the unsensitised side of the postcard. Will any of those you gave a fortnight ago do? I have been using the Kodak formula for the past two years for prints, but it will not do for postcards, as it stains the back of them.—WILLIAM FOX.

An acid developer such as those given in our issue of August 18 is much more likely to discolour the backs of the cards than the bromising process of development brought out by the Paget Prize-Plate Company, and described in a booklet issued by them. You had better obtain it.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

Hon. Secs. Please Note.

We are sending this month to the hon. secretaries of all photographic societies in the United Kingdom and abroad our annual request to furnish us with the latest particulars concerning their societies for free insertion in the "British Journal Almanac." This list of societies and information concerning them has always been a feature of the annual, and its utility for reference cannot be questioned. We shall be obliged therefore if our friends the secretaries will kindly fill up the forms sent them and return to us at their earliest convenience. The inclusion of reliable data of this description in a publication with the world-wide publicity of the "British Journal Almanac" is a point that should not be overlooked by the executive of any society that desires to keep its name alive in the photographic world. We shall be pleased also if all lists of fixtures and dates of forthcoming events are sent to us as soon as ready. They will then be published week by week in the column devoted to meetings of societies.

* * *

The Solar Eclipse.

A cloudy day in London on Wednesday of last week obscured almost completely every sign of the partial eclipse of the sun. Other parts of England were, however, better favoured, but even visitors to the north of Spain, the nearest accessible spot for the observation of the phenomenon, had the sensation of standing beside their cameras in doubt as to whether passing clouds would make their journey fruitless. But on the whole the weather appears to have been kind to the astronomers and photographers, and to have done its best on an occasion which will not present itself again, within such easy reach of London, for another seven years. In 1912 Spain will again be the rendezvous, and in 1927 a total eclipse will be visible in England for the first time for four centuries.

* * *

Eclipse

In another column we publish an account of the practical experiences of a photographer who journeyed to Burgos for the purpose of securing negatives of the eclipse, and who was favoured with the success that was unfortunately denied to several of the expeditions that travelled long distances to reach specific points along the line of totality. This was particularly the case with the parties with Sir Norman Lockyer at Palma, Majorca, and with Professor H. L. Callendar, at Castellon. The Canadian observation party at Labrador was also unsuccessful, owing to the cloudy weather, but most of the other observations were carried out under satisfactory conditions. Perhaps the most interesting series of photographs so far as the circumstances surrounding their taking are concerned were those

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

PRELIMINARY ANNOUNCEMENT.

The forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may occur to our readers as susceptible of improvement.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable new features of an informative nature will be added.

*** IMPORTANT NOTICE.—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1st, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

secured by Mr. F. H. Butler and Mr. Percival Spencer from a balloon at a height of 7,000 feet above the earth. The experiences of these aeronauts, who covered a distance of 200 miles, and made a record voyage across the Channel, are probably unique among the many photographic enterprises connected with the eclipse.

For Photographic Societies.

In the present issue commences a series of articles dealing with the position of photographic societies and exhibitions in this country, with notes on their management. These articles have been written for us by a gentleman who has had long practical experience in society and exhibition management, and his suggestions for the improvement of both should be carefully studied by the secretaries of every photographic society in the Kingdom. We would, therefore, particularly draw their attention to p. 707, containing the introduction to these articles, and feel sure that every society will profit by the adoption of one or the other of the hints given by our contributor. There is no doubt that the photographic society of to-day is a very different affair from what it was twenty or thirty years ago, and the circumstances that tended towards the success of these organisations in the past are in many cases almost entirely absent now. It therefore behoves the officials of our present societies to look to the means of making their institutions popular and useful by other means than those that obtained in the past.

The Exhibition Season.

With the opening of the two big London shows—the R.P.S. and the Salon—the exhibition season may be said to have fairly started. A glance at the list of forthcoming exhibitions on p. 712 should tend to convince the most sceptical that there is no lack of interest taken in these annual functions, and the reports of exhibitions held during the season that is past show that there has been no falling off in the support given them, but rather that the tendency among amateurs to exhibit their work is on the increase. Whether this is an unmixed blessing is beside the point under consideration. We are more concerned with the fact that the competitive spirit and the spread of photography show no evidences of abatement, and we regard the sign as a healthy one. In many instances the annual exhibition serves the double purpose of not only quickening the interest of members of societies in their work and giving them and the public a better idea of the progress of modern photography, but also the finances of the society are usually assisted to some degree. This point cannot be overlooked when making arrangements for the event, but unfortunately however, one fault appears to recur with distressing regularity year after year. We refer to the clashing of exhibition dates. Last spring we discussed this matter at length (see *BRITISH JOURNAL* for Feb. 10, p. 103), and suggested a means whereby the overlapping of dates could be avoided. To a certain extent this advice has been followed in the present season, but still there are cases where the same date has been chosen for the opening of two or more shows. It is obvious that each will be considerably weakened by the presence of the others, whereas if they had been fixed to follow one another the probability is that each would receive the full complement of entries that will now be divided. We therefore take this opportunity of again drawing the attention of secretaries of societies to our list of forthcoming events, and if the dates of their annual exhibitions have not been decided upon, to choose one that will not clash with any that are already fixed, or at all events enter into some arrangement with the society whose date they wish to

follow, to forward the pictures direct from one show to the other. This list of fixtures will be brought up to date and published at frequent intervals throughout the exhibition season.

Greenwich Royal Observatory.

A certain amount of perturbation has been aroused by an article appearing in the "Daily Mail" suggesting that the research work of the Royal Observatory might be carried out at some point on the meridian of Greenwich, where the atmospheric conditions are much more suitable than those that normally prevail in Greenwich Park. Professor R. A. Gregory, professor of astronomy at Queen College London, on being interviewed on the matter said:—"Greenwich Observatory was originally intended for the use of scientists to measure the stars year by year; the data acquired being used in the compilation of nautical almanacs, etc. For that purpose it is still quite suited, but there is in my mind no doubt that the spectroscopic and photographic research, which is now such an important feature of the work of the Royal Observatory, would, carried on in a clearer atmosphere, yield better results than at present. The question is one of money." There appears, however, to be no real necessity for moving the observatory, as the observations that they are able to make at Greenwich compare favourably with those of other countries, America, perhaps, excepted.

Photography in the Streets.

The roads are up. London at the present time is chaotic, so far as vehicular traffic is concerned in most of the main thoroughfares, and despair is written on the face of the man who charts a cab for the purpose of getting quickly from one point to another. This is doubtless being repeated in various provincial towns all over the Kingdom, and bad though it may be for many people it may occur to the photographer with a hand camera and an hour to spare that here at hand is some of the most striking and picturesque material for snapshots he could desire. The pictorial attributes of the British navy and work are remarkable. He groups well with his fellow navvies, and his movements are graceful. A focal-plane shutter is not a necessity for the purpose unless the dinner hour is indicated, while the roads wherein he toils are usually sufficiently blocked to render any special precautions on the part of the photographer needless. The light is still good enough during the greater portion of the day to secure perfectly exposed negatives in the streets and it is only necessary to make a preliminary tour of inspection one day for selecting the best settings for the men at work, and come again the following day with the camera. They will still be in about the same place and the exposure can be then made without undue haste. The value of these typically modern street scenes, apart from their pictorial interest, is such that they should find a place in the record department so strenuously advocated by Sir Benjamin Stone.

Collodio-Albumen.

In "The Week in History," on another page, our contributor, "Historicus," describes the process of M. Taupenot in practically the words of its inventor. That description, however, scarcely represents the status which the process rapidly reached on its introduction. It was not long before the sensitiveness and keeping properties of the plates were greatly enhanced. Although the process has long been obsolete it is within our experience that they could be kept for months after sensitising, and, if they had a wash of dilute gallic acid, for a very much longer time. It was usual to make the sensitising bath much stronger than Taupenot's—forty-

grains per ounce—and after a time gallic acid gave place to pyrogallie as a developer, which made the time of development much shorter. For many years the collodion-
 albumen was the, almost, universal dry plate process. Then after the introduction of the collodio-bromide process of Bolton and Sayce, Taupenot's process continued to be employed by many workers, notwithstanding that the preparation of the plates involved two coatings and two sensitizings.

Casual advertisement

A week or two ago we referred to the report of a semi-public function, involving photography, in which no mention was made of the photographer. This latter, however, for the good reason as we were informed—that the work was done by an amateur. Nevertheless, there are many occasions when such opportunities occur, and are neglected—or embraced. An instance of the latter lies before us in the shape of a paragraph from a good Midland weekly newspaper:—
 "We notice in Mr. F— G—'s window in High Street a first-rate enlargement of the portrait of the late Mr. Isaac A—, which we recently published in our columns. We should like to see a similar enlargement hung in the board room at the E— Union Workhouse. In the board room at the Shipston Workhouse hang portraits of two late chairmen. Perhaps the E— Board of Guardians will . . . hang in their board room the portrait of such an excellent chairman and so valuable a public servant as the late Mr. Isaac A—." A little paragraph such as the above may occur unsought in many places, but chiefly in connection with photographers wide awake to what is passing, and not needing such reminders as this we are now penning. We are afraid that the man who requires rousing to move in such directions are lacking in the advertising instinct and unable to discern any of the occasions when public notice may be drawn to their work.

ARE SILVER RESIDUES WORTH SAVING?

One time, that is in the wet plate days, when a photographer had to deal direct with nitrate of silver, the above query would have been considered quite short of ridiculous. At that period the professional, and a great many amateurs, systematically recovered all their wastes, and when they were collected and afterwards reduced by the refiner they formed a valuable asset. The case is different now. Professionals, except those who sensitise their own paper, have not to do with nitrate of silver, and some present-day amateurs have probably never even seen the article. In the wet collodion process a large quantity of nitrate of silver was consumed in the sensitising and development of the plates, a considerable proportion of it was reduced in the developer, and the muddy sediment that accumulated at the bottom of the tray over which the plates were developed was simply metallic silver. As the paper then used was strongly treated and was sensitised on a very strong solution of the salts—sometimes eighty to a hundred grains to the ounce—the washing waters of the prints, before they were fixed, were rich in silver, and so, also, were the used fixing baths, by reason of the large proportion of silver chloride in the paper. It was estimated by different authorities, some thirty or more years ago, that, under the then conditions of silver printing, not more than from five to ten per cent. of the silver used in their production remained in the finished pictures; hence there was something like ninety per cent. of waste, a large proportion of which was recoverable. It was computed at the time that from fifty to sixty per cent. of the silver purchased could be recovered

without any great expenditure of time or trouble. The late Mr. Geo. Dawson, in an article published in the *BRITISH JOURNAL* in 1881 (vol. XXVIII., p. 439), says that he had recovered as much as seventy-five per cent. of the silver used in printing, and that with only ordinary care and little trouble. From what has been said it will be seen that in the old days there was no question as to the residues being worth saving. But the large amount of silver recoverable at that period was not all that made the valuable asset. The value of the metal then was very different from what it is now. Referring to the money articles of the "Times" for 1867, a time when strong sensitising baths for paper were employed, and when the collodion process was the only one in vogue—we find that the price for standard silver stood for some time at 60½d. per ounce. One day last week it was quoted at 27½d. the ounce—considerably less than half the price it was forty years ago. Even so late as 1881 we find the price of standard silver quoted at 51½d. an ounce. From this it will be seen that whatever amount of silver may now be recovered from residues it will not realise one-half the sum it did forty years ago.

Let us now look at the conditions prevailing at the present time as regards silver residues. Gelatine plates contain no free nitrate of silver, bromide papers contain none, and the commercial "P.O.P.s" but little as compared with the old albumen papers. Hence the greater portion of the silver now recoverable must be sought for in the fixing solutions. The proportion that is recoverable from the washing waters of P.O.P.s is small, as these papers contain but little free nitrate, its function, to a great extent, being taken by organic salts of silver, which are practically insoluble in water.

Let us now look at the silver in gelatine plates. Investigations made by Messrs. Haddon and Grundy some time back, with commercial gelatine dry plates, showed that some contained less than one grain of silver to the quarter-plate, and these were amongst the most popular ones. Others contained more, but not to any great extent. Now, if we take as an average, say, fifteen grains to the dozen quarter-plates, we shall see that a gross of plates contains but 180 grains of silver to begin with. A good proportion of this is reduced, in development, to form the images, and that quantity naturally depends upon the subjects photographed. For example, if it be a sitter in a light dress, and taken with a tolerably light background more silver will be reduced in the film than in the case of a landscape in which but little sky is included, so that it is difficult to strike an average. But if we take it that, say, half the silver is reduced there is then but 90 grains to be looked for in the fixing solution from a gross of quarter-plates. Bromide papers, or papers for development, contain less silver than plates, and consequently there is still less to be got from the fixing baths.

Collodio-chloride papers contain free nitrate of silver that may be recovered from the washing waters, but the quantity is very small as compared with that from the albumen paper of the olden days. With regard to the ready sensitised albumen paper of the present time, that also contains less free nitrate, and less chloride of silver than does the generality of that of home sensitising, but yet still larger than the general run of P.O.P.s. Of course, there are also residues that are recoverable in the shape of cuttings from untuned, and also from spoilt prints. These, when burnt, add something to the value of the other residues.

From what has been said, the reader, particularly he who works on a limited scale, will be able to form an idea as to whether the residues to be recovered at the present time are worth his consideration, and whether, when they

are recovered, they will repay the time and trouble expended upon them, little though it be. This is a query that has frequently been put to us.

Before coming to a conclusion on the point, the cost of the sulphide of potassium (liver of sulphur) required for the precipitation of the silver from the fixing baths and the refiner's charges for the reduction of the residues to the metallic state must be taken into consideration. Also, and not least, the small price the metallic silver realises when recovered.

PRINTING PROCESSES.—XII.

BROMIDE PAPER.

THE great number of excellent brands of paper now on the market makes any remarks on the preparation of bromide paper less important than in the case of plain salted and albumenised papers. Bromide paper is produced commercially more evenly and better coated and cheaper than could be prepared at home on a small scale, and although the emulsions employed by various makers undoubtedly differ in detail, the difference is so slight that all makes can be said to give practically the same comparative results. Degrees of rapidity, variety in surface and thickness are, of course, peculiar to certain bromide papers, but speaking generally the processes of exposure, development, and after treatment are the same for all.

For the professional photographer bromide paper has particular claims for recognition outside of its extensive use for picture postcards. It is a fact, however, that contact bromide prints are not produced by the average professional photographer to anything like the extent that the facility, beauty, and comparative permanence of the process would indicate.

Every photographer utilises bromide paper occasionally, usually in cases of urgency, when it is desired to produce proofs rapidly, and unless they are for the purpose of reproduction in the illustrated press, full justice is seldom done either to this method of producing prints, nor is the most made of the negative because of the photographer's necessarily intermittent acquaintance with the procedure. Second-rate work is the result, and bromide paper does not therefore usually rank high in professionals' estimation except for the purpose of enlargements, when the circumstances are different. Amateurs, however, have not been slow to seize upon the advantages offered by a process at once simple and capable of endless modifications, and the large proportion of pictorial work in this medium at the annual exhibitions amply testifies to its extensive employment by them. In view of the fact that there is always a greater uniformity between the negatives of the professional photographer than between those of the amateur, the extensive and careful use of bromide papers ought certainly to receive more attention.

The paper is purchasable with surfaces varying from the most glossy to that of rough drawing paper, and a range of colours rivalled only by carbon is obtainable at will. In addition it can be worked entirely by artificial light, which is a great point in its favour, for the consideration of the busy worker during the short days of winter, when daylight printing is considerably curtailed. The so-called "gaslight" papers allow of even greater ease of working inasmuch as their manipulation can be carried out in the light of an ordinary room. They will be treated of later.

The best light for the development of bromide papers is that given by gas, oil or incandescent electric light

filtered through one thickness of canary fabric. If daylight is the illuminant it should first be shielded with yellow glass, and then further covered with canary fabric. It is astonishing, however, the amount of bright yellow light that can be used with ordinary bromide paper without risk of fogging. Nevertheless to satisfy the worker and to avoid the possibility of any future trouble it is always as well to test the light by placing a piece of the paper in use in a developing dish with some normal developer, covering half of it with a piece of card allowing it to stand in the direct rays of the yellow light for ten minutes or so. If the light is not safe, the half of the paper that remained uncovered will be found to be perceptibly developed.

Now although any bromide paper will, in capable hands, give a perfectly satisfactory print from any type of good negative, there is no doubt that it is as well to suit the speed of the paper to the character of the negative. That is to say, for negatives that are very harsh in contrast, and lacking in half-tones, a rapid paper will give the most harmonious results. For a negative that is thin and flat a paper that is considerably slower will give the best print. Tissue paper or pale yellow glass in front of the negative will also cause a marked difference in the rendering of the latter class of negative, but the greatest amount of control in compensating faulty density in the plate can be achieved by the regulation of the distance at which the printing frame containing the negative is held during exposure.

This is the one point in bromide paper technique where practice does not quite agree with theory. It is laid down as a rule in most of the text books that "the intensity of illumination varies as the square of the distance from the source of light," which means that at twice the distance from the source of light the exposure is not twice, but twice two, that is, the square of two, so that at three times the distance the exposure will be nine times, and at three times three, that is the square of three, and so on. In practical work, however, it will soon be discovered that a negative that requires, say, thirty seconds exposure at one foot from the source of light to give a fully exposed print will require more than sixteen times thirty seconds, that is, eight minutes, at four feet distance, although according to this law of inverse squares the results ought to be identical. This will be found to be the case particularly with negatives that have been developed with pyro and have a pronounced yellow stain. Such negatives will require an exposure altogether out of proportion to their apparent density.

It will be found also that the scale of gradation is shortened when exposing thin or flat negatives at a considerable distance from the source of light, that is, much pluckier prints will be obtained, and that softer prints are produced from harsh negatives by exposing close to the light. Both these facts can be made of considerable value when dealing with negatives that will not give a good print on P.O.P. The negative that gives a good straightforward print on P.O.P. is usually described as an "average negative" in the makers' instructions, enclosed with bromide paper. The density of this "average negative" should be such that if laid flat on some printed matter in bold type, such as the front cover of the *BRITISH JOURNAL*, the type can just be seen through the densest parts.

Control can also be exercised in the production of the print by employing different illuminants for exposing. A lamp or gas flame turned low will prove of great advantage in the case of thin negatives, while daylight may sometimes be used with advantage with extremely dense negatives, especially if they have also a strong yellow stain.

n fact in the case of the latter it is almost a necessity to use either daylight or magnesium ribbon.

It should be borne in mind, however, that with large negatives uneven illumination will result if the printing frame is held too close to the source of light, the middle part of the picture or the part that is held opposite the light will receive more illumination than the corners. With a No. 5 Bray burner or incandescent electric light, a quarter-plate negative ought never to be held closer to the light than one foot. For a half-plate, two feet, and anything over; whole plate ought never to be closer than three feet. The application of the advice on equivalent exposures at varying distances from the light will be more thoroughly appreciated when it is required to give identical exposures to, say, a quarter-plate and a whole plate negative of equal density when the correct exposure for the quarter-plate at one foot from the light is known.

It is advisable in bromide printing, if the most uniform results are required, to keep the variable factors as few as possible. As we have seen, thin negatives can be compensated for by using slower paper, by holding the negative further from the light when printing, by turning the light down and by covering the plate with yellow glass or tissue paper. All of these methods are efficacious, and can be employed on occasion, but it will be found that the percentage of good results will be higher if only one is used and that thoroughly understood. The same thing applies to the treatment of over-dense negatives.

A difficulty is frequently found in making satisfactory vignettes on bromide paper. This is usually due to the fact that the vignetting mask has been used too close to the negative and that the light has not been sufficiently

diffused before reaching the paper. The ordinary method employed for obtaining vignettes on P.O.P., platinotype, or carbon paper will not do with a process where the print is held so close to the source of light as with bromide. The result is certainly a vignette, but the line of demarcation is too abrupt. To produce properly graduated vignettes the mask should be placed at least an inch from the face of the negative and the opening in the mask made considerably smaller than with daylight vignetting. A piece of ground glass (ground side outwards) should be placed in the printing frame before the negative is put in position. Over the front of the frame a sheet of thin tissue paper is fixed. This is separated from the ground glass by the thickness of the rebate of the frame. At a distance of an inch from this tissue paper is placed the mask, which may be a piece of cardboard larger than the front of the frame. By cutting V pieces out of the corners it can be bent down all round, and pinned to the sides of the frame so that the aperture in the mask is kept at least an inch above the piece of tissue paper. This aperture, as mentioned before, should be quite small, although indicating roughly the shape it is desired to vignette, and it may also have serrated edges. With this vignetter the frame should never be closer to the light than three feet. The further off it is the softer will the vignette be, and the longer the exposure. In the case of very weak negatives or with a dense negative that is being exposed to daylight or magnesium light, another piece of tissue paper may be placed over the mask with advantage. In any case the exposure will be considerably increased, and this should be ascertained by means of a test piece of paper.

PHOTOGRAPHING THE ECLIPSE.

THE eclipse of the sun, which took place last week, attracted considerable attention from both the scientific and the unscientific world. In England, which is rarely favoured with a total eclipse, a very considerable portion (about three-quarters) of the sun was obscured. The weather, however, was very unfavourable for observation.

The most easily accessible place in the line of totality for English observers was in the northern part of Spain. Spain seems to be fortunately placed for total eclipses, the eclipse of 1900 being visible there, and another will be seen in that country seven years hence. The town of Burgos being practically in the centre of the path of totality and lying on the track of the Paris-Madrid expresses, was the most favoured spot for the majority of European observers, and was the rendezvous of several astronomical expeditions. The interest in the eclipse was by no means confined to astronomers. A vast number of sightseers and tourists travelled there to witness the interesting spectacle. The fact that the eclipse occurred during the holiday season considerably augmented the number of spectators in the town.

Those who availed themselves of the opportunity to visit Burgos and obtain photographic records of the eclipse were fortunate, as a practically uninterrupted view during the period of totality was secured. There will be no further opportunity of observing another solar eclipse at anything like a convenient distance from England until the previously-mentioned occasion (1912) in Spain. In the meantime, observers will have to journey to Australia, Central Asia, Greenland, and other equally distant regions.

It was this important feature of accessibility in the recent eclipse that led me to visit Spain for the purpose of photo-

graphy. There was another almost equally important feature of the event, the period of totality was unusually prolonged—more than three and a-half minutes—while in 1912 the sun will be observable for only a single minute. For photographic purposes, the extra two and a-half minutes would make all the difference to the convenience of the operator.

Practical Considerations.

To produce a direct photograph of the sun (or, rather, moon) of anything approaching a fair size is by no means an easy task, the diameter of the sun on the photographic plate being about 1-100 of the focal length of the lens. Consequently, a lens of 36 in. focus gives an image of about 1-3 in. Under these circumstances recourse must be had to a telephoto attachment on the lens, stopped down to ensure a sharp image, which will bear an enlargement of several diameters. As there is no necessity for rapid exposures, the lens can be stopped down to *f*64, and the photograph can then be enlarged to any reasonable size. The lenses I used were two of 48 and 36 in. focus respectively, and a small lens of about 14 in. focus, with a telephoto attachment, magnifying four diameters. The cameras were 12 by 10, 10 by 8, and whole plate, weighing over 1 cwt., and they proved a decidedly inconvenient quantity of luggage. The Spanish authorities had made every provision for the convenience of observers and their instruments, and on production of vouchers, photographic apparatus was passed through customs and booking-offices without inspection, or railway charges—an arrangement which assisted very materially in saving time and money.

Our party of three arrived in Burgos only on the evening preceding the eclipse. We had decided to drive out into the

country with our cameras for the eclipse, but every vehicle had been chartered for the following day. Under these circumstances, we hired porters to convey the apparatus to a field near the station. As it happened, this was the best

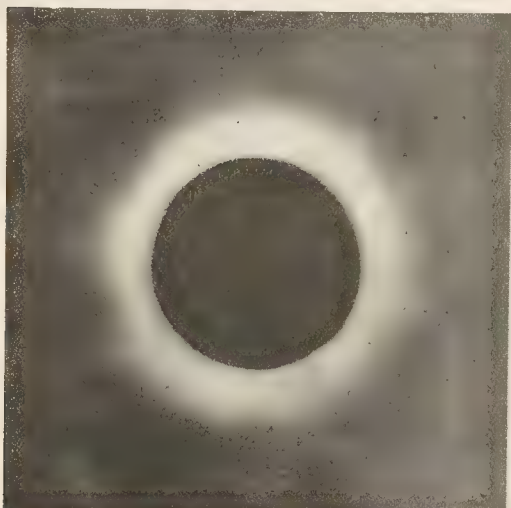


Fig. 1.—The corona during total eclipse.

method to adopt, for a very convenient spot was found, well protected by a low hill from the rather high wind that prevailed on that day, and we wasted no time in returning to the station after the eclipse.

The operation of fixing up the cameras was rather prolonged, and although we began work at 8 o'clock the three instruments were not in position before midday. The necessary focussing had been carried out in London and the position of the lenses carefully marked, a plan which saved a lot of trouble.

The early morning of the eclipse was beautifully fine, but about 9 a.m. a few clouds made their appearance in the sky, and these rapidly increased till the sky was almost overcast. Matters looked very serious indeed about a quarter of an hour before the eclipse. There was a vacant space, however, in the clouds, which, fortunately, passed over the sun at the critical period, and during totality the corona was not obscured by the clouds at all. A few fleecy clouds passed across the moon's surface in the first minute of the eclipse, but they were so light that the view was not affected by them.

Just before totality, while finally arranging one of the large cameras, one of the supports broke, and it was *hors-de-combat* in consequence. Three plates were exposed in each of the two remaining cameras.

Exposures.

The exposure for sun and corona during a midday eclipse is about $\frac{3}{4}$ sec., with the lens stopped down to $f/16$; if the sky and clouds are required on the plate about three times that exposure is necessary. This time is for fast plates. As I used $f/64$, in order to obtain as sharp an image as possible, our exposure varied from 2 to 8 seconds.

THE WARWICK COMPETITION.—The result of the August competition is as follows:—1st Prize, £10, Charles A. Slater, Esq., Biscot Road, Luton, "The Chantry Gate"; donation £5 to the Luton Camera Club. 2nd Prize, £5, A. R. F. Evershed, Esq.,

A reproduction of one of the photographs of the corona reproduced here (fig. 1). The second illustration shows a curious effect. The plate was the last one exposed, and just as the cap was placed on the lens, the first rays of the sun shot out. This gives a mock sun round the point where the rays struck the plate.

The eclipse, from a spectacular point of view, was certainly disappointing. A few streamers made their appearance, but they were of a very indefinite character, and their visible length not more than two lunar diameters. Compared with drawings of previous eclipses which I had inspected, the appearance of the corona and radiations during totality was very much less striking, and even allowing for stretches of imagination of both astronomers and artists, many former eclipses must have been far in advance of this one spectacularly. It remains to be seen if the eclipse has furnished any proof of the existence of the elusive Vulcan or fresh discoveries concerning the corona.

During totality the light was by no means bad, and small print could be read easily; but, nevertheless, the weird gloom and stillness were very impressive.

There was a total absence of any colour visible to the naked eye in the corona; the sky and clouds seemed of a dull blue-grey tone.

After the eclipse the cameras were packed up as speedily as possible and got away from Burgos by the first train; this made a great difference in the time of our home journey, and, in consequence, my photographs were developed and printed in London by 11 o'clock on Friday morning.

Burgos was filled with tourists of various nationalities, and the whole town gave itself up to the eclipse. The King of Spain and most of the Royal family arrived on the previous evening for the event, and added to the gaiety of the city.

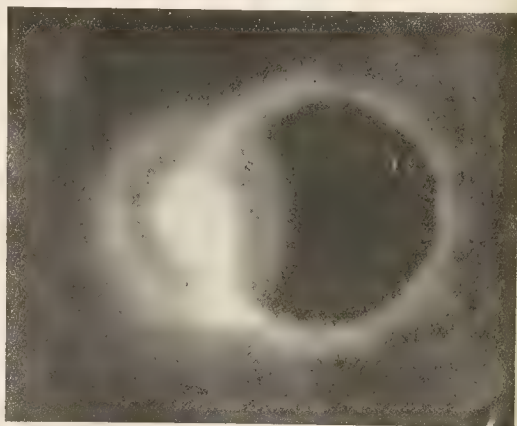


Fig. 2.—The sun emerging after totality. Corona photographed during totality.

The local authorities made strenuous efforts to look after the welfare of their numerous visitors, but the large influx of people caused something approaching a famine in the town.

J. I. PIGE, F.R.P.S.

Streatham Hill, London, S.W., "The Old Bridge"; donation, £2 10s. to the South London Photographic Society. Entries for the next competition must reach the Warwick Dry Plate Company, Warwick, not later than September 15 next.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

I.

The Modern Society.

the interest in the work of photographic societies waning? ere appears to be a considerable difference of opinion regarding the answer to this query, and possibly the true state of things can be more clearly determined if it is ascertained what that work is or purports to be, and the conditions under which it is carried on. It is proposed in these notes to discuss the extent of the falling-off in this interest, where it exists, and to suggest means for the renewal of activity. Undoubtedly, in many quarters a lack of enthusiasm is apparent, not only among the members personally, but in their support rendered to the society, and perhaps if an investigation of the circumstances and environment of these moribund institutions is made, the reason of their decadence will be manifest.

On the other hand, there are photographic societies to-day which are in a flourishing condition, both as regards utility, finance, and *esprit de corps*. A comparison of the methods adopted by the executive of a society that is successful, and of one that is not, should prove an interesting study for the latter. This, however, is seldom done, and the question might also be asked: "Is the modern photographic society necessary at all?"

A Comparison.

Photographic societies of to-day are on an entirely different footing from similar institutions of a decade or two ago. This fact is often overlooked by the old adherents of long-established clubs, who are wont to deplore the degeneracy of the present societies and their members. They forget that during the time mentioned, and earlier, photography was in a transitional state, and that photographic experimentalists had more material for investigation and discussion, and greater scope for expansion, than during the past few years. Improvements in photographic optics, plates, developers, etc., and research in other directions occupied a prominent place in the minds of most photographers, and in the discussions at every society meeting. The era of the "button-presser" had not commenced and the average of earnest workers was higher. The average is lower to-day, not because there are fewer earnest workers, but because there are more of the other sort. The increase of photographic literature, and the cheapening and simplification of apparatus, materials, and processes, have also had much to do with the societies losing caste as instructional factors, and the one-time acknowledged utility of the photographic society as a forcing-ground for advancement of the art is not so possible to-day. Good and lasting work can, nevertheless, still be accomplished, especially if the fact is kept before the members of a society that the discussions and work done in the societies of the past have borne fruit in the shape of most present-day improvements in photography. In fact, to the amateur workers of the past fifty years can be attributed most of the methods by which the path of the photographer of to-day is made so easy.

A Function of the Modern Society.

In any case, it should be one of the chief functions of the modern photographic society to assist in moulding the promising beginner or dabbler in photography into a more desirable exponent of the art, and to encourage the interchange of new ideas, practical or otherwise, among the more advanced workers. This can be accomplished either by practical demonstrations, if necessary, or by any means by which interest in the work can be legitimately sustained. This, of course, means a certain amount of self-denial and possibly hard work on the part of some officials of the society, but unless this comparative altruism is forthcoming, one of the principal causes of failure is

at once disclosed. The social side must also not be forgotten, but of this more anon.

The Beginner a Useful Member.

So far as the beginner is concerned, photography usually presents itself to him as a means of simple representation. Later, if his interest is encouraged by association with other photographers—and the tendency of the average specimen of mankind is to discuss with some one of a congenial nature the successes and failures attending a hobby common to both—he will probably begin to regard the process either as a vehicle for pictorial expression or as a field for scientific research, and herein lies one of the chief phases of the utility of the modern society. Even if the beginner does not venture to tread the hallowed paths of art, or seek the wonders of the micro-photograph or spectroscope and sensitometer, there is still an outlet for him in the realms of survey and record work if he wishes to do something useful for the advancement of the society and photography generally. In any case, if the society offers sufficient inducement to him to continue his hobby, and by competition fosters his desire to produce satisfactory results, it will be to their mutual advantage and photography may benefit later.

The beginner is considered first because he is—strange as it may appear—the most important member of a society. He represents the "new blood," which may be the very life of some clubs, and his ignorance is frequently the main factor in revitalising them by drawing into discussion the older members, who are thus given an opportunity of fighting their battles over again.

Other Useful Members.

The other types of useful members common to nearly every society are those who may be termed the "advanced beginner" and the "enthusiastic expert." It may be safely stated that, so far as the real activity of the society in the photographic world is concerned, these three types are the only kinds that are of importance. The other members are of use only to the social or financial side of the association.

The proportions, therefore, in which these elements appear in the constitution of a photographic society decide largely the success or failure of the organisation. The type referred to as the "advanced beginner" is undoubtedly the most "live" element in the membership. He is the beginner who has commenced to "take notice." He has grasped the principles of the art and thirsts for practical information. He is in a transition stage and it depends to a large extent on the society itself whether he becomes an enthusiastic expert, with aims and ideals, or degenerates into a mere local-view-monger, a purblind snapshotter of uncomplaining friends, to eventually drift out of photography altogether.

The "enthusiastic expert" is, of course, the fully developed beginner, who has neither drifted out of photography via the way indicated above, nor yet into the narrow channels of specialism. He is still fully alive to the general causes and effect of failures in his processes and is fairly equipped to surmount them. He is the member to whom the beginner naturally turns for advice, and it is from his ranks that the executive of the successful society should be drawn. Fortunate is the society in which this type of member is in the majority.

The Executive.

The executive of every photographic society appears to have been founded on lines established when the calls made on the honorary secretary were not so extensive or important to the

life of the society as they are at the present time. The result is congestion, and a multiplicity of duties which prevent full justice being done to any one of them. A reorganisation of the personnel of the executive would often save a society from

extinction. The officials, and the various types of photographic clubs and their accommodation and programmes, with suggestions for improvements, will therefore be dealt with in the next article.

"HON. SEC."

VIGNETTES AND VIGNETTING.

III.

"Portrait of Mr. F. behind the door and very like though too much forehead and as to a pillar with a marble pavement and balustrades and a mountain I never saw him near it nor not likely in the wine trade excellent man but not at all in that way."

Charles Dickens in "Little Dorrit."

Styles in Portraiture.

I CONFESS myself unable to say whether the above passage was penned in the days before or after photography became popular, and I have no means at hand to ascertain. It is of very little consequence. Photographers picked up the worst faults of painters and exaggerated them to a point of aggravation. The kind of thing still exists, and by an uneducated clientèle is even liked. It may exist for a century or two to come, maybe. Some sort of background you must have. The best of all for a full or three-quarter figure is the loosely hung curtain, but the various lights and shades of its folds renders it one of the most difficult of backgrounds to manipulate. The plain, simple background is best unvignetted, best left plain and simple in the photograph until the errand boy sticks his fingers through the reality, or the photographic printer's devil wipes his fingers on it (the background, not the negative). Such accidents will happen. Or the plain background may be too severe and want shadowing away by the useful vignette. An ornate background is one of the appliances of the best studios, but the better the studio, the less is it allowed to appear. Enter a modern studio, and you will almost invariably find that its furnishing is as plain as the work turned out is good. Good wine needs no bush, and the old-time accessories of the studio find no place now save in the neighbourhood of the lower middle class and the poor. Always excepting the den of the children's photographer. "Den" indeed! But its stuffed animals are less unreal than of yore; its tiger skins did once traverse the jungle, and its plants and flowers come from the hothouse and the nursery—not the ware houses of Cripple Gate. Even so, and yet they get more or less washed away by the vignetter's brush.

The Full-length Vignette.

In vignetting the full or three-quarter length you must bear in mind that you no longer have, or can seldom claim to have, the same plea that you have in the case of the bust, that of gazing at close quarters, when eyes (the sitter's eyes) must be sharpest, features and shoulders well defined, and the rest fading away towards nothingness, as it actually does on the retina of your eye. You see the whole figure, and to see the whole figure presupposes a certain distance between yourself and subject, and with that distance an equalisation of sharpness in the whole figure. Vignette out the background just as much or as little as you please, but the figure itself must not be vignettied one little bit. The background may be distant, blurred, faded away, but anything you take from the figure itself must be definitely cut off, and cut off at a suitable point. If, for example, you cut off the feet and a portion of the skirt of a standing female figure, the portion left below the waist must exceed in length the portion left above the waist. If the lower portion only of a seated figure be cut away, to escape an ungainly nose of the legs or feet, the seat itself, or at least the top portion thereof must be allowed to print. A standing figure, again, must be shown standing on something if the feet are printed in.

There may be exceptions to the rule, but they are rare. Anything more than the mere head and shoulders must have a base, be that base bounded by the line of a mask, straight curved, or the edge left by the blade of the trimming knife. Top and sides you may vignette away into nothingness as you please.

How the Vignette should be shaped.

The base being defined, the rest of your picture assumes roughly the form of a triangle or truncated cone, the apex which is just above the head. The shading off should follow triangle as nearly as possible, broken, perchance, by a parasol for example, balanced across the arm, perhaps by a gun held in a recognised military position if your subject be a man in military uniform. The point most to be impressed on the tyro is that the vignette should never follow the contour of the figure as if it were a shadow, but rather that of a triangular mass shade before which the figure stands in bold relief, its curves contrasting with the straighter shades of the vignetting mask.

The Vignette for Portraits of Obstreperous Infants.

In the case of young children and babies, vignetting should only be resorted to so far as the accessories are concerned. Redundancy of chair-back or of rug is not a desirable thing in the finished proof. Unfortunately, in the matter of babies a most suitable, and altogether good, thing may be secured in the way of facial expression, but marred by the movement of an arm, foot, or a hand. Should such happen, and—which is very seldom—the defect be beyond the pencil and knife of the retoucher, a little judicious vignetting of the offending limb may be admissible. If possible, avoid it. Any vignetting away of the baby's limbs is undesirable, for although babies are gazed upon at close quarters the angle of view is not greater than that taken up by the head and shoulders of an adult.

Vignetted Groups.

With the group, collectively, much the same thing applies as to the single standing figure, but you are allowed no cutting off. In an ordinary group it may be assumed that you have complied with the well-known rules of art and have got a pyramid or series of pyramids. If the group consists of more than two or three persons, the front row will probably be sitting or standing down. You must show their whole persons if possible, but vignette away as much superfluous foreground as you please. Up to whole plate this vignetting is sufficient. Beyond that if you ask me what style I prefer, I must plead guilty to a preference which I have found the general public shares. Vignette dome-shaped and actually interpose a dome-shaped mask (not an oblong with rounded corners, but a dome with square base and well-rounded sweeping arch) between film and sensitised paper. When the print has been sufficiently impressed, remove from frame, and with the "cut-out" of the dome to protect the print, tint the border. But this double printing may be overdone; the outside framing, if one may so term it, should be sufficiently deep to afford a slight contrast to the pure whiteness of the picture and the paper immediately in proximity with the vignettied group, but should not be deeper than the lightest shades. Remember that you are not printing a framework, but only a slightly tinted mount.

Types of Groups.

If this method is effective for the group proper, the group that has been built up according to the best recognised canons of art, it is just as effective when modified to suit groups which do not consist of being built up in the most orthodox fashion. Two typical examples can be easily given and may serve as models or illustrations, types rather, of more or less important gatherings. The first I will mention is the military group. I put it first, not because it is the most common or the most important, but because it is the simplest. No photographer in his sober senses would dream of putting the General, the Colonel, or the Captain, or whomsoever was highest in rank, anywhere but in the centre. The highest in rank must, in the parlance of art exhibitions, be hung on the line. The officers of next importance may stand behind their seated superiors; the tallest in the centre, if possible, but that is of little moment, and the differences in height are not likely to be striking. As to the subalterns, you

may seat them on the grass in front, and very well satisfied they ought to be in being portrayed in such distinguished company at all. The naval group would be similarly arranged; what may be called the Service type of group is the type of any course of servants, military, naval, civil, or otherwise. Art must be subordinated to rank and even looks. The group often takes the form of a horizontal oval whether the artist wishes it or not.

The second illustration is of the family group type, of which the wedding party is the best example. This assumes, most often, the cushion-shaped form, and happy for you if you have a little flower girl or two to put in the foreground so that you can obscure the hang of the groom's new trousers and the shine of his patent boots. But grouping is not the subject of these columns, and the little digression with which I have concluded is merely to emphasise the use to which masking and double printing may be put in effectively finishing off a vignettied group.

C. RAY WOODS.

THE WEEK IN HISTORY.

The Dry Plate of Fifty Years Ago.

I HAVE referred very often, it seems to me, to the dry-plate processes that bridged over the era of wet collodion and gelatino-emulsion. There was Crookes' and Spiller's ("The Week in History," April 28), and in the same year of 1854 the honey process was worked out independently by George Shadbolt and Maxwell Lyte. Here again the idea was to preserve the humidity of the plate until development could be done. A year later, and exactly fifty years ago to-day, a dry-plate process which came into considerable vogue in the late fifties was published by Dr. J. M. Taupenot ("La Lumière," September 8, 1855), and, after albumen, was the first dry plate process to reach the boundaries of experimental success and obtain adoption among practical photographers. M. Taupenot's method arose from his observation that a film of albumen, coagulated by an acetic acid solution of silver nitrate, formed an excellent varnish for collodion plates, and he set himself to apply the albumen to the preservation of sensitiveness when the collodion was used dry. His process was not complex. The collodionised plate, after immersion in the nitrate bath in the usual way, was rinsed in distilled water, and an albumen solution containing $\frac{1}{2}$ per cent. of iodide poured over it. After drying, the plate could be kept for several days. To prepare it for exposure, it was placed for ten or twenty seconds in a bath of acetic acid and silver nitrate, rinsed in distilled water, and exposed, either whilst still wet or up to the day following its preparation. The plate was developed by a saturated solution of gallic acid containing a little silver nitrate and acetic acid, and development might occupy a quarter of an hour or several days.

The Last Dry-plate Process.

September 8 is the red-letter day of modern photography, for it marks the publication, in THE BRITISH JOURNAL OF PHOTOGRAPHY, of the description of an attempt to compound a practically workable gelatino-bromide emulsion. Discussion has raged fiercely around the invention of the gelatine dry process, but without disparagement of the labours of others, the honour of inaugurating the present era of photography belongs to Dr. R. L. Maddox, whose communication in the B.J. for 1871 I have just mentioned. The first emulsion formula was described as follows:—

"Thirty grains of Nelson's gelatine were washed in cold water, then left to swell for several hours, when all the water was poured off, and the gelatine set in a wide-mouthed bottle,

with the addition of four drachms of pure water and a few drops of *aqua regia*, and then placed in a basin of hot water for solution. Eight grains of bromide of cadmium, dissolved in half a drachm of pure water, were now added, and the solution stirred gently. Fifteen grains of nitrate of silver were next dissolved in half a drachm of water in a test tube, and the whole taken into the dark room, when the latter was added to the former slowly, stirring the mixture the whole time. This gave a fine milky emulsion, and was left for a little while to settle. A few plates of glass, well cleaned, were next levelled on a metal plate put over a small lamp. They were, when fully warmed, coated by the emulsion, spread to the edges by a glass rod, then returned to their places and left to dry. When dry, the plates had a thin opalescent appearance, and the deposit of bromide seemed to be very evenly spread in the substance of the substratum."

Emulsion makers will see that this formula leaves a slight excess of silver in the emulsion, and is further open to very serious objection from the employment of *aqua regia* in its composition. Dr. Maddox gave no instructions for washing his emulsion free from the products of the reaction by which the silver bromide was formed, and so he had silver nitrate and nitric acid as well as sodium bromide in his final product. Hence his emulsion was unstable, and lost a great deal of its sensitiveness within a few days of preparation. Dr. Maddox tested its properties by exposing his plates under negatives:—"The exposure varied from thirty seconds to a minute and a half, as the light was very poor. No vestige of an outline appeared on removal from the printing frame. The plates were dipped in water to wet the surface, and over them was poured a plain solution of pyrogallol acid, four grains to the ounce of water. Soon a faint but clean image was seen, which gradually intensified up to a certain point, then browned all over; hence the development in the others was stopped at an early stage, the plate washed, and the development continued with fresh pyro, with one drop of a ten-grain solution of nitrate of silver, then re-washed and cleared by a solution of hyposulphite of soda. . . . Some plates were fumed with ammonia; these fogged under the pyro solution."

Crude as this first gelatine emulsion appears in comparison with the products of modern skill and knowledge, it nevertheless was the germ from which sprang the later refinements of the emulsion-maker's art. The first step towards the dry plate as we now know it was the appearance of the ready-made emulsion of Mr. Burgess ("The Week in History," July 21).

The Birthday of Collodio-Bromide.

The collodio-bromide emulsion process—I am dwelling among emulsions this week—attains the ripe age of forty-one years to-morrow, for it was on September 9, 1864, that the paper by its authors, Messrs. Sayce and Bolton, appeared in *THE BRITISH JOURNAL OF PHOTOGRAPHY*. "Photography without a nitrate of silver bath" was a headline to conjure with in the sixties, when the troubles of wet collodion were severely felt by those not completely masters of the process. The attitude of the landscape or portrait photographer who looked upon his process as a means to an end is boldly sketched in a characteristic letter from O. J. Rejlander to the B.J. in July, 1864. " . . . Enlist the services of all the photographic world how to make collodion sensitive without the nitrate of silver bath. . . . No more draining lines, nor crape, nor 'stars and stripes,' nor comets! and no more pinholes where no pin ever pricked. Oh, go it, Dawson!" Messrs. Sayce and Bolton experimented to this end, and their first result, imperfect though it was, was an important step in the direction in which Dr. Maddox afterwards moved, but with gelatine instead of collodion as the medium of the emulsion. The first bromised emulsion, as prepared by Sayce and Bolton, was as follows:—

Alcohol	$\frac{1}{2}$ oz.
Bromide of cadmium and ammonium	3 gr.
Pyroxyline	2 gr.
Ether	$\frac{1}{2}$ oz.

Well filtered.

The authors proceed: "We then took an ounce phial, placed therein four grains of pulverised nitrate of silver, which was dissolved in two drops of distilled water, then covered the bottle with a perfectly non-actinic coating of brown paper and in a yellow light added the ounce of bromised collodion. The mixture at once produces milkiness, which does not disappear. We then shook the bottle and coated a clean glass—previously tipped at the edges with benzine and indiarubber solution—with the collodion, without even allowing it to settle, and allowed the film to set in the ordinary manner; then placed the plate, face upwards, in a dish of water, and when the greasy appearance of the film had vanished, rinsed under the tap for a few seconds, then poured over the film the ordinary fifteen-grain solution of tannin, worked it well into the film for about one minute, and dried rapidly in a kitchen oven." This first emulsion was weak, but the inventors at once increased the silver bromide in it, with such good results that of a photograph taken with double the proportion of bromide of silver Mr. Sayce wrote on September 14:—"It is indeed very fine, and would do credit to even any matured photographic process."

"Photography without a nitrate of silver bath" made rapid progress after its first inception. Mr. W. B. Bolton was chiefly responsible for the early improvements, and his name figures prominently among others until 1874, when, as I have already chronicled, he introduced the "washed emulsion" process.

HISTORICUS.

SOME NOTES ON THREE-COLOUR WORK.

[Although a great mass of technical literature makes its appearance with three-colour work as its subject, the greater proportion of the contributions deal with the first principles of the process, or with the endless modifications which worker after worker introduces or proposes. It is rare to find a writer setting himself the task of putting on record any experience in the actual routine of three-colour as it occurs in practice. We therefore abstract some notes in this strain which we find in "Photographische Kunst," from the pen of Dr. E. Stenger. Some of Dr. Stenger's anticipations may seem premature, but that there is need of keeping closely in touch with progress which will reanimate the photographer's professional business none of our readers, we are sure, will dispute.—EDS., B.J.P.]

Present-day Possibilities.

TAKING three-colour photography as it is at the present time, there is good reason for assigning to it an important position among photographic processes. The future may bring simplifications and improvements, and possibly processes which depend on principles other than those recognised to-day, but at the present instant indirect three-colour work is in a state in which all those who are disposed to embark upon it need not be deterred by the greatness or difficulty of the task. The technical part of the process has been so fully worked out and brought to a condition of simplicity that it entails only a modified use of the methods which have been long practised in ordinary black-and-white photography. Three-colour work is now finding a footing among professional photographers, and perhaps the time is not so far distant when the public will not be satisfied with portraits in monochrome. This step, from black to colour, seems to be very little greater than that which marked the transition from the bygone conventional portrait to the method of to-day, in which the photographer aims at character and likeness.

A Study of Paintings.

A good deal is to be learnt in regard to the selection of the subjects for three-colour photography by studying the work of

painters. A good painting of a subject to which the photographer has access should be of direct assistance to him. One notable difference between the art of the painter and of the photographer should constantly be kept in view, viz., the ability of the former to omit disturbing portions of his subject, and the obligation of the latter to take things as he finds them. Colour, which in black-and-white photography can be reproduced only by varying degrees of luminosity, becomes, of course, in three-colour work the most active agent in the formation of the picture. In ordinary photography we aim at a scale of gradations in monochrome in the picture, but in colour photography we obtain these scales of tone in all colours. Hence in three-colour work the means at the disposal of the photographer are incomparably greater, and the best manner of employing them demands a special study of colours and a trained eye.

A Plate of Small Size.

The photographer is accustomed to arrange his subject without special regard to its colours and to avoid the occurrence of empty spaces of considerable area, which latter, however, in colour work are an advantage to the picture, as they provide a spot upon which the eye can rest. Excess of detail in various colours, impart a disturbing character to the picture, and, with a view to avoiding them, it is advisable to unite the larger monochrome portions of the picture, and especially is it important not to crowd too much on to the plate. In other words, the familiar maxim of making the picture with as little material as possible is more than ordinarily applicable in colour work. A convenient camera must necessarily carry a plate of small size, and, having regard to the provision of filters, etc., it is rarely possible to work on a larger plate than 9 by 12 cm. ($3\frac{1}{2}$ by $4\frac{3}{4}$ in.). On this account special care is needed in arranging the subject, as subsequent trimming of the print, or enlargement of portions of it is inadmissible.

Choice of Focal Length.

There is also an advantage in selecting a lens of focal length greater than customary, in relation to the plate, the subject being

then obtained of good size, and accompanied to a lesser extent by unnecessary detail. Prof. Miethe uses a lens of 16.3 cm. ($6\frac{1}{2}$ in.) for a plate 8 by 9 cm. ($3\frac{1}{4}$ by $3\frac{1}{2}$ in.), this corresponding to an angle of nearly 31 deg., whereas in the ordinary way one chooses focal length about equal to the diameter of the plate, in the above instance 12 cm. ($4\frac{3}{4}$ in.). Prof. Precht uses lenses of 11 and 12 cm. ($4\frac{3}{8}$ and $4\frac{1}{2}$ in.) focal length for a plate 6 by $6\frac{1}{2}$ cm. ($2\frac{3}{8}$ by $2\frac{5}{8}$ in.), these lenses covering angles of 33 and 30 deg. respectively. The diagonal of the plate used by Dr. Precht is not quite 9 cm. The value of the smaller plate lies in the fact that lenses of shorter focal length can be used over the same angle, thus obtaining greater depth of field, and permitting the employment of a large aperture. In fact, the working of a lens at its full aperture is in many cases an essential to success in three-colour exposure.

Subjects for Three-colour.

The beginner in three-colour work will find himself passing over many profitable subjects to select others, such as extended landscapes, etc., without obtaining satisfactory results, until he discovers that the most suitable subjects are those of a simple kind, such as a house in green surroundings, a pond in a meadow reflecting the blue sky, etc. Brilliant pictures are obtained by the conjunction of highly contrasting colours, an artifice to which the modern painter will often be seen to resort. The student will also be repaid by a course of exposures on still-life subjects, for after this practice he will quickly learn to discover profitable subjects out of doors. Practice is no less necessary in development. In three-colour work it is no easier than in black-and-white photography to obtain white clouds on a blue sky side by side with a fully exposed landscape.

Lighting.

We must not omit to emphasise very strongly the difference between the rules by which the photographer has been accustomed to guide himself in regard to lighting, and those which will serve him best in three-colour work. The hours of early morning and late evening, usually little employed for photography, offer the best opportunities for three-colour. Brilliant noonday sunshine, with its hard shadows, is a bad lighting, and leads to wrong colour reproduction. The easiest and most hopeful field for the unpractised worker is that in which colours occur fairly equal in inten-

sity. If the contrasts are excessive, a kind of halation creeps in as in ordinary photography. It must be remembered that a rightly graduated reproduction of the colours depends upon each plate showing the proper gradation on development—that is to say, having a density of silver deposit corresponding to the colour and the exposure, which density should be less than the maximum permitted by the plate. Intensities of colour which are represented in the negatives by the greatest possible darkening of the separate plates do not give proper gradation in the component colours, with the result that on synthesis by means of positives incorrect colours are obtained.

Landscape.

In landscape it is unfortunately obligatory on the photographer to confine his work to occasions when there is no wind, otherwise the separate impressions will not register. Instantaneous photography is practically ruled out of court in three-colour work, as the three exposures must be made consecutively. It was often found that subjects which, from the point of view of monochrome work, are most promising, are useless in colour photography, owing to the length of exposure. Posing models are easily placed in position, but it is best, on the whole, to dispense with them, as they usually look artificial.

Portraiture.

The contrasts between light and shadow are greater upon the photographic plate than they appear actually to the eye, and in order to obtain soft portrait negatives with detail in the shadows the photographer must lighten these portions with suitable reflectors. For three-colour work this evening up is all the more necessary when the intensity of the several colours is to be as equal as possible. Portraits of men in modern costume offer little in the way of colour; ladies' clothing, on the other hand, offers more opportunity. It will frequently be found that a portrait in colours of a person represents him or her as too tall or stout. Hence it is advisable to arrange the figure somewhat smaller in relation to the size of the plate, and to take care also that the model is sufficiently removed from the background and immediate surroundings. The ordinary neutral background as usually used in studios is unsuitable for colour work, but a back cloth of a slightly contrasting colour usually answers well.

SELECTING PHOTOGRAPHS OF THE OLD MASTERS.

HARDLY a national or state photographers' convention is allowed to pass by without some one urging those present to "study the old masters." Unfortunately this exhortation, however sincere and well-meant (writes Wilfred A. French in the "Photo-Era"), is not accompanied by a suggestion as to how this study of the old masters shall be accomplished, short of a sojourn in foreign lands, where the best creations of art are to be seen. The American galleries are woefully deficient in original works by Rembrandt, Velasquez, Reynolds, Sargent, and other notable portrait painters, and a journey to Europe is a luxury reserved to exceedingly few of the craft, while most of those able to gratify such a desire lack the ability to put the experience thus gained to profitable use. The only alternative is recourse to photographs, and of these the best are not always available. Yet if the ambitious photographer is really in earnest, he can either purchase a series of photographs from negatives made on colour-sensitive plates, or induce the public library—and there should be one in every well-regulated community—to secure for its permanent use such a collection, which should be easily accessible to students. Orthochromatic photographs of the gems of the leading European picture galleries are made not only

by Braun, Clement, and Co., pioneer publishers of faithful photographs of the old masters, but by Hanfstaege of Munich and the Berlin Photographic Company; also by Brogi, Alinari, and Anderson—the leading publishers of art photographs in Italy—and Hollyer, of London, several of these having branch establishments in New York city.* We would suggest that every photographer make a personal effort to procure a series of such photographs for himself, say of moderate dimensions, the cost of the 8 by 10 size, mounted, being comparatively small.

Good and Bad Reproductions

The great trouble with many cheap photographs of celebrated paintings is their inferiority of workmanship, which destroys the detail and tonal gradations, and consequently the fidelity to the original picture, the resulting prints being excessively harsh in light and shade, and of little or no artistic value. This is particularly true of reproductions of imported photographs, the process of copying showing no evidences of technical skill. We have in mind also a popular

* Photographers in this country are no doubt familiar with the large and excellent series of reproduction in carbon of old masters published by the Autotype Company.—EDS. B. J. P.

series of half-tones, the cheapness of which is their sole merit, for they rejoice in the defects just described to an excessive degree. While they may serve the purpose of familiarising the masses with places of historical interest, famous personages, and standard works of art, they are really of no use to the photographer craving reliable knowledge regarding masterpieces in painting. Yet such prints, which totally misrepresent the appearance of the original pictures, have been studied and emulated with sedulous care by photographers, who proudly display what they sincerely regard as "Rembrandt" or "Velasquez" lighting, when in reality they are, metaphorically speaking, working in the dark—far from the truth. This accounts, in a measure, for the total absence of outline of the figure, from the head down, characteristic of so many otherwise excellent photographic portraits, the originators of which assert, with more warmth than truth, that they are only following the example of Rembrandt, the great Dutch painter. For the benefit of these workers, who are obviously unacquainted with the original paintings which inspire them to high flights of fancy, we are constrained to state that the creations of Rembrandt are not mere dashes in black and white, as inferior photographic reproductions would have us believe, but are sincere expressions of artistic genius, marked by logically correct, though original, chiaroscuro, with adequate tonal gradations in the flesh-tints, and the figure is not only outlined with clearness, but the drapery, generally black or of a dark colour, is painted with suitable detail. This is true of such favourites as "Johann Sobieski," "Saskia van Uylenburgh," "The Lesson in Anatomy," the so-called "Night-watch," and the numerous portraits of the artist, so well-known through photographs to the majority of workers in this country. The above applies with equal force to works of other artists noted for strong chiaroscuro, including Hals, Rubens, Van Dyck, Velasquez, and Murillo. By comparing an inferior photographic reproduction of a certain painting with a carbon print by Hanfstaengl or an equally reliable art-publisher, one will at once perceive the difference in the direction we have indicated and appreciate the characteristic harmony, clearness, and beauty of the result attained by the use of colour-sensitive plates.

ART BY PHOTOGRAPHY.

ON Thursday last an exhibition of the collection of pictures, which represented British photography at the St. Louis Exhibition, was opened at the Rochdale Art Gallery. The pictures have been conveyed to Rochdale *en bloc* from the Leeds exhibition, and they are attracting considerable attention in their latest environment. At the opening ceremony the Rev. H. W. Dick, vice-president of the Manchester Amateur Photographic Society, gave an address on "Art by Photography." After endeavouring to define art and the artist, he said:—"That which made a man an artist had so much relation to his quality of mind that he might be, to all intents and purposes, an artist without being able in any way to give outward expression to what was within him. The term art, therefore, ought not to be bound up with any particular mode of expression. If he were asked if photography were an art, he should say not; but he should give the same answer if he were asked whether painting or sculpturing were an art. The medium had nothing whatever to do with the man. The artist chose that medium which suited him, and by which he was best able to express himself. It was not the medium he chose which made the artist. Photography was not art, but the photographer might be an artist, just as the painter might be. Neither the painter nor the photographer was always an artist. Art lay within the soul and the mind of a personality, and he was an artist who, having that quality of soul, could express it, whether in paint, or marble, or any other medium. It might be said that photography had its limitations—that they were obliged

to take what was before them. They need not do that, because they could walk away, but if they did take what was before them, there were ways of printing which enabled them to print just so much as they desired. Some prints were built up just as a painter would build up a picture. They might print and develop again and again, give emphasis where they desired it, and make the resultant print quite as unlike nature as Turner was capable of making his pictures unlike nature. The artist was not the man who painted or photographed just what he saw before him; no artist ever did paint or represent just what he saw. He represented what he would like to see and what he felt; he gave the gospel of nature according to himself. It was nature passed through a personality which they got in a real picture.

FORTHCOMING EXHIBITIONS.

September 8.—International Exhibition at Budapest. Address, Secretary of the Photo-Club, Egyetem-ter 5, Budapest, IV.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W.—Secretary, J. McIntosh, 66, Russell Square, London, W.C.

October 17-18-19.—Isle of Wight Photographic Society. Hon. Sec., V. Howard Burgess, 53, Pyle Street, Newport, I. of W.

October 18-21. Rotherham Photographic Society. Hon. Secretary, H. C. Hemmingway, Tooker Road, Rotherham.

October 19-21.—Grangemouth Amateur Photographic Association. Hon. Secretary, Robert Marshall, 3, Park Terrace, Grangemouth.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November.—Bristol and Clifton Arts and Crafts Society. Secretary, R. H. Parr, 5, Grove Buildings, Blackboy Hill, Bristol.

November, December, January.—Second American Photographic Salon. H. Snowden Ward, 6, Farrington Avenue, London, E.C.; Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

November 3, 4, 5.—Motherwell Young Men's Institute C.C. Hon. Secretaries, James Dunlop, Myrtlebank, Motherwell, and Archibald Matthews, 24, Enfield Place, Ladywell, Motherwell.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 23-25.—Isle of Thanet Photographic Society, Hon. Sec., L. G. Hodgson, 58, Queen Street, Ramsgate.

November 25-December 2.—Glasgow Eastern A.Ph.A. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarnock Street, Parkhead, Glasgow.

December.—Muirkirk A.Ph.A. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

Photo-Mechanical Notes.

British Process.

THE son of a colonial printer and photo-engraver at present in England to improve his knowledge of process work recently obtained a situation in one of the London shops, whereupon he writes us:—"The amount of work turned out in a day surprised me, the originals just seem to pour in, good, bad, and indifferent, and the way they photo them, all kinds together, greatly amazed me." According to recent visitors, even the Americans have not much to teach the old country as far as "hustle" is concerned in the photo-engraving trade.

"True Scale" Photo Litho.

To those who have difficulty with the "Vandyke," or similar direct processes, we can recommend a way which is as quick, if not quicker, and the results are quite equal to the average work done by the reversal processes. That is to make a sepia negative from the original tracing, or drawing, by contact, and then, without fixing, use this to make the usual albumen print, which is inked up, developed, and treated exactly as a print on metal for line work or photo-lithography. Of course, the negative, being unfixed, can only be used once: the objection to fixing it is that the paper alters in size from the wetting, and another objection to this method is that the ink is not in such direct contact with the metal as with the other processes, there being a thin film of bichromated albumen between, and this is disliked by some lithographic printers as tending to allow the work to lift sometimes.

Half-tones in Newspapers.

Some half-tones of comparatively fine screen-ruling are now appearing in the Gloucester "Citizen" by a process of backing the blocks worked out and patented by Messrs. Chance and Bland, of that office. The results as we have seen them are excellent for the class of work, and quite distinct from the highly tooled block employed largely in newspaper work. A circular from the inventors gives the following particulars of the process:—"Those parts of the plate to be fixed to the cylinder (the forme) where the illustrations are to appear are set up as blank spaces preparatory to the casting of the plate. After the plate has been cast, and before it is mounted on the cylinder, these blank spaces may be cut out and the blocks of the illustrations inserted. It is, however, preferable to make the blank space whilst casting the stereo, putting in an iron block or plate that is afterwards easily removed. With this construction it is possible to adjust the block irrespective of the type, and therefore the impression from the block is clear, and renders the character of the original much better than is the case where the block forms part of the whole stereo. We claim by this invention to have made it possible to produce good pictures, greatly superior in tone and texture to any that can be reproduced by stereotyping, in plates cast for use upon rotary printing machines. The plant required is practically nothing, and the delay caused in inserting the picture in the plate cast, according to the instructions, is reduced to a minimum. No special skill is required either from the stereotyper or the machinist, and pictures of a fine grade can be printed at the usual rate at which the printing machine is run. If ordinary good paper is used there is no necessity to stop for washing out in the longest run on the machine."

The L.C.C. School of Photo-Engraving.

The prospectus of the Bolt Court School for the coming session is to hand, and we note that work will commence earlier this year than hitherto, the school opening on Monday, September 18. Besides the usual curriculum, there is a new class in "Mounting."

The equipment of the school has lately been added to and brought up to date. It now includes a machine room containing the latest

FORTHCOMING COMPETITIONS.

September 30.—Kodak. £400 in prizes for results on Kodak products. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

October 1.—Thornton-Pickard. £100 in prizes for photographs taken with Thornton-Pickard cameras or shutters.

October 15.—Lantern Slide Competition, Association Belge de Photographie. Secretary, Palais du Midi, Brussels.

October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.

November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

February 6-9, 1906.—Guisbrough Fine Art and Industrial Society, Photographic Section. Hon. Sec., G. H. Angus, 34, Westgate, Guisbrough.

A PHOTOGRAPHIC competition is held annually by the Architectural Association Camera and Cycling Club, and is open to all members of the architectural profession. The council of the association offer a prize of three guineas for the best set of prints submitted. The competition is confined to sets of photographs adapted for the purposes of architectural study. Photographs must be sent to Mr. F. R. Taylor, secretary of the A.A. Camera and Cycling Club, at 18, Tufton Street, Westminster, not later than October 1. Mr. Taylor will supply full particulars.

power machinery for mounting, router, beveller, saw, etc., block proving room with electric motor-driven platen machine, mercury-vapour lamps in the studio, etc. The syllabus includes classes in every branch of the reproductive crafts.

A special feature is made of the courses of lectures. Our contributor, Mr. C. E. Kenneth Mees, gives a course of five lectures on "The Chemistry of Photo-Engraving," Mr. Sunderland, of Sir George Newnes, Ltd., gives a course of lectures on "Duplicate Plate Making," and among the other lecturers we observe Mr. Carl Hentschel, Mr. Arthur Cox, Mr. Edwin Bale, R.I., Mr. E. F. Strange, Mr. F. T. Corkett, Mr. E. W. Foxlee, and Mr. Wm. Gamble. It is probable that everyone in the trade could take advantage of some part of the school's activities. A copy of the prospectus can be had for the asking at 6, Bolt Court, E.C.

A Comprehensive Process Catalogue.

The new issue of the price list of requisites for photo-engraving and other photo-mechanical processes, now issued by Messrs. A. W. Penrose and Co., is a large and handsome volume of over 340 pages, fully descriptive and freely illustrated. It would be well-nigh impossible to find a solitary appliance or material for half-tone, colotype, photogravure, etc., which is not listed by Messrs. Penrose, and the large variety of goods is conveniently classified into sections, the finding of which is facilitated by a system of thumb-notching of the pages. This and a very full index make the task of reference an extremely light one. We are glad to see that in a very large number of instances the list gives sizes and weights in metric as well as in English equivalents. Thus, under "Bottles" we find alongside the capacities in ounces the number of ccs. the vessels contain, a procedure which must have the desirable effect of familiarising people with the metric measures. Prices are also quoted in dollars, francs, and marks, as well as in English money. Evidently Messrs. Penrose are determined to place no obstacle in the way of customers in any part of the globe. The catalogue is obtainable post free from 109, Farringdon Road, London, E.C., for 2s. 6d., which amount is refunded on the first order for £1 and upwards.

PHOTO-MECHANICAL PATENTS.

Application for Patent.

No. 16,935. Improvements in the production of plates for printing purposes. Sherard Osborn Cowper-Coles, 4, South Street, Finsbury, London.

THE KODAK £400 COMPETITION.—Messrs. Kodak have asked us to remind our readers that their forthcoming £400 competition closes on September 30. The following points should be noted by intending competitors:—(1) No limitation has been placed upon the number of prints that may be sent in by any competitor; (2) photographs of every description will be eligible, but there are no special classes for portraits or landscapes, or other particular subject; (3) no distinction will be made between snapshots and time exposures, both competing on equal terms; (4) on no pretence may any but pictures taken with a Kodak on Kodak N.C. film be entered; (5) photographs taken in any other camera or on Kodoid, Seed, or Eastman plates will not be eligible; (6) the nature of the mounts is left entirely to the competitor, but either paste-on or slip-in mounts may be employed; (7) not more than one contact print from a negative may be entered in the competition, but there is nothing to prevent an enlargement and a contact print of the same negative from being entered in their respective classes.

ANOTHER selection of photographic studies from Kodak negatives taken by Her Majesty the Queen appears in the current number of "The Graphic."

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for patents were made between August 21 and 26:—

CINEMATOGRAPHS.—No. 16,925. Improvements in cinematographs. Robert Royou Beard.

TRIPODS.—No. 16,963. An improvement in relation to tripods. George Allen Walker, Gough Street, Savile Street, Hull.

FILMS.—No. 17,000. An improved photographic film. Leonard Smith, 53, Chancery Lane, London.

PRINTING PROCESS.—No. 17,807. Improvements in photographic printing. Thomas Manly, 23, Southampton Buildings, Chancery Lane, London.

SHUTTER RELEASE.—No. 17,127. An improved pneumatic release for photographic shutters. Houghtons, Ltd., and Alfred Sydney Spratt, 88, High Holborn, London.

MERCURY VAPOUR-LAMPS.—No. 17,183. Improvements in mercurial vapour electric lamps. Joseph Swirsky and Francis Harrison, 157, Grange Park Road, Leyton, Essex.

PAPERS.—No. 17,303. Improvements in the manufacture of photographic papers. Ignaz Hoffsummer, 6, Lord Street, Liverpool.

COMPLETE SPECIFICATIONS ACCEPTED.

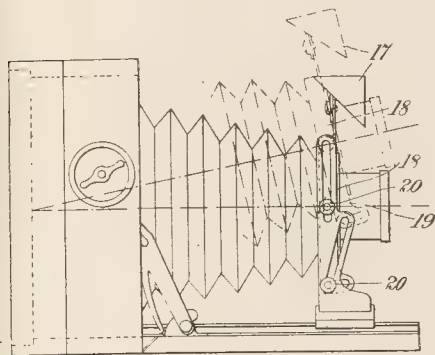
Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

DATLIGHT DEVELOPMENT.—No. 17,244, 1904. The patent describes an apparatus in which plates, cut-films, or roll-films can be developed in daylight. It consists of an inner and outer vessel, the inner vessel having a light-tight cover. Plates or cut-films are placed in sheaths. For the purpose of treating roll films in the strip or band, both inner and outer containers may conveniently be of a cylindrical shape. James Wyndham Meek, 32, Albert Road, Stroud Green, London.

CINEMATOGRAPE.—No. 17,347, 1904. According to the description of this invention a rotatable member is arranged within a flat case, and carries a radially projecting spring or other yielding driving arm of such a length that its outer end engages, or abuts, against a series of studs or pegs, arranged concentrically about the rotatable member. These studs are fixed within the case and arranged at equal distances apart, their number corresponding to the number of pictures it is desired to take or exhibit. As the spring arm is rotated its outer end is temporarily arrested by each stud in turn, thus giving the desired stationary period for the sensitive film or positive picture as the case may be, the film or picture record being made in the form of a disc and adapted to be rotated intermittently by the outer end of the spring. The individual pictures are located near the edge of the disc, being received or viewed through a suitably arranged opening in the casing. When the apparatus is used for taking the pictures on a sensitised film, a shutter disc is superimposed on the film and adapted to be rotated in conjunction therewith so as to expose the desired portions of the film during the stationary periods. Samuel Henry Crocker, 9, St. James' Walk, London.

CAMERA FITTINGS.—No. 17,408, 1904. This patent relates to several improvements in photographic cameras, viz.: (1) Swing back with double adjustment, whereby the swing back, after having been once adjusted, can be lowered in the desired position by a single locking device. The swing back is provided with two

studs or adjusting arms on each side, namely, a horizontally disposed arm or slide on each side to which the swing back is pivoted at one end, while the other end of each horizontal slide is slotted and guided in grooves or guide-ways on the inside of the body of the camera, so that a parallel movement only is permitted of the horizontal slides; a pin or pinching screw passes through the slot in these horizontal slides, and the inner

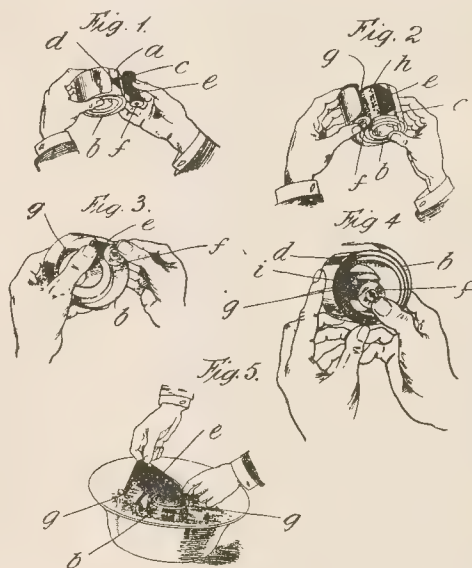


end thereof passes through a slot in the inner end of a strut at each side, which strut is disposed more or less diagonally to the horizontal slide, and at its outer end is pivoted to the swing back. (2) Adjustable infinity catch. The catch is mounted on a slide consisting of a thin, slotted metal plate, which, by means of one or more adjusting screws, can be adjusted and fixed in any suitable position on the folding base-board. (3) Swinging front with view-finder attached. The present inventors have discovered that numerous advantages are obtained by arranging and mounting a view-finder upon a swinging front of the character set forth in Houghton and Edwards' Patent No. 23,436/03; namely, by such combined means it is found that when a view finder is used on such rising front the image indicated on the view-finder will be precisely identical with that given by the lens on the sensitive surface (upon exposure taking place), this result following from the fact that the view-finder is correspondingly moved by and with the special swinging movement. The figure is a side view of a folding camera with view-finder attached, and shows the lens in two positions. 17 is the view-finder carried on the rising front, 18, of the camera. 19 19 are the front standards which support the rising front carrying the lens. 20 20 are the guiding studs sliding in the slotted standards 19. These slots in which the studs run freely instead of being in vertical alignment are so formed that the lower ones slope upwards and outwards for the purpose of keeping the optical axis of the lens directed to the centre of the sensitive plate when the front is raised. (4) Attachment of bellows to lens front. Instead of the usual attachment by glue the front end of the bellows is folded over a loose plate, advantageously a metal plate of the same shape as the bellows, and the edges of the bellows secured by gluing together the folded over corners of the bellows, this plate being thus secured in the front fold of the bellows, and being provided with an aperture sufficiently large to admit the lens, etc., to pass through. The lens front is provided with a corresponding aperture of sufficient size to permit a flanged ring or short flanged sleeve to pass through, the cylindrical part of the ring or sleeve being screw-threaded both internally and externally, the internal thread being adapted to have the lens or lens carrier screwed into it, while the external thread (which passes freely

through the aforesaid aperture in the lens-front and through an aperture in the plate mounted in the front fold of the bellows) receives a locking ring, secured from the inside of the bellows, and thus drawing up the sleeve tightly in the front. (5) Arm for lens front. In folding bellows cameras of the type where the bellows and lens-front are packed closely into the camera body and the hinged front then closed over same, there is usually employed a lever or arm for moving and locking the lens-carrying front. This arm usually has the disadvantage that when the lens-front and bellows have been moved back into the camera body the arm requires to be turned to one side or the other in order to permit the folding base-board to be closed; and, if the operator forgets to move the arm, damage may be caused. This part of the invention consists in so constructing the arm that upon release it will automatically move to one side or the other out of the way of the hinged door; for example, the arm may be provided with a spring sufficiently strong to fold or force it out of the way when it is released. Houghtons, Ltd., 88 and 89, High Holborn; William Albert Edwards, 51, Vant Road, Tooting; and Herbert Holmes, 9, Ashby Road, Canonbury, London.

LENS AND DIAPHRAGMS.—No. 18,694, 1904. The invention consists in a diaphragm, or diaphragms, moved before the lens during exposure, the object being to produce diffused or softened definition. The claim is for discs of certain shape and for the mechanism by which their movement in the lens is produced and regulated. Theodore Brown and Ernest Osman Brown, 34A, Castle Street, Salisbury.

FILM DEVELOPMENT.—No. 21,335, 1905. The following is the inventor's description (abridged) of his system of developing roll film:—I provide a coil or helix of metal possessed of sufficient resiliency to permit of the spool of exposures being readily passed



through the coils of the helix, and the helix thereafter assuming its original dimensions and width of gap between the coil. On the outer circumference *a* of the helix or coil *b* (which, when in use or after use, is placed in a circular tank of sufficient size to freely enclose the helix) a clip or other suitable device *c* is attached, to which the end *d* of the black paper wrapping *e* of

the spool *f* is fixed. In practice, the end *d* of the black paper *e* is attached to the clip *c*, and the end of the film *g* having been attached to the black paper by means of adhesive paper *h* or in any other method, the spool *f* is then placed upon the outer circumference of the coil and rolled along same in a direction away from the securing device holding the end of the black paper as in fig. 2 in such a manner that the black paper (and film attached thereto) is unrolled upon the coil with the sensitive surface of the film outermost and with the black paper lying between the film and the coil or helix. The spool is rolled along the outer surface of the coil towards the point of entry, see fig. 2, into the coil, so that the spool or cartridge *f* will run into and not over such point of entry into the coil. At this point the outer coil of the helix is pulled somewhat apart from the next so as to permit the spool or cartridge to enter the coil. This performed, the spool is gripped by the flanges by the fingers of one hand while the coil is held in the other hand, and in this manner the spool, fig. 3, is rolled into the helix until the centre *i* is reached, fig. 4. In so doing the spool traverses the whole of the coil or helix and unrolls the film previously wound upon the spool, so that the whole length of the film lies upon the coils of the helix with the sensitive surface of the film on the outside throughout and touching neither itself nor the supporting coil at any part. The centre *i* of the coil is a clear annular space of a diameter sufficient to hold the spool (and unrolled black paper) without in any way exerting pressure upon the coil when the spool has reached such annular centre space. This performed, the film is in position for developing and fixing, which operations may be carried out in any dish holding a sufficient depth of the various solutions. It is released simply by cutting the black paper loose from the securing device, and also removing the spool and waste black paper from the centre of the coil, the film itself and underlying black paper being thereafter withdrawn from the coil by gently pulling the film and black paper up edgewise, as in fig. 5, free of the coil. James Wyndham Meek, 32, Albert Road, Stroud Green, London.

Dew Materials.

Herold's Powder Emulsion and Litho Gelatines, sold by Otto Rosenstiel, 104 and 105, Cheapside, London, E.C.

These brands of gelatines, the manufacture of Mr. Julius Herold, of Monsingen, are supplied in powder, thus facilitating the solution of the colloid and saving time, whether the gelatine be employed for emulsion making or lithography. One sample examined by us on an experimental scale proved to be a good hard gelatine of melting point 91.5 degrees F. (mean of six tests). In other chemical respects the gelatine can be favourably spoken of, and we have before us a report from the Munich School of Photography, emphasising its suitability for emulsion and litho work. It has been found absorbent of water at 60 degrees F. to the proportion of from five to ten times its original weight, and to be well suited for the preparation of a clean working emulsion. Samples and prices of the gelatine are obtainable from the British agent, Mr. Otto Rosenstiel, 104 and 105, Cheapside, London, E.C.

Medallion Brand Photo Paste Powder. Sold by Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

The necessity for a reliable mountant for photographs is always with us, and although many workers prefer the methods of dry mounting advocated from time to time or mountants containing

very little moisture, there are always those who like a paste that can be applied in generous measure when necessary, and which can be relied upon to stick. The new introduction by Messrs. Kodak seems to meet all the requirements of a reliable mountant. It is sold in the form of a finely-ground powder, and appears to be perfectly neutral, so that its application to the most delicate photograph need not be feared. The paste is prepared from the powder in the manner made familiar to those who employ starch as a mounting medium. One ounce of the powder is worked up in a little warm water until it is of the consistency of cream. The addition of three-quarters of a pint of boiling water, accompanied by constant stirring, converts the cream into a thick, gelatinous, semi-transparent mass, which sets when cool into a thick jelly of great adhesive qualities. It is recommended to boil the whole in a saucepan when practicable instead of adding boiling water, and the thickening of the liquid occurs in exactly the same way as when starch paste is made. Messrs. Kodak state that paste made with this powder will be found to remain good and retain its adhesiveness to the last, but we have not had the sample sent to us in use a sufficient time to test its keeping powers. It is supplied in 3d. packets, and in 1 lb. boxes at 8d.

CATALOGUES AND TRADE NOTICES.

ELLIOTT AND SONS, Limited, of Barnet, announce that they have now introduced three new and distinct colours in their Barnet Carbon Tissues, which should be a valuable addition to their present series of fourteen colours. The new tissues are styled Egyptian Black, Agate Green, and No. 2 Red Chalk. Arrangements can be made with photographers in any part of the world for regular supplies of these, or any other tissues.

A VIENNA firm sends us a circular of a novelty in the shape of a method of producing backgrounds on negatives, the process permitting of their rapid removal, and being also inexpensive. Presumably particulars can be had from Fonton, Sternneckplatz 18 I, St. 22, Vienna, II.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
9.....	Woolwich Photographic Society	Outing to Old Bexley and Crayford.
9.....	Glasgow Southern Photo. Assn.	Trip to Jerviston Estate.
9.....	Manchester Amat. Photo. Soc.	Outing to Taxal.
9.....	Bowes Pk. and Dis. Ph. Soc. ...	Outing to Hampstead Heath.
11.....	Southampton Camera Club.....	"Pinhole Photography." Mr. W. R. Kay.
13.....	Southport Photo. Society.	Trip to Millers'ale and Tidesdale.
14.....	London and Prov. Photo. Assn.	Open Night.

THE winter programme of the London and Provincial Photographic Association is to hand. We note among the fixtures that Mr. A. L. Henderson will lecture on "A Fortnight in Brittany" on September 21, Mr. J. C. S. Mummery demonstrates "Gum-bichromate" on October 12, Mr. J. Burgess, one of the first pioneers in gelatine photography, and a manufacturer of emulsion in 1873, gives the "History of Gelatine Emulsion Plates" on November 2, and "A Comic History of Photography," with illustrations from "Punch," is due on November 16. Mr. C. H. Davis is the author. These are only a few of the good things, and a lecture or demonstration is down for every Thursday night until Christmas. Mr. H. C. Rapson, 13, Shaftesbury Road, Hornsey Rise, N., is the hon. secretary.

THE usual comprehensive fixture list has been prepared for the winter session of the South London Photographic Society, and the member must be very hard to please who does not think he is getting the value of his subscription from the numerous good things

provided. The winter session opened on Monday with a successful conversazione, and papers will be read at the meetings, held twice a month, until April next. Excursions are continued throughout the winter, and a series of elementary evenings have been arranged. Monthly progressive competitions are announced, and particulars of the annual exhibition to be held in March next are also given. Mr. H. Creighton Beckett is the hon. secretary, and his address is 44, Edith Road, Peckham, S.E.

THE hon. secretary of the Bowes Park and District Photographic Society has sent us their winter programme, which contains an attractive list of fixtures. Mr. Hy. C. Bird is the hon. secretary, and he will be pleased to hear from intending members. His address is 91, Whittington Road, Bowes Park, N.

Commercial & Legal Intelligence

At the Lambeth Police Court on Saturday last, Henry Andrew Spinney, a clerk, of Somerleyton Road, Brixton, was charged on remand with stealing, by means of a trick, 60 oz. of silver nitrate, value £5, the property of Messrs. John Griffin and Sons, Limited. The facts of the case were given in our last issue. The prisoner left himself in the hands of the magistrate, remarking that he would prefer not to go to the Sessions, as he had, unfortunately, been in trouble once before. The magistrate characterised the theft as an artful one, and sentenced the prisoner to four months' hard labour.

PHOTOGRAPHING on Sunday at Castleford, last week, Henry De Redder, photographer, pleaded guilty to taking the photographs of two young men at his studio in Carlton Street, on the previous Sunday. Defendant said he did not know the law. The Chairman said he must have known it was illegal, and fined him 7s. 6d., or seven days.

RE Charles Henry Burnaby Sparrow, 1, Chepstow Road, Croydon. —The statutory meeting of the creditors interested under this failure took place at the offices of the Official Receiver on Friday afternoon last. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £1,794 1s. 10d., of which £219 was due to unsecured creditors, and £1,535 to fully-secured creditors, the securities being estimated at the same amount. The assets were returned at £30 7s. 11d., thus showing a deficiency of £189 1s. 10d. The bankrupt, who is fifty-six years of age, was for four years prior to April last employed by the Photographic Art Development Company, Limited, and since June, 1903, by the Photographers' Art Paper and Requisites Company, Limited, as manager. He was also a director of the last-named company. Both companies have now gone into liquidation, and he claimed £118 from them for arrears of salary. The estate was eventually left in the hands of the Official Receiver for summary administration in the usual manner.

A HUGE CLAIM.—What was practically a claim for a quarter of a million sterling, as damages for the alleged infringement of a copyright photograph of the Marquis of Bute, was heard in the Glasgow Sheriff's Court recently. The claimant was Mr. Charles Sweet, a photographer of Rothesay, who sued the proprietors of the "Scottish Weekly Record" for £10 for every copy of the issue (estimated at 25,000) containing the picture. The proceedings were brought under the Summary Jurisdiction Act, no appeal thus being permissible against the decision given. In dismissing the action as incompetent, and finding the defendant entitled to expenses, the Sheriff said he was quite sure it was not the intention of the legislators to vest the Summary Court with a right to decide finally upon a claim nominally for £250,000, with no right of appeal.

News and Notes.

PICTURE Post-cards.—According to the French papers, an advance has been made in regard to the continental regulations for written matter on the backs of post-cards, at least as far as France, Germany, and Belgium are concerned. The new regulation is already in force, and correspondents in these countries can now make their communications on the address side of the card in the same way as we are accustomed to do in this country.

THE scheme which has been under consideration for some while, for the establishment of a Royal Academy of Arts in South Africa, has now so far advanced, says the "Globe," that a petition for a charter of incorporation is soon to be presented to the King. This petition will be signed by a very large number of the most prominent men of the colonies of British South Africa, so apparently the new Academy will receive that full measure of local support that is needed to ensure its success.

FOR a long time the police authorities of Paris have been looking for a certain thief, of whom the anthropometric department possessed six photographs taken in different positions on the occasion of previous convictions. These photographs were sent to all the towns and communes in France. A few days ago the detective department received from the police commissary of a small town the following letter:—"Sir,—I have duly received the photos of the accused persons you are seeking. I have already arrested five of them, and the sixth has been traced by my officers, who hope in a short time to capture him."

WE read in the "Yorkshire Daily Post" that Mr. Alexander Keighley, of the High Hall, Steeton, well known as an amateur photographer, was married on Saturday last, at the Parish Church, Rotherham, his bride being Miss Lily Howroyd, only daughter of the late Mr. Jos. Howroyd, Bradford.

WE learn from the "Morning Post," that the eclipse party of the British Astronomical Association, at Burgos, under the direction of Mr. C. Thwaites, M.Inst.C.E., F.R.A.S., obtained a great number of successful photographs. The travelling and housing arrangements were under the management of Mr. John H. Gear.

SIR BENJAMIN STONE'S fame as the Parliamentary photographer and the doyen of survey and record workers with the camera, has been known to the general public for some years, but they have not, nor indeed have many photographers, had the advantage of seeing the productions of this able and privileged amateur. Messrs. Cassell are about to supply this want by publishing, in fortnightly parts, a selection from the twenty thousand or so photographs which constitute Sir Benjamin's unique collection.

A DEVICE for taking photographs from the tail of a kite for war purposes, which has recently been put into practical use by the Russian Army, was invented by Mr. A. d'P. Weaver, of Montgomery, Ala. The construction and operation of the device is briefly described as follows in "The American Inventor": "In a light framework of aluminium-bronze there is suspended a photographic camera having electrically-actuated plate or film changing and shutter operating mechanisms. The camera as mounted in the frame has movement in altitude, the angle of inclination being read off a graduated quadrant. Attached to the framework, in a plane parallel to the axis of the optical system of the camera, are arms extending from either side. These arms are 10 ft. in length, and carry upon their outer ends hollow aluminium spheres 24 in. in diameter. Above the arms carrying the balls is mounted a wind vane 18 in. in width and 6 ft. long. This vane has a movement in azimuth, and can be set at various angles with the axis of the

camera. It is thus seen that there are two movements of rotation, the camera itself having a movement in altitude, and may be inclined to any angle with the horizon, while the wind vane, having a movement in azimuth, may be given any angle to the camera axis and to the sighting balls. The whole apparatus is designed to be carried into the air by means of a small balloon or box kite, and is held captive by a small electrical cable, the size of an incandescent light cord, through which, by means of a few dry cells and the necessary keys, the plate-changing and shutter-operating mechanisms are actuated by an observer on the ground. Forming part of the equipment is a small telescope, similar to a surveyor's transit, having movements in altitude and azimuth. To this telescope is attached a right-angled eye-piece or ocular having vertical cross hairs in its field."

A CORRECTION.—Mr. W. S. Davenport writes:—"Herr Friedrich Schroeder, of Brandenburg, asks me to correct the statement made in the report of the Darmstadt Congress that the duration of a flash-light explosion varies from 0.15 to 0.20 seconds. It should be 'one-fifteenth to one-twentieth of a second,' as I had intended to make it. The exact time necessary to explode ten of his patent electric flash lamps one after another was 0.175 second, which I rounded off to 0.2 second."

Correspondence.

** * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

** * We do not undertake responsibility for the opinions expressed by our correspondents.*

THE HENDERSON AWARD AT THE L. AND P.

To the Editors.

Gentlemen,—Will you kindly allow me space to announce that the last day for receiving papers for the L. and P.P.A. Henderson award has been fixed for October 5 for papers read or published between July 1, 1904, and June 30, 1905. Papers should be submitted by the author, his nominee, or a member with the consent of the author, and, unless submitted by the above date, cannot be considered when the award is made. The award is £5 in cash, or gold medal, or silver or bronze medal and cash, or apparatus, whichever the winner may decide, and is for the best paper on a photo-chemical or kindred subject published during that year.

Non-members wishing to submit papers should communicate with me, stating date of reading or publication, as soon as possible.—Yours faithfully,

HERBERT C. RAPSON, Hon. Secretary.

"White Swan," Tudor Street, September 4, 1905.

THE DISPLAY OF SPECIMENS.

To the Editors.

Gentlemen,—You are constantly "girding" at photographers for their want of business tact and acumen, and rightly so. Will you allow me to call attention to one phase of it, which is amazing in its stupid indifference and carelessness? I allude to the constant display of really fine photographs in the shop windows "dumped" down, so to speak, without a single word as to the place or person represented. In the case of photographs for sale, I am certain, judging from my own experience, that many a sale is lost owing to lack of title and price. The idea would seem to be that what should interest most is the perfect "technique" displayed, as if the veriest "dolt" nowadays cannot turn out a thing perfect in "technique." The average man or woman does not care to go into

a strange shop to ask questions which, after all, owing to the price, perhaps, being a little beyond them, does not result in a purchase; and the London shopkeeper, at any rate, does not err on the side of courtesy under such circumstances—actions speaking louder than words. Perhaps now that the matter is ventilated we may hope to see an improvement.—Yours faithfully,

JOHN DE SAULLES VAUGHAN.

1, Heathcote Street, Mecklenburgh Square, London, W.C.,

September 4, 1905.

THE ACTION OF METOL AND ORTOL ON THE SKIN.

To the Editors.

Gentlemen,—Replying to your correspondent, Mr. J. Mallia, who asks for a remedy for his skin trouble, I can recommend him and anyone else troubled with skin diseases to try "Antexma." It can be had in 1s. bottles at the chemists, or from the Antexma Company, 83, Castle Road, N.W. This preparation has been a blessing to me, otherwise it is no interest of mine to advertise it.—Sincerely yours,

NICHOL ELLIOT.

7, Chapter Road, Willesden Green, N.W., September 2, 1905.

To the Editors.

Gentlemen,—I have read with interest the experiences described by your various correspondents as to the effects metol and ortol developers have on the skin. In my own case the symptoms appear to be somewhat different to those mentioned. I use a considerable amount of metol-hydroquinone developer, and have employed it extensively in making big enlargements on bromide paper. This has usually necessitated the complete immersion of my hands and wrists in the developing solution, and until recently no ill effects appeared. Of late, however, I have found the palms and fleshy parts of my hands, especially the thick parts of the hand between the base of the little finger and the wrist, harden and peel in a curious fashion. Dry blisters have appeared, and these have scaled off, leaving new skin underneath. At no time is there any irritation or itching, but simply blistering and peeling of the skin. That it is due to the immersion of my hands in the developer, I am convinced, as I find the symptoms disappear if I do no developing of this kind for a week or so, and reappear as soon as I start again. Ortol appears to have no effect whatever on my hands, but I find that the application of lanoline or other toilet cream a good plan to keep them in order for all photographic processes where it is necessary to dabble much in solutions.—Yours truly,

H. A. C. MATALL.

Woolwich, September 4.

VELOX DEMONSTRATIONS.

To the Editors.

Gentlemen,—May we ask you to kindly draw the attention of secretaries of photographic societies and camera clubs to the fact that we are prepared to send out demonstrators free of all charge to societies during the 1905-6 season, and as we are anxious to complete our programme at the earliest date, we shall esteem immediate applications.

The subject treated will be "Velox and its New Applications."

We may say that every effort will be made to make these demonstrations of an attractive and instructive nature. Some entirely new features which have developed during the last two years will be introduced, and these cannot fail to prove of great interest.—Yours faithfully,

JOHN J. GRIFFIN AND SONS, LIMITED.

20-26, Sardinia Street, Lincoln's Inn Fields, London, W.C.,

August 31, 1905.

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.*
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- F. BARNES, JUDR., 1, Ash Grove, Manchester Old Road, Heaton Chapel, near Stockport. Photograph of Thatched Cottage that formerly stood at the corner of Green Lane, Heaton Moor.
- J. H. CARTWRIGHT, 171, Orford Lane, Warrington. Photograph (Combination), Postcard of Views of St. Helens.
- W. E. SORRELL, 55, Topsfield Parade, Crouch End, N. Two Photographs of York Cottage, Sandringham. Three Photographs of the Princess of Wales and Infant Prince John. Two Photographs of the Princess of Wales, Infant Prince John, Princess Mary, Prince George, and Prince Henry. Photograph of the Lake at Sandringham. Photograph of the Princess of Wales, Princess Mary, Prince Henry, and Prince George. Photograph of the Princess of Wales, Princess Mary, Prince Henry, and the Infant Prince John.
- J. FAIRWEATHER, 6, Ellice Place, St. Andrews. Photograph of the Players in the £100 International Golf Match. J. H. Taylor, H. Vardon, A. Herd, J. Braid.
- S. H. GREENWAY, 27, Abington Street, Northampton. Photograph of the Northampton Football Club, 1905-6 (Association).
- Excelstor Photographic Co., Ltd., 17, King Street, Carmarthen. Six Photographs, Postcards, entitled—1. *Dim Saesneg*. 2. *Yr ydym yn myn'd i, Llanfairpwllgwyngyllgogerychwyrndrobwl-Llantysilioogoch*. 3. *Beth ydychet yn mofyn yma, machgen i?* 4. *Ffe ddysgeu'r ffordd i chwri*. 5. *Bwydd Cartrefol Cymru*. 6. *Y Gadair Wŷg*.
- G. COWELL, 19, North Road, Walthamstow, Essex. Photograph of Hearts of Oak Lifeboat, Palling, near Norwich. Photograph of Archway at Chingford Station (G.E.R.) erected when Queen Victoria opened Epping Forest.

A BUSINESS QUERY.—Like most amateur photographers who develop a good number of plates and films at a time, I have experienced certain difficulties with my apparatus. I have ideas of improving the lamp and draining rack. Can you tell me how I can benefit myself best by getting these worked out?—S. P.

If your inventions are likely to be of general value, you had better offer them to one or other of the manufacturers. You will see their advertisements in our pages and in the "Almanac."

TONING SOLUTIONS.—I want to ask a few questions through your paper but before doing so, perhaps it would interest you to know what an amateur thinks of your professional paper. I take four photographic papers every week, but always look forward to your paper coming. Perhaps it comes about from the fact that I am on the practical side of photography. I should like to know why a bath or the like goes wrong. My questions are: (1) Should the thiocarbamide bath keep clear in stock solution, and how long does it keep? (2) Can I make up a stock solution of chloroplatinite that will keep, and that I can mix to make up any formula; for instance, the two baths you give on page 544, July 14th? (3) Do all the baths given for P.O.P. and platinum toning keep well, or should they be fresh made? (I note the phosphate and formate bath must be fresh).—J. C., St. Helens.

(1) The bath can be kept for a reasonable time—a month or so. (2) Yes; potassium chloroplatinite, 15 grains, distilled

water, 2 oz. pure hydrochloric acid, 1 drop. (3) Platinum baths need not be freshly made for use, though after having once had prints toned in them they will not all keep in good condition.

J. K. M.—The lens you mention will serve your purpose for portraits, and if you arrange your groups carefully so as to make the most of the curved field of the lens, it ought to answer all your requirements.

E. A. B.—(1) The colours should be finely ground, and can be obtained ready for use from artists' colourmen, such as Messrs. Winsor and Newton, or Reeves. (2) Purified oxgall can also be obtained from the artists' colourmen, and you will find this course much better than endeavouring to make it yourself. (3) The colours will not run if care is taken. The hot roller is best. A flat iron can be used, but the results are not always so good. (4) It is possible, but is not worth the trouble, and the results cannot be so good as those made with lantern plates. We can recommend no cheaper process. Surely a penny each is not very expensive.

C. W. A.—The "Illustrator," published by the Illustrator Publishing Co., Beekman Building, New York, U.S.A.

GUM PROCESSES.—1. Will you kindly give me a formula for a gum arabic film (bichromate) for etching on metal? Any other gum that is insoluble in alcohol will do, but gelatine is useless. I have found gum arabic alone sensitised with bichromate flakes up directly it is dry, and is difficult to coat on metal, as it runs off easily. Is there any remedy? 2. Will you tell me also if it is possible to make a carbon transfer paper with gum arabic instead of gelatine for the coating, as I believe there is nothing of the kind upon the market?—H. S.

1. The best gum acacia was formerly employed in half-tone work for sensitising the metal plates, but it is not so satisfactory as fish-glue. With gum, it was usual to use chromic acid. We should think you had better try one of the fish-glue formulae, of which there are many at present, such as the following:—Water, 16 oz.; fish-glue, 8 oz.; ammonium bichromate, 350 grains; citrate of iron and ammonia, 50 grains. 2. There is no method, so far as we are aware, of rendering a coating of gum arabic suitable for transfer paper for the carbon process. Besides, it would be more expensive.

DUNCE.—Full particulars concerning apparatus of this kind will be supplied by Jonathan Fallowfield, Charing Cross Road, London, W.C. The prices, as listed by him, range from 12s. 6d. to £10 10s. The latter price includes twenty-five lenses. Sufficient lights should be used to illuminate the copy evenly, and if only a few are used—say two—it becomes merely a question of prolonging the exposure. A few trials will soon decide this.

T. E. GUBBINS.—Your best plan is to use a strong black aniline dye, such as Judson's. The application of a couple of coats of this will be sufficient.

A. POWELL.—Are you quite sure you have the proportions right? An excess of oil would cause the effect you mention. This excess of oil in the total bulk would also arise if the varnish has been exposed to the air for any time. The spirit evaporates, and the proportions of the formula become altered.

MENDING PAPIER MACHE.—I have a large paper-maché tray, in very good condition except the corners, which have all the black enamel worn off, showing two or three thicknesses of cardboard. Could you tell me what to do with it?—E. S. B.

You will be able to effect a satisfactory repair with Prout's Elastic glue. This is sold in sticks, and is applied after the manner of sealing-wax. The mended portions can be smoothed down with a hot iron. It is quite waterproof.

RETOUCHING (Reply to E. C. P.).—Your touch is soft and natural, and the likeness for commercial purposes is pleasing, although, personally, we prefer the characteristic expression of the unretouched to the smiling alteration made by your pencilling—but this is merely a matter of individual taste. Balance the shadows under the eyes to better effect, and see that the shadow side of face is not in too violent contrast with the light side. The modelling of the nose is rather ragged, and, this being the most prominent feature, should always receive the most careful attention.

SELLING JEWELLERY.—Would you kindly inform me whether there is a weight limit in supplying hall-marked gold pendants for miniature photos without a gold licence; if so, would you kindly state the weight?—F. O. S.

No licence is required if the article sold is under 2 dwt. Above this weight a licence is required, and costs as follows:—Above 2 dwt. and under 2 oz. gold, £2 6s.; above 5 dwt. and under 30 oz. silver, £2 6s.; above 2 oz. gold and 30 oz. silver in one article, £5 15s. We are informed by Messrs. Dorrett and Martin, who make this business a special line, that all the gold goods in their list are under the 2 dwt.

PRINTING POST-CARDS.—We are in want of a rapid post-card machine for printing cards in batches of 100 to 1,000 from a negative in bromide paper. Can you let us have any particulars and price of any such machine on the market for turning the post-cards out quickly? Or can you inform us where such machines are made?—F. E. W.

If you will turn to page 570 of our issue of August 25 you will find the addresses of several makers of machines.

CUTTING POST-CARDS.—Will you be good enough to say where to get a machine for cutting cards into the official sizes and C.D.V. and cab. sizes? Shall have a large quantity to do, and I expect, also gelatine and chloride sheets to cut.—H. M. ALLEN.

Card-cutting machines, of all sizes, are regular stock articles by all the large dealers, such as Marion's, Fallowfield's, Houghton's, and others.

J. W. H. B.—1. As we presume you only intend to work with a north light it is quite immaterial how near the studio is to the outbuildings, as you will not need light from that side. 2. We should have a ridge roof, but the ridge out of the centre—say a couple of feet nearer the south side than the north. 3. About 5 ft., or 5 ft. 6 in., at either end solid, the rest glass, side and roof. 4. Dark blue or light green will be suitable. 5. No, as you have so much space at your disposal; 20 ft. is too short for convenient working, more particularly in taking groups and full-length figures. We should advise you to make it quite 25 or 26 ft. long, and a foot or two wider. You will then have an ideal studio, with an ideal aspect.

PLATINUM RESIDUES.—I should be much obliged if you would inform me whether there is platinum of any value as regards refining purposes to be extracted from the platinotype developing bath. About thirty sheets (26 by 20) weekly go through the bath, which is never thrown away, but added to as occasion requires. If it contains platinum in paying quantities, I

should be glad to know the best process for precipitating same.—**PLATINA.**

With your consumption of paper we should say that residue would be well worth saving. The platinum may be thrown down by boiling the solution in an enamelled vessel after a little sulphate of iron solution, acidified with sulphuric acid, has been added to it.

REFLEX.—If you wish to employ the single components of your camera and rely on getting satisfactory sharpness with the subject you mention, a reflex camera will undoubtedly be the right type of instrument to get. They do not all suffer from the fault you mention. The best all-round type of camera for the work, provided you are content always to use the lens in its complete form, is the folding focal-plane hand-camera, which there are several good and reliable examples on the market. These have direct-vision view-finders. The camera especially mentioned will be found rather bulky in use in comparison with the type recommended. The changing box is very good, but is apt to cause pinholes by the internal friction working up dust. Dark slides will usually be found more reliable for the work.

SCRIBBLER.—The Tress Company, 205, Oxford Street, W.

A. S. A.—We cannot give the address.

PROFESSIONAL Photography at the R.P.S. Exhibition.—From information to hand, we understand that professional photography will be represented on a larger scale at this year's R.P.S. show at the New Gallery than has been the case for many years. We are pleased to know that professional photographers are waking up to the fact that publicity of this sort carries with it advantages that have not been fully appreciated in the past. Their work is brought to the notice of a large section of the public that they probably could not easily reach otherwise, and the very fact that the photographs of many professionals are shown together must undoubtedly have a good effect in increasing the standard of the work as a whole.

Boom in Photographic Fruit.—According to the morning papers a boom in "King's portrait" apples is anticipated this year. This is the result of the success last season of the one parcel of apples imprinted with photographs of the King. This year, accordingly, it is thought probable that several specimens of portrait fruit will be put on the market by the English fruit growers. The French growers are following suit, and it is possible that several specimens of fruit containing *entente cordiale* photographs will be sent to Covent Garden. Portrait fruit may also come from America and Canada, as several of the largest growers in those countries obtained last year special information from an English expert on the use of photographic films on apples.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

PRELIMINARY ANNOUNCEMENT.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued or two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained, in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may occur to our readers as susceptible of improvement.

The ALMANAC for 1906 will appeal to photographers all over the world as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable new features of an informative nature will be added.

* IMPORTANT NOTICE.—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1st, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

EX CATHEDRA.

Pinatype.

Readers of the "British Journal of Photography," will remember in our issue of October 14, 1904, a description of Dr. König's new process for colour-printing on paper by means of the leuco-bases of dyes. Owing to the instability of the dyes which it was necessary to use in that method, the process has now been withdrawn, and replaced by a new one, which has been called "Pinatype," and which will appear on the market very shortly. This new method depends on the property possessed by unhardened gelatine of absorbing dyes with greater ease than hardened gelatine. If from a set of three-colour negatives three transparencies be made, and then, under these transparencies, plates coated with bichromated gelatine be exposed, we shall, after washing, have a result in which high lights in the original will consist of hardened gelatine and shadows of unhardened. Consequently, if we place this in a dye bath we shall obtain a positive transparency. Now, if on this transparency we place a piece of the specially-prepared transfer paper the dye will be slowly transferred from the gelatine to the paper. The process is worked as follows:—The three positives are prepared from the negatives and then from these positives three printing plates are prepared with bichromated gelatine, and dyed, the dyeing, in the case of the pink and blue plates, taking at the first time fifteen minutes; for the yellow plate, thirty minutes. The plates are then rinsed. The transfer paper is then soaked in water, and squeegeed on to the blue-printing plate. In about ten minutes the blue dye will be transferred to the paper. The print is then removed to the red-printing plate in register, and the process repeated. The yellow plate only differs in that it requires about thirty minutes for transference. The print is then hardened, washed, and dried, while the printing plates dye up again in the dye-baths in about ten minutes, and can be used continually, so that many prints can be obtained. The results shown are excellent, and the process is cheap. It is probable that Mr. Scholl, who has been assisting Dr. König, will be in England shortly to demonstrate the process on behalf of Messrs. Meister, Lucius, and Bruning.

One-plate Colour Photography.

In view of the fact that there has been found in England some considerable difficulty in working the Smith three-colour plate, it may be of interest to note that a representative of THE BRITISH JOURNAL OF PHOTOGRAPHY was enabled recently at Zurich to see the preparation of the plate for development by Dr. Smith, as well as to examine some satisfactory results which have been obtained. A new frame has been devised by Herr

Szczepanik by which the separation of the three different films has been greatly facilitated. A plate is placed in the rebate in the centre of the frame, and covered with a sheet of black paper carried on a small sliding bar, which is so arranged that the extreme corner of the plate is left uncovered. So far no light can be used, but for the next operation even candle-light may be employed. The two top films are cut through with a sharp knife, and gently lifted free of the bottom film. Next, in a dim red light, the top films and the black paper are pulled back together, and stripped off evenly. These two films will consist of the top and the second gelatine films, giving two final plates with a collodion film between them. Hence, provided a developer can penetrate to both sides—the film being held vertically in a clip—these two films can be developed at once, and stripped apart when dry. The bottom film remaining on the plate has a layer of collodion on top of it, which must be removed before development by soaking the plate for five minutes in methyl alcohol (not methylated spirit). The results obtained are encouraging, and greater success should follow when the collodion films are coated by a new machine now in preparation, not by hand, as is done at the present time.

* * *

Post-card Refinements. The manufacturers and vendors of post-cards, among which we include the sensitive photographic cards, have need to keep a strict surveillance over the size of the card, for, apparently, the Post Office authorities administer the regulation as to maximum size without any tendency to laxity. A case in which a number of postcards was surcharged because they exceeded the official dimensions of $3\frac{1}{2}$ by $5\frac{1}{2}$ inches transpired recently, and, as our contemporary the "Chemist and Druggist" ascertains, the excess of length in one case did not amount to more than one-fortieth of an inch. We should have thought a rather wider margin would have been permissible; but the Post Office evidently desires to keep strictly to its regulations. In any case, the department cannot be accused of wishing to discourage the circulation of the picture postcard, for its policy of the last year or two has embodied measures to which in a large degree the fecundity of the postcard cult is attributable.

* * *

The R.P.S. Exhibition. There appears to be no doubt that this year's R.P.S. exhibition at the New Gallery will be a remarkably good one. Over two thousand five hundred exhibits have been entered in the pictorial and technical sections as against two thousand last year, and we understand the selection has been conducted on very drastic lines. This is a great victory for the "anti-pot-hunter" faction if they care to regard it in this light, as it is a significant fact that, in spite of the warnings regarding the probable loss to the society if the R.P.S. medal was withdrawn, the standard of the work submitted to the Selecting Committee is, we understand, of higher quality this year than in any previous exhibition. Nevertheless, we are inclined to think that the question of the medal makes very little difference one way or the other to the number of entries, and regard this influx of extra work as merely one of the natural consequences of the very systematic and wholesale distribution of notices and entry forms that has been going on for some months past. At the same time it cannot be denied that the absolute withdrawal of the R.P.S. medal, an award to be regarded as a thing apart, not to be compared with the awards in any other sort or kind of exhibi-

tion or competition, is somewhat in the nature of killing a degree that had a distinct value to its possessors, and place of its own in the photographic world that nothing else can fill.

* * *

Professionals at the Royal. As indicated in a brief note last week professional photography will find a very prominent place in this year's exhibition at the New Gallery, apart from that entered in the pictorial section. At first this may appear curious, in view of the fact that no specific section for professional work was set apart in the prospectus. In previous years this section has usually been specially denominated, but as a rule received very scant support. This year, therefore, it appears that the section was deliberately omitted but it was decided to extend the trade exhibits usually confined to the Fountain Court, to the North and South Rooms, and to separately canvass the leading professionals of the country to take spaces on the walls of these rooms. The success of this course is evidenced when we understand that professionals of the calibre of Crooke Downey, Hollyer, Histed, Lambert Weston, and many others will be extensively represented; while, as usual, most of the leading material and apparatus makers will also be in evidence. We do not think, however, that any harm would have been done in retaining in the prospectus the special section for professional work, as, until we learn recently that the professional photographers were being circularised separately, we were under the impression that the section had been abolished, and so informed possible exhibitors.

* * *

Sunday Photography. A photographer at Castleford has recently been fined 7s. 6d. with the alternative of seven days' imprisonment, for taking two portraits on the Sunday. The defendant said he did not know the law, as well he might not, for the Act under which he was convicted is one that was passed in the time of Charles II. and, as it has never been repealed, it is still on the Statute Book, though now very seldom enforced. The chairman of the local bench told the defendant that he ought to know that the working of his ordinary trade on the Sunday was illegal. We should have thought that this antiquated kind of "bumblodrom" was confined solely to a small Buckinghamshire town, but it is clear that it exists in Castleford as well. If this antiquated and practically obsolete law were put into force against every photographer, or other tradesman, who follows his calling on the Sabbath there would be a pretty long list of convictions every week. It is somewhat consoling, however, that the most the magistrates, who have to deal with the cases, can do is to fine the defendants the modest sum of 7s. 6d. which, we think, includes the costs, with the alternative of seven days imprisonment. Not a few photographers who trade on Sundays put through more business on that day than they do all the other days of the week put together, so that this modest fine would not be much of a deterrent to them. At the present time it would be rash to speculate on the amount of amateur photography that is done on the Sabbath.

* * *

Balloon Photography Redivivus. It is extraordinary how photographic inventions that have become forgotten are re-invented. On page 718 of our last issue, is a description of a photographic appliance which has been put into practice by the Russian Army for taking photographs from a kite or captive balloon, for which a claim to novelty is put forward.

now, as a matter of fact, the late Mr. W. B. Woodbury, nearly thirty years ago, invented for the same purpose an apparatus, which seems to be practically the same thing. Mr. Woodbury took out a patent for his invention (No. 547, 1877) and we may make here a quotation from the specification as given in the official abridgments:—"In place of the car of the balloon there is a wooden box open below, to one side of which the rope by which the balloon is held is fastened. From the opposite side projects a light sail or rudder which, by the action of the wind, prevents the balloon turning round. Suspended by a pivot at the top side of the box is the camera, which thus hangs vertically. The lens points downwards, and above are two rollers carrying strips of flexible sensitive tissue. The lens has a rotary instantaneous shutter working by an diaphragm or other spring, but an oscillating shutter may be used. The apparatus is worked by an electric current, for which purpose three wires are entwined with the rope by which the balloon is held—one wire is for the return current; one wire is connected with an electro magnet and with this, clockwork, so that by completing or interrupting the circuit the sensitive tissue is rolled from one roller to the other to expose a fresh surface; a current along the third wire by means of an electric magnet, releases the shutter and gives the exposure. Thus by alternating the current, a series of photographs may be obtained." Those who read, last week, the description of the apparatus employed by the Russian Army and compare it with the above of Mr. Woodbury, will see a strong family likeness between the two.

* * *

Infringement of Copyright.

We have frequently dwelt in these columns upon the attitude of photographers who do not consider certain of their pictures worth the registration fee of the copyright, or neglect to register them, and then the moment they find that someone has reproduced them, discover they have suffered a very considerable injury. In other cases where the registration has been duly effected, and the picture has been reproduced, they often think they are entitled to recover an extraordinary sum by way of penalties and damages. A case in point was briefly reported in our last issue, where a photographer of Rothesay had taken in the Glasgow Sheriff's Court, the proprietors of a Scottish weekly paper for damages for the infringement of his copyright in a portrait of the Marquis of Bute. The claim by the plaintiff cannot be characterised as being a very modest one, as it was for £10 for every copy of the paper issued, and as it was estimated that the edition amounted to 25,000 copies, the claim represents a sum of just a quarter of a million sterling. There are many photographers who would gladly see any one or the whole of their copyrights infringed for a thousandth part of this sum per picture. At the trial the case broke down really at a point of law. It was brought under the Summary Jurisdiction Act, and thus no appeal was permissible against the decision given, whatever it might be. In dismissing the action as incompetent, the Sheriff remarked that he was quite sure it was not intended by the legislators to vest the Summary Court with a right to decide finally upon a claim nominally for £250,000 with a right to appeal. He, therefore, dismissed the action and allowed the defendant his costs.

* * *

Huge Claim. Now it is quite possible that if the sum claimed has been a reasonable one, the court would have dealt with it in the usual course and the plaintiffs would have recovered something by way of

damages. According to the Copyright Act, the maximum penalty for each copy reproduced is ten pounds, and that is none too much in the case of a painting, of which only one or two copies are made, but in respect of a photograph, reproduced in an illustrated paper with a circulation of fifty or perhaps a hundred thousand copies, such a penalty becomes absurd. In a case tried in London, some time ago, the Court came to the conclusion that, as the Act specified a sum of money for each copy, some coin of the realm must be awarded, and consequently a farthing was given. But, even at this sum, the total was so large that the judgment was appealed against, and it was ruled in the higher court that the penalties could be assessed at a lump sum, and not necessarily as one for each print. The minimum fee fixed by the Photographers' Copyright Union, and the P.P.A., for the reproduction of a copyright picture is half a guinea. That is the minimum fee but, of course, the holder of the copyright is not bound to charge no more than that sum; he can charge whatever he likes, or withhold the right to reproduce altogether if he chooses. Almost any photographer is willing to grant the right of reproduction of ordinary subjects for half a guinea or a guinea, but if the picture is copied without let or leave, then he is quite justified in suing for penalties or damages, and we are always gratified when we see that substantial sums have been recovered, as the incident is a lesson to those who would appropriate other people's property. But in bringing an action, it is very unwise to claim such an exorbitant sum as that in the above case. In a report of it just to hand, it appears that the plaintiff had previously sold, to another paper, the right to reproduce the Marquis of Bute's portrait for half a guinea, and it was this reproduction that the defendant had copied. The author then sues for damages to the amount of no less than a quarter of a million pounds!

THREE-COLOUR PORTRAITURE FROM THE COMMERCIAL STANDPOINT.

THROUGHOUT every era of the history of photography the aspirations of its exponents have been towards the representation of objects in the colours of Nature. Even in the first delirium of enthusiasm with which the discovery of Daguerreotype was received by the French capital, that note did not lack expression. It was rumoured that M. Daguerre had very little to do in order to give the last touch to his process by which it would attain perfection. That anticipation of fact has been with photography ever since. Assurances have been often unfulfilled, but now we stand not far outside the threshold of what practical photographers will regard as practical colour photography. Signs are not wanting that the conviction of the commercial value of a process of colour photography, which might be employed in portraiture has steadily strengthened, and that the outlook on current advances is keener now than ever it has been before. The printing press has been in advance of the photographer in creating a taste for colour among all sections of the community, and the monochromatic products of the photographic process are made to look pale beside the gorgeous hues of lithography and three-colour half-tone. Yet there are signs also that the photographer is on the watch to provide what the public wants, as witness the coloured miniature which has become a fixture in the price-list, and has proved highly profitable to many a business. The coloured or tinted print, too, has had its share of attention, though not with any greater success than, in the majority of cases, its qualities entitled it to. But to what extent has there

been any actual movement towards pressing processes of colour photography into the service of the studio as a money-winner? It cannot be said that any process can boast at present of any appreciable commercial application. It is within our knowledge that more than one method of colour photography for which great things have been claimed have been seriously examined by leading photographers with a view to putting them into practice. But nothing came of them; the processes could not respond to the demands made upon them. Until the announcement some weeks ago that a studio had been opened in Berlin solely for portraiture by a three-colour process, we could not have named any establishment in which such work was carried on on a commercial scale. A well-known German professional, Herr Perschied, has been associated with a modified three-colour method, but we are not aware that he has actually put it in operation in the regular way of business, though presumably the process is technically a success. A more recent example of colour photography in the professional's business has come before us in the shape of a considerable edition of portraits of the King, executed by Messrs. W. and D. Downey for the Indian Government. In this case a large coloured portrait had been prepared from the original photograph of his Majesty, and over 500 smaller reproductions were supplied in the form of three-colour half-tone process prints. This form of three-colour print is not one which can often be applied in commercial photography, nor is it one which would, in the majority of instances, prove readily saleable. But in the case of his Majesty's portrait the final result of the framed print is very handsome. The execution of the order is certainly notable as showing the demand which exists in the highest circles for trichromatic prints in preference to photographs which, in everything but the possession of colour, are immeasurably their superiors. Assuming this demand for the coloured picture to be, as we believe it is, common to all classes of society, we may ask the questions. Is it technically possible and commercially possible to supply the demand?

Technical possibility hinges chiefly on the minimum to which the exposures necessary for the making of the three negatives can be reduced. Commercial possibility depends chiefly on the cheapness with which the composite three-colour prints can be produced. To take the negatives first, we believe it can be claimed for the modern orthochromatic plates, or for plates sensitised with the more recent dye sensitizers, that exposures for all three negatives, under favourable conditions of light, will not exceed a time which would be considered impossible by a photographer of adult sitters. Comparing three-exposure with one-exposure cameras for three-colour work, the balance of practical advantage would seem to lie with the former, for the latter are costly, more difficult of adjustment, and introduce extra filters. With a one-lens camera, in which the three exposures are made successively, the whole operations need not occupy more than a few seconds, presuming, as we have already said, the very best studio conditions. The relation of the three exposures is even more important than the correct exposure as a whole, and for this reason an accurate shutter which will automatically give, say, 2, 1, and $\frac{1}{2}$ seconds for the three screens, or can be set for other ratios as the filters may require, is a most advisable method of exposure. The apparatus, therefore, for direct three-colour negative-making is not unduly elaborate nor excessively costly.

Turning to the commercial possibility of the process, the facts for the guidance of the photographer are more difficult of quotation. In the case of large editions the negatives can be turned over to a printer and plate-maker in half-tone or collotype, and proofs ordered to the number

required, but that is a course which can be followed in few cases, and is practically useless to photographers whose order from a set of negatives cannot be expected to run to more than a dozen or two. The only practicable method for them is the triple-pigment print, the suggestion of which will perhaps be received with little enthusiasm by those who have listened to the accounts of difficulties from workers of that process. Such prints, it is surmised, must necessarily be producible only at a price which will be prohibitive for commercial work. We are not convinced of the truth of this argument. The materials of the three-colour pigment prints are cheap enough; the cost is in the labour, and estimates of that cost are made regardless of the fact that no systematic use is made of the process. Before the process can be judged commercially possible or impossible, it is necessary to discover what form of labour can be employed to print and make the pigment trichromes. It was stated some time ago that the making of three-colour prints was work requiring the patience of feminine hands for its proper performance. We would not assume that it is to be left to female labour to bring colour-photography within commercial limits, but it may be pointed out that the important question of the systematic printing of trichromes on paper requires to be worked out in figures. As things are at present, the difficulty and uncertainty of the process become magnified from the fact that the most expert of those who work the process cannot claim to be more than beginners, and that the expense of the method at present simply represents the price of experience learnt by failure.

These considerations and others affecting the commercial status of the three-colour process deserve the attention of the professional. At present the claims of the process require confirmation in practice, but we may anticipate that before very long the tri-colour method will venture upon the arena of actual commercial application. Ten years ago, when the direct-colour transparencies of Mr. Ives were prominently before the photographic world, the comment was: "Yes, this is all very well, but we want prints on paper." That request is now very near being granted. What use will be made of the new powers?

THE T.P. COMPETITION.—The Thornton-Pickard Manufacturing Company have asked us to draw the attention of our readers to the fact that their prize competition, in which £100 in cash is offered as prizes, closes on October 1. Prospectus and entry form are sent post free to all applicants.

TWO SIDES.—Photographers declaim against the newspapers, and the papers have good cause to complain of the photographers, observes the "Evening Standard and St. James's Gazette," in commenting on the claim for £250,000 recently made by a Glasgow photographer. "An instance from one's personal knowledge: Copies of a certain photograph were bought, with right of reproduction by two London firms, both of whom published. Then from the clouds there descended a syndicate saying that it had previously bought the copyright of that photograph, and must have damages and a royalty on every paper sold containing their property. One of the two firms, intolerant of a fight, paid up at once in three figures. The other, having less money and more time, looked into the bona fides of the syndicate, and to do so went up to Stationers' Hall. There, right enough, was the registration of the copyright. But—here comes the rub—that photograph had not been registered until days after it had been published in London. "You do your worst," said the little firm, "we won't pay a farthing." And they did not; they had paid already, paid the man who first had the right to sell. That syndicate disappeared as rapidly as it had materialised."

THE NATURALIST PHOTOGRAPHER.

DURING the last few years considerable interest has been awakened in natural history photography, and it is now steadily gaining votaries amongst amateur photographers. The importance of this most fascinating and altogether delightful branch of photography cannot be over-estimated, affording, as it does, a ready means of keeping a true and faithful record of the beauties and wonders of Nature. What would not dear old Gilbert White have given to have possessed this means of picturing the fauna and flora of his beloved Selborne?

Nearly every year, unfortunately, still sees the extinction of some species of bird, beast, fish, reptile, insect, or plant, and it is a duty the naturalist photographer owes to posterity to obtain through the agency of his camera, a lasting and truthful portrait gallery of these fast-vanishing forms of life. I consider he has also another and even a higher mission; for by means of the exhibition of good photographs of wild nature, showing how these creatures and plants lead their daily life in their natural environment, he is doing something to educate and to attract the attention of a thoughtless and ignorant public to that disgraceful and wanton slaughter of the innocent denizens of the wild, which is carried on, year after year, with barbaric cruelty, to satisfy the demands of senseless fashion.

Natural history photography is, without doubt, one of the most interesting and charming branches of photography that anyone can take up as a hobby and pastime. All the year round there is always something to be done, and if one could live for a hundred years there would still be subjects awaiting one's camera. To be successful as a naturalist photographer, however, and to produce pictures really worth showing and keeping, the would-be worker must be endowed with a real and deep love for Nature; he must always have an endless stock of patience at his command, and must be determined, resourceful, quick to seize the fleeting opportunity, and possess an insatiable thirst for knowledge and personal investigation into the wonders of Nature. Without patience nothing

can be done, and the naturalist photographer must be prepared to look upon his failures as useful object-lessons that are really going to help him in the end to success. Careful consideration of each failure, so as to determine why it was a failure, will do much towards the rapid improvement and quality of the work accomplished.

Start with simple subjects, and work steadily upwards. Study your subject carefully and thoroughly, trying to learn something of its nature, characteristic appearance, and environment, before attempting to photograph it; then you will obtain a picture that is at once a pleasure to look upon and a truthful record of your subject, and not a mere chemical sketch, more or less libellous in character.

Elaborate apparatus is by no means necessary for Nature work, and useful additions can always from time to time be made to the outfit as circumstances demand and permit. The mistake most commonly made by the average tyro is in attempting too much, having a shot at anything and everything that comes along. Such proceedings may result in a very large number of negatives by the end of the season, the majority of which, however, will probably be of comparatively little real interest or scientific value. Far more satisfactory will be the results obtained if the beginner will devote his attention and efforts to one particular subject, species of bird, beast, insect, or plant, and work steadily at that until he has acquired a thorough knowledge of it. Subjects are always near at hand; for instance, there is a lot of useful, interesting, and charming photographic work to be done with our common domestic pets—their facial expressions, and characteristic pose under certain conditions, which often reveal an hereditary trait (handed down through a long ancestry from their wild forefathers) of which it is well worth while to obtain a photographic record. Know your apparatus, your plates, and developing; be patient, watchful, determined, and you will succeed.

F. MARTIN DUNCAN.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

II.

Different Types of Societies.

PHOTOGRAPHIC societies may be divided into three classes: Those that exist for pleasure, those that exist for business, and those in which both business and pleasure find their proper places at proper seasons. The first type is, unfortunately for photography, in the majority to-day, and useful though they may be in bringing together a number of people with a hobby common to all, their utility does not generally rise beyond that of an ordinary social club. Photography—the very reason of their being—is regarded merely as a convenient excuse, when one is needed, for the weekly or monthly social meeting, but seldom is an effort made, concerted or individually to do anything for its advancement. One or two members, including the secretary, who is usually the real executive, may make efforts to improve the outlook by the aid of imported lectures and demonstrations, but they are apt to fall flat and raise no discussion, and so the society drifts on in a state of stagnation. The same round of officers appear year after year by simply ringing the changes on the offices they fill. Strange to say, such societies are frequently better equipped and possessed of a larger income than many other associations of a similar kind that are really awake and alive to the necessities of their

existence in the photographic world. A complete change of officers is the only remedy that is likely to effect reformation in moribund institutions of this kind, but the necessary "strong man" to undertake the work of reconstruction is not always forthcoming.

Business, not Pleasure.

The very antithesis of this type is the society that is keenly alive to its obligations to photography generally, and has no place for social amenities. The members meet simply to discuss the business of the evening, and when that is over they promptly disperse. The serious side of photography is the very soul of this type of society, and the advancement of its affairs is its occupation. The meetings are characterised by formality and seriousness. Attention to the business at hand concerns it during the entire course of the meetings. Smoking, drinking, and other detractions are banned, and ladies are usually to be found as working members in these societies. The membership is frequently small, but the lecturer who haps on a society of this type has usually a stirring experience. His every word is devoured, and formulæ are jotted down in note-books. His bad time comes after the lecture, as every statement he has advanced is challenged in unexpected quarters; but he is on

his mettle, and the evening is usually a fairly profitable one for all concerned. The lecturer, however, meets with little attention of a convivial nature on visits of this sort, as the question of entertainment never appears to trouble these very business-like societies. They are as rare as the other type is common, and they frequently extinguish themselves by their own over-vitality. The members find out too soon that they know, or think they know, everything, and the feeling of jealousy—fatal to sustained healthy competition—alienates them from the interchange of ideas with their fellow members at the meetings of the society.

The Happy Mean.

It is to the class of photographic societies combining, to a certain extent, the best attributes of these two types that we must look in the future for the production of the best workers. Both pictorial and technical, and the executive of all societies should look to it that they emulate this type. Of the four hundred or more societies at present existent in the United Kingdom, fully one-third can be reckoned as being of this class, and when one considers the enormous increase in the number of societies during the past five or six years, this is matter for congratulation. These societies contain good workers, and the social element is not forgotten. The officials are the right sort of men to keep things moving, and in many cases the lack of interest that arises is not due so much to lack of energy on the part of the workers as to lack of "the new blood" referred to in the previous article.

Environment.

Apart from these leading characteristics of photographic societies, there is no doubt that the environment of each society affects its general tone in a marked degree, and it will more often than not be found that the society which meets in a hired room at a tavern or coffee-house once a week for a few hours is much more alive to its responsibilities than the society with its permanent quarters, library, dark-room, and other luxuries. This latter is apt to degenerate into the type that exists for its own pleasure alone, and, although there are notable exceptions, it frequently happens that the interest taken in the work of the society and the amount of keenness displayed is in direct inverse ratio to the amount of the annual subscription.

The Executive.

The constitution of the executive is usually at the bottom of the failure of many societies to "go ahead." As mentioned previously, practically the whole of the active work of the society falls on the shoulders of the honorary secretary, who probably would not have more to do if he were the paid official of a public body. The remainder of the committee usually consists of gentlemen who are prone to advise and criticise, but their advice is usually impracticable and their criticisms absurd. Some societies are blessed with a real working committee, and the secretary has more time to devote to the furtherance of the society's work.

The President.

The ideal executive of a photographic society should consist of a president or chairman, who, in addition to being the figurehead of the organisation, should be prepared to lead discussions and be capable of making a good speech. Upon the tactfulness of the chairman depends in a large measure the easy running of the meetings. The secretary may make the very best arrangements for the success of a lecturer's visit or for a big "open" night, but the actual finishing touch to make or mar the proceedings depends on the personality of the chairman. Awkward questions may be asked by a not too tactful member, accidents will occur in which a lecturer may not appear to advantage, points have to be made clear for the instruction of visitors on opening days of exhibitions, and

wrangles will take place at committee meetings. All these and many other situations are of frequent occurrence, and it usually falls to the lot of the unfortunate secretary to clear the path again. Let the president or chairman, therefore, be the right man to deal with them, and the members should bear in mind at the annual election that, given a capable and willing president and secretary, more headway will be made than if matters are left in the hands of a merely ornamental committee and the secretary.

The Reporter

One other official who is of vital use to the well-being of the society is often conspicuous by his absence from the list of officials. This is the reporter. The scope and position of this officer are not fully recognised in many societies, and his work is undertaken by the secretary. The duties of the reporter are, in a word, to make notes of the proceedings and supply them in the shape of interesting reports to the photographic and local papers. The secretary should attend to the minutes of the society, but he may draw on the reporter's notes for certain information. The supply of readable reports to the photographic Press keeps the position and activity of the society before the photographic world as nothing else can do, and the full benefit of this publicity is made obvious at exhibition time. A series of notices concerning the work of a photographic society published at frequent intervals in the columns of a paper like *THE BRITISH JOURNAL OF PHOTOGRAPHY* will do much more to add to the number of entries and quality of the work than the dispatch of unlimited circulars announcing the exhibition, just before the event. In other words, the society is being advertised by means of these reports, and its future prosperity and power to attract useful members depend to a great extent upon the persistency of this advertising. The publication of the reports in the local papers has an effect that produces a rapid return in the shape of awakened local interest in the doings of the society, and also brings the society to the notice of everyone interested in photography in the locality. It will be seen, therefore, that the preparation of reports of societies' proceedings has an important bearing on the prosperity of the society, and, apart from this, a point that is too frequently overlooked is also to be considered. A certain amount of return in the shape of all possible publicity is due to the lecturer, who more often than not has put himself to considerable trouble to prepare his paper. The secretary, in the absence of a duly qualified reporter, finds time to scribble a brief note only of the proceedings, in which frequently the names of members present, votes of thanks, and the bare name of the lecturer and his subject figure as the chief points of interest. The vital points of the lecture are overlooked, and not only is the lecturer dissatisfied, but the editor to whom it is submitted cuts it down still further to a line or two, or omits it altogether. The duties of reporter are not difficult, and therefore it should be an easy matter to find a member willing to undertake this necessary task and relieve the secretary of at least one duty during the meetings. Usually the secretary, in addition to attending to the usual secretarial duties of correspondence, arranging the programme, sending out notices, etc., and writing up the minutes, has to receive the lecturer and see to his comfort, be in attendance on him during the evening, and more often than not has to operate the lantern. To ask him to make a full report of the meeting for the current papers in addition is in most instances too much to expect; which brings us to the question of lanternist, librarian, and curator.

The Lanternist.

In every big society with rooms of its own, or even those societies who rent a room for regular meetings at stated times, the optical lantern and the accumulation of photographic

papers and books call for special attention that should only be given by officials specially appointed for the purpose. The lantern, especially if limelight is used, requires a lanternist who not only thoroughly understands the working of the jets and the regulation of the gas bottles, but should also have vested in him full powers to see to the purchase of new limes and other necessities, and to check and keep account of the expenditure of gas. The presence of a capable lanternist is always a comfort, not only to the members of the society, but to the lecturer, who more than anyone fully appreciates the value of a man who can project his slides promptly and satisfactorily, and at the same time show them to best advantage by making the most of the light. The lanternist, too, should, in addition to the knowledge of his apparatus, be possessed of a certain amount of coolness—that is, be prepared to meet all emergencies in the way of accidents, such as the bursting of rubber tubes, gas giving out, limes breaking, slides inserted upside down, etc. Lanterns in which the illuminant is other than limelight do not call for quite so much attention, and are decidedly in the minority among photographic societies. The oil lantern scarcely ever appears, incandescent gas or acetylene are never satisfactory owing to the low power of the light if a large disc is wanted. Acetylene is certainly better than gas, but calls for just as much attention, and probably more care, than the oxy-hydrogen light. The "Nernst" light and the electric arc are now frequently employed, and, although a certain amount of adjustment is always necessary, their use is comparatively simple.

The Librarian and Curator.

The librarian may also be the curator, and in most societies where this official finds a place he usually combines the duties of attending to the club literature and books, etc., and taking care of all club property in the way of apparatus, slides, dark-room materials, etc. Stock-taking should occur annually or oftener, and an account of the society's possessions and dilapidations should be presented at the annual meeting. The function of the librarian and curator is to keep all the property under his charge in readiness for immediate use by the members at any time, and to lend them out when required. By thus keeping check on all the belongings of the society a much smoother course is possible than when books and apparatus are scattered about for everybody's use without question or record. One or two other officials should also be appointed in every well-regulated society of any size. These, for the sake of convenience, can be called "stewards." Their duties should be to attend to the arrangements of the lecture room on meeting nights and see that everything is in its proper place for the reception of the lecturer, who may require assistance during the course of a demonstration, such as dark-room appliances, black-board, etc. The stewards should also make a list of the members for the use of the secretary and the reporter. The importance of the work of this latter official has been only briefly touched on above, so a full consideration of his methods of work, the form the reports should take, and their distribution to the papers, will be dealt with in the next article.

HON. SEC.

THE WEEK IN HISTORY.

Sutton's Panoramic Lens.

Of wide-angle lenses there is one which is rarely heard of nowadays, and I do not suppose one photographer in ten would credit an account of its performance over the wide angle of 125 deg. But nevertheless the "Panoramic" lens, of which Thomas Sutton published the first account forty-four years ago to-morrow in *THE BRITISH JOURNAL OF PHOTOGRAPHY*, might be found serviceable in these days of rapid roll-film. For the "panoramic" lens possessed at the time of its invention two fatal defects: it required a very small aperture to remove its spherical aberration, and it possessed curvature of field to an extent which rendered necessary the use of curved plates. The lens itself was concentric in design. It consisted of two thick concentric shells of flint glass enclosing a space filled with water. It could be made achromatic by suitable choice of curvature, and the question of unequal illumination was got over by Sutton by employing two diaphragms, placed equidistant from the centre of the sphere of which the whole lens consists, and from the concave surfaces of the glass lenses. These diaphragms were made elliptical, the long axis of the aperture being in the horizontal direction.

Though very little used in the days of glass plates, such a lens

as this now obsolete "Panoramic" might be of commercial value for roll-film photography.

The Latent Image Sixty-five Years Ago.

In an earlier instalment of these notes I recorded Fox Talbot's discovery of the latent image ("The Week in History," February 19), and the reader who is interested in the account of this fundamental factor in photographic technique can turn back to the quotation there from Talbot's original words. But it may not be out of place to say that on Wednesday next, September 20, exactly sixty-five years will have elapsed since Talbot discovered this important fact. Writing an appendix to Tissandier's "History and Handbook of Photography," Fox Talbot himself named September 20 and 21, 1840, as the dates on which these observations were made. The discovery, he goes on, "immediately changed my whole system of work in photography. The acceleration obtained was so great, amounting to fully one hundred times, that, whereas formerly it took me an hour to take a pretty large camera view of a building, the same now only took about half a minute; so that instead of having to watch the camera for a long period and guard against gusts of wind and other accidents, I had now to watch it for barely a minute or so."

HISTORICUS.

Woking and Ripley, with their surroundings, is the district dealt with in the latest number of the Handbooks issued by the Homelands Association, Ltd., of 22, Bride Lane, Fleet Street, E.C. The volume is the forty-second of the series, and is written by Mr. Arthur Henry Anderson, whose lecture before the Society of Arts and articles on the "Decline of the Country Town" have attracted considerable attention within the last few months. The book is illustrated with twenty-six copyright photographs, mostly from the camera of Mr. J. A. C. Branfill. It includes chapters on the bird life and botany of the surrounding country from the pens of Mr. D. W. Collings and Mr. Harold W. Monington, F.L.S., respec-

tively. It forms part of the Survey of Surrey undertaken by the Homelands Association, and is published at 1s. paper cover, 2s. cloth bound.

AN IMPROVEMENT IN CORKS.—A. Gawalowski, in a German contemporary, proposes firstly to remove the encrusting matters from the cork tissue, leaving a kind of cellulose, and, secondly, to treat this with 50 per cent. sulphuric acid, whereby it is converted into a material akin to that of parchment paper. The corks are then impregnated either with paraffin or rubber solution, by the aid of reduced pressure, and then form a very good substitute for rubber stoppers.

THE CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

THE twenty-first annual Convention of the Photographers' Association of America met at Boston, on August 8, under the presidency of George Graham Holloway, of Terre Haute, Indiana. The Association, we may say, represents American professional photography, and the Convention, during its stay in Boston, devoted itself to the discussion of topics important to the professional photographer. This part of its programme occupied the greater part of the time, and although entertainment was provided for members through the good offices of the "Photo-Era," the Convention was primarily a conference of men of all ranks in the profession, met together for the purpose of knowing and instructing each other. In America a convention on these lines appears to be infinitely more successful

than in this country. The American professional does not take the view that his competitor is necessarily his enemy, and as a result the convention meets in a spirit of fraternity which helps forward photographers as a body. A list of those taking part in the meetings would interest only a few of our readers, but we may say that it includes foremost professionals from all parts of the States, in addition to representatives of the leading manufacturers. An exhibition of professional portraiture was held, and medals and certificates awarded. We cannot quote from the report of the various proceedings, but we may reprint here, by courtesy of "Wilson's Photographic Magazine," which devotes its September issue solely to the Convention, several of the papers and discussions.

THE MANAGEMENT OF THE RECEPTION-ROOM.

(Papers and discussion before the Convention of the Photographers' Association of America.)

This session of the Association was introduced by the following short paper by C. Wesley Hearn, under whose superintendence the subsequent discussion was conducted:—

The difficulty has been heretofore that the work we did under the light has not been properly taken care of in the reception-room. The ideal reception-room lady is not one who will sell anything that there is money in. In other words, the party who simply waits upon the office in a mechanical way, without any thought or idea in relation to what would be best for the pictures we make, is not backing up properly the work which we do under the light. It very often happens that we make a thing with a certain definite idea, and if the party in charge of the office is in sympathy with our ideas, and has become a second to us in carrying out those ideas, then we shall stand a chance of giving satisfaction, and at the same time doing our work with credit to ourselves.

We may make a three-quarter figure of a lady. The attendant in the office may possibly decide that if the customer likes an oval picture she will put it on the oval picture, without any regard whatever as to whether that is best. With a desire to sell high-priced goods she may also advise delivering that picture on mounts and things of that description, purely with the object of getting that money, when it may be advisable for the best interests of the photographer that those pictures should be treated in some different way.

The Receptionist's Duties.

I do not think that the ultimate aim of a reception-room lady should be that she should make the money-getting part of the business the only thing. I would like to recite a little of my own personal experience in the last few years—of how I have changed my method, having first had my attention called to it.

We have in Boston, as you know, an organisation called the Lens and Brush Club. About every photographer that is progressive, in the vicinity of Boston, is or has been a member of that club. We have lectures by artists upon how things should be

done, and we have in consequence thereof received an education in that respect. I have made a point to have my principal attendant go to the meetings of this club on ladies' nights, and I have seen a radical change in the result of my work.

Interest the Customer.

Now we are busy under the light; we make a variety of pictures with the idea of giving honest goods for the money, and if we do that we have made friends and we have done the best thing that we could for ourselves. A lady, appreciating that, has made it a point to try to learn these various methods and means. Now when a customer comes in—outside of the usual pleasant reception which is supposed to be always given—she tries to get the customer to ask her advice in regard to which is the better way to finish the work.

We know very well that if left to themselves the customer will pick out something or other which pleases their fancy, and the ordinary reception-room lady will give it to them. The reception-room attendant should receive your strict attention all the time, to educate her for what is best. Your customers will then refer to her and she will advise them, and your product will be more pleasing to you than in the other way.

I think the time has gone by when we should only get all the money that there is in it. I have one strict rule—always to leave enough car-money for the customer to get home with. (Laughter.) I insist upon that absolutely. But there are cases which arise when you have customers that have plenty of money, and the product that they buy is largely what you recommend.

Now if you do not attend to your reception-room yourself, try to give a little attention to this plan of educating the attendant.

C. WESLEY HEARN.

Mr. George G. Rockwood, of New York, communicated with the following paper:—

The reception-room is, after all, allowing that the standard of work is correct, the keynote of any photographic business. Here all the honour (and profit) lies. It is the impression, both mental and physical, the patron receives when he enters there that unconsciously guides him or her in all negotiations or dealings with the establishment.

Taking the points as they successively appear to the patron, I claim the first is good housekeeping. The reception-room should be clean, neat, and above all not "cluttered up." From the

entrance to the exit this should be looked after, and there should be an atmosphere of cheerful refinement, and not that of a truck-shop.

How to Furnish the Reception-room.

The reception-room should have only interesting pictures, not necessarily portraits or even your own. There is nothing more uninteresting than portraits of the normal individual. If portraits, let them be of people of prominence or of high artistic quality as pictures. Above all, do not leave a pile of "left overs" or

refused" on the counter for people to muss over. Your customers may think they will have no better success. In my studios I have examples are in portfolios or boxes which are shown one at a time, as in all "shopping"; the customers are confused and often lost by the multiplicity of "samples" before them, and they sometimes retire to gather themselves together, or go to some other establishment where more tact is employed. In my new studio, which to me is ideal, there is not an ordinary or uninteresting picture to be seen, and, so far as the eye sees on entering, there are not half a dozen in sight. Some are purchased photographs of famous pictures by Reynolds, Rembrandt, and others, and the glare of the windows is subdued by panels of stained glass in the centre of which are half-life transparencies of President Roosevelt, ex-President Cleveland, Mark Twain, and other men of the day, with heads of beautiful children.

This may not be practicable or even desirable with some, but the expense is not great, and the effect beautiful. I paid about \$5 each for panels 18 by 36, I furnishing 11 by 14 transparencies for the centre. You see I am placing much importance on the atmosphere or effect upon the reception-room, as there is created the first impression. Everything about the place should reflect order, thrift, cleanliness, good cheer, and system.

The Ideal Receptionist.

The next matter of importance, without which all fails, is a bright, careful woman at the desk, unless the owner assumes this rôle himself, and, in my view, no man can take the place of a woman, if she is fitted. There is no position for a business woman, who is not making it a stepping-stone to matrimony, offering such opportunity for usefulness as in a reception-room. With good education, good disposition, and tact, she can almost double an ordinary business as soon as she discovers the difference between opportunity and importunity. She should be intelligent, quiet, alert, courteous, and almost permit the patron to buy rather than force anything upon them. Such a position is pleasant and profitable, deserving, and in some instances receiving, as large a salary as the gentleman who officiates in the studio.

One season I estimated the increase of sales from what the patron intended to secure over the amount they *did* pay, and I believed

it to be over \$5,000. To induce this result, I not only pay a fair salary, but give a commission on the gross sales. However conscientious and desirous of doing one's duty your representative may be, the commission, be it ever so small, excites to still further effort. I am interested in five establishments, and, after many years' trial, I am convinced that this system is a good one. Of late years I have extended it to the man behind the camera, with like favourable results.

Re-sittings.

In the discussion of the reception-room, properly comes the consideration of re-sittings. My instructions are never to hesitate to grant re-sittings unless it is for some fault that you can make plain to your patron is mechanical and can easily be removed in finishing. The re-sitting is usually inevitable, hence do it cheerfully, and thus save yourself from loss of both money and customer. The public have some rights which even a photographer should respect, and without question. Almost everyone has seen in pictures made of themselves an expression or sentiment which they did not feel, and which seemed to be a libel on them; while from a technical standpoint they were excellent. Again, a prompt compliance with the desires of the patron sometimes causes them to reverse their judgment and accept the proofs. This has happened in innumerable cases with me. Of course, there are people who demand great patience under most exasperating circumstances. I am not sure that if Job had been a photographer he would have gained his inheritance.

Now, having secured your patron, talk about the other fellow. Your personality may be interesting to you but not to your patron. Do not endeavour to impress him or her with your assumption that Rembrandt, Raphael, and yourself were young things together, but direct your attention—sometimes it must be your ingenuity—to finding some grace, some comeliness, or beauty in them. No human being is so unfortunate as to be without some favourable quality. One can find something—dress, shape of head, hand, or figure—to notice in delicately expressed words or suggested compliment. Having taken our subject to the door of the studio, not operating-room, we leave him to be discussed by those to whom the subject has been allotted.

GEORGE G. ROCKWOOD.

The work of the reception-room in its commercial aspect was discussed in the following paper by C. L. Lewis:—

Reception-room Methods.

Two years ago I came to the conclusion that I would stop selling photographs like buns and eggs, so much per dozen, and adopt the plan (not, of course, original with me) of charging so much for the sitting and so much each of the prints. At the outset this necessitated considerable explanation on the part of the receptionist, with whom the plan met with some opposition. However, she soon became more adept in explaining the plan, and it became easier to make the people understand, and as I sat near by in the office and could overhear the conversation, I would hear from the customer almost without exception, after it had been made plain: "Oh! I like that; then I can have as many as I want."

A Question of Price.

Now here is the point. I was getting but \$12.00 per dozen for pictures, and I wanted to raise the price to \$15.00. My people, I was sure, would not stand the price. A lady drops in to see the styles: "How much are these?" "Fifteen dollars per dozen, madam." Scene: a catching of the breath and raising of the eyebrows: "Indeed? Well, I was just looking; I will come again." Gone!

The new way:—Lady asks how much per dozen. We do not sell pictures by the dozen. For this (cab.) size we charge \$3.00 for the sitting. Mr. Lewis makes as many negatives as he finds necessary

to secure satisfactory results, and then you order from the selected proofs such as you want. The prints are only \$1.00 each. Then comes the expression: "So I can have just as many as I want. Oh, I like that plan!" Now, just as if they could not always have had just as many as they wanted! It is just the difference between tweedledum and tweedledee, but tweedledee seems to suit them better, and you have avoided delivering the knock-out blow—the mention of \$15.00; and instead have registered an appointment for a sitting.

Receptionist and Operator.

So much for the regular method. But as to further methods of handling peculiar people, and the harmonious working together of the artist in the studio-room and the artist in the reception-room, for both should be artists in their way. A perfect understanding must exist between the two. My experience has taught me that the feeling of anxiety and nervousness so often noticed in the studio-room, at the outset, is quite as much in evidence in the reception-room, and requires the same skill on the part of the receptionist as is demanded of the operator to overcome it. In fact, half the work can be done in the reception-room, anyway. The duty of the receptionist, after satisfying the customer with the work shown, is to convince them that the operator has a perfect understanding of what they want; moreover, by putting the matter entirely in his hands

he will doubtless think out something for them far more suitable for their individual case than anything she has shown them. Of course, at the outset they have decided on some style shown them, but it is her business to see to it that before they reach the studio-room that they are content to let Mr. Operator make anything he pleases, as they have conceived the idea that he is the man of all men that will know what they want. An operator thus fortified by a clever receptionist must make the stuff or show reasons why—and there are no reasons.

Handling the Sitter.

The peculiar people I refer to are those who "want to see the man who is to make the picture." Some there are, as you all know, who will not decide upon anything until they have seen this man. Now this man is, or should be, a busy man, and to hustle out just after having a difficult sitting, to meet some peculiar woman who has already worn out the receptionist, and do so, bubbling over with good nature and artistic zeal, requires more of the grace of God than the average "wizard of the camera" possesses. However, here is an excellent chance to make an impression, for impression is what is expected. A glance at the expressive face of your receptionist—and, I insist upon it, she must have an expressive face—tells you the whole story. You sit down—I prefer to have my customers seated, and to sit with them. Let them take the initia-

tive in the conversation. You use your eyes and ears. Soon you have encompassed the situation. In response to their remark: "What are you going to wear?" and you have done the trick in the next five minutes, anyway, and you will have plenty of time to think of what you will say next, for of all subjects a woman is best to talk about her clothes. If, by the time she has described the four or five dresses—any or all of which she might wear—you find you want more time, ask her if she has a hat she could wear with that blue evening gown, and you will secure a few minutes longer. By this time there is little need of saying more. She is convinced you are interested in her. A few judicious remarks about how well you think she would look in this or that, and you ask the girl for the appointment book, and down goes the appointment, and you bow the lady out. After getting outside, her companion asks her what style she decided upon. She says: "Why, I don't know; but Mr. Blank has some ideas which I know will be a right." Style, price, and all difficulties have vanished by the use of a little—what shall we call it?—tact. But someone says "That won't apply at all studios." Well, probably not to those diseased studios, infested with the "ticket" germ, the only cure for which is a change of climate. Opinions will vary, but while a man may handle his opinions his convictions will handle him.

C. L. LEWIS.

From the subsequent discussion of the foregoing papers the following quotations may be made:—

Mr. Puffer: I have studied this one thing: that to please my patrons is the most vital point in the success of my business: especially as I had all to gain and nothing to lose in going to New York, where it is a very large field which requires the utmost that there is in a man.

I decided to try to produce work that would please the people, and I make that my aim. I very often have to sacrifice some cranky notions that I have for the sake of the people who are paying their good, hard-earned money for my work. I have carried that idea out to such a degree that I could name on the fingers of my one hand those resittings that I have had to make in two years. This is simply because I do the work myself—I trust it to no one. I have had two employees; one stayed with me six or seven years and another eight years. I could safely say that one of them was one of the best retouchers in this country; but I found that in trusting the work to someone else it is very often unsatisfactory, and a prejudice is formed against the work, so that I had to give resittings. For when the prejudice is once formed it is impossible to overcome it except with a resitting.

Now the secret, I think, of the whole thing is that I get enough for my work, so that if I want to make fifty plates I can stand it. That aim to create artistic work has developed in me more within the last two years, because I have confined myself to the very best that I could do, and would not turn out a thing that was not the best that I could do. My customers cannot buy anything that I think is bad work, even though they think it is good.

Mr. Hearn, in closing the discussion, said:—

Pirie Macdonald had a custom some years ago, when he made his famous reputation, of submitting his pictures to the boy round the place. If he could only get the boy to give his honest judgment he thought he had an opinion worth having. That scheme carried out by us in our work often suggests certain ideas to us.

The customers who come in with the proofs have no idea what they want. They want some pictures. Even when they come in to sit they have not generally an idea of what they will have made.

They leave it to you. It is up to you to make good, honest work, to give value absolutely for what you receive. Do not advise expensive pictures if you have made a blunder in your negative and will look better upon a cheaper paper. Give them what the picture is worth in that case. Then from other negatives, in which you have not made a blunder, sell them other things.

I wish to speak of a photographer who was a wonderful success as a salesman. He had the nicest way of talking to his customers. The way he handled his goods over the counter! Everything was just perfect, and excited the admiration of the best of us. But there was one unfortunate thing about him. At heart he was no honest—he was a deception. His methods, if backed up with an honest intent on his part, would be good. If he were delivering a parcel of photographs he had a very nice way of opening the envelope and taking one of the enclosed photographs out of it. He would take that out and hold it so choicely, and present it to you for your consideration in such a way that immediately you were inspired with the idea that there was something very choice there, before you had even seen the picture. As I watched him I saw a smile on the face of the customer—they knew they were going to like the picture because it was presented to them so nicely. The photographer would say: "I think that is a very good photograph; am I not correct?" He was a slick article, but he did it well.

This puts me in mind of another thing. The very way that you greet your customers, the reception that you give them, the impression that you convey to their minds from the moment that they come into your studio until they are through with you for good for the time being, lives with them and is associated with your work. Whenever they show their friends those pictures, immediately comes to their mind the unfailing courtesy and obliging disposition which you showed to them.

Here is another idea. If you are by nature crabbed and rough, do not wait on your office; hire somebody else to do it for you. A great many people are unable to do anything of that kind gracefully. Make it a point to have your customers associate their pictures with the best of treatment from your hands.

The publication of the text of another paper on "The Financial Side of our Profession" must be held over until our next issue.

FOREIGN NOTES AND NEWS.

Daylight Development.

AN example of the periodical notoriety which the method of developing plates without a dark-room contrives to obtain occurs in the current issue of "Le Moniteur," where there is a communication from M. H. Schwartz, of Cairo. M. Schwartz, however, deserves credit over other partisans of the daylight-development process, in that he does not ignore the weak place in the method—viz., that, if you have to use a dark-room to transfer your plate to some patent development chamber you might just as well finish the process in your dark-room while you are there. Admitted, says M. Schwartz, but I dispense with the dark-room, and find that I can change my plate into the stained developer in diffused or weak light. Here is the description of the method which it is stated has been employed with satisfaction for some years past:—I place myself in the corner of a room which is not directly lighted, but is feebly illuminated by the light of a paraffin lamp in an adjoining apartment. Close at hand I have two dishes, one of coloured developer and the other of fixing bath. The developer is dyed with any of the suitable colouring matters which have recently been advocated, such as fuchsine, crocine, scarlet 3B, or, more simply, with a solution of phenol phtalein, which assumes a deep-red colour in an alkaline developer. In a light which is sufficient to show what is going on, the plate is slipped from the dark slide into the developer, which is at once covered with a piece of opaque card, and development allowed to proceed until it is safe to bring the dish near a lamp and watch the actual appearance of the image.

M. Schwartz makes no reference to the difficulty which most photographers would find in judging the density of a negative as it lies in the dish, a difficulty which, save by the adoption of time development, or the provision of cumbrous mechanical appliances, is not readily overcome.

A Simple Method of Stereoscopic Projection.

In the course of a lecture delivered recently before the Vienna Photographic Society, and reported in the current issue of the "Korrespondenz," Prof. Dr. G. Jaeger describes several devices for stereoscopic work which, while none is in any sense sensational nor all entirely novel, should occupy those who make the stereoscopic form of photograph their chief interest. Prof. Jaeger has devised a simple form of stereoscopic projector, with the defect, however, that it permits the projection to be observed only by one person at a time. The positive is placed in a lantern provided with two projection lenses, and in front of these latter is rotated a disc,

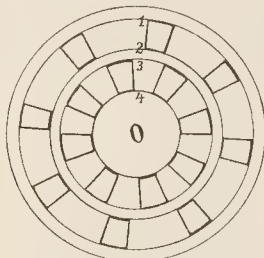


Fig. 1.

which alternately allows first one and then the other picture to reach the screen. The disc is perforated as shown in the figure—i.e., it contains two series of holes, the distance between circles 2 and 3 being less than that between the eyes of the observer, and that between 3 and 4 being slightly greater than that between the projection lenses. The disc on rotation uncovers first one picture

and then the other, and the observer, looking through the half of the disc which lies to the right or left of the projection lenses, sees each picture with the eye corresponding to it. It is found that the two pictures need not necessarily register on the screen in order that the stereoscopic effect should be perfectly observable.

The Polaristereoscope.

Prof. Jaeger has also constructed a stereoscope, in which is applied the property of one Nicol prism to transmit or intercept light falling upon it according as the light has come from a Nicol prism placed parallel or perpendicular to it. The pair of positives is placed in a projection apparatus such as that required in the method already described, and observed by transmitted light, which light, after its passage through the projection lens, passes through a Nicol prism, and falls upon a screen of ground glass as linearly polarised light. The planes of polarisation of the two positives are arranged perpendicularly to each other, and the picture as a whole is seen on the screen like any other projection. But on providing each eye with a separate Nicol corresponding in plane of polarisation with the respective pictures, we assign to each eye the observation of the appropriate image, and the result is a true stereoscopic effect.

[The above system appears to be identical with that of Anderton.—Eds., B.J.P.]

A "Concentration" Stereoscope.

On projecting the two stereoscopic images with the projection apparatus image on to a large lens, *L*, images are obtained at the points *A* and *A'*, the distance of which, by suitable choice of lens, can be made to correspond with the space between the normal human eyes. The eyes being placed in these positions, that at *A*

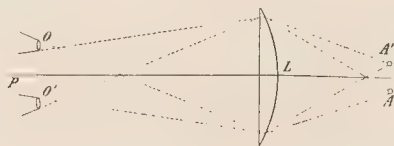


Fig. 2.

receives light only from the point *O*, that at *A'* only from *O'*. As the two combine to a single impression, the observer obtains the effect of solidity, and, as the whole of the light reaches the eye, the source of light in the projection apparatus can be very weak.

Next Year's Congress des Societes Savantes.

The forty-fourth meeting of this congress is announced for April 17, 1906, when the members will assemble at the Sorbonne for the reading and discussion of papers. Manuscripts are to be sent to the Minister of Public Instruction before January 30, 1906. In the photographic part of the physical sciences section, the following syllabus has been drawn up as roughly suggestive of subjects on which communications may be made:—Photography of radiations and other phenomena—The action of various rays of the spectrum on sensitive photographic plates—Orthochromatic plates—Plates approximating to ocular sensitiveness—Photographic optics and the optics of shutters—On the preparation of a sensitive plate with the fineness of grain of older processes, such as albumen and collodion, but with the properties of modern gelatino-bromide—The physics and chemistry of development, toning, and fixing—Influence of temperature on the sensitiveness of plates—The development of the latent image—Photography and radiography applied to science—Stereo- and micro-photography.

Liquid Dark-room Safe-lights for Orthochromatic Work.

A new type of dark-room lamp has been devised by Dr. E. Stenger and placed on the market in Germany. The ordinary incandescent

electric lamp is surrounded by a cell containing a dye solution, with which the receptacle can be charged, and of which it can be discharged as may be necessary. Moreover, the lamp can be at once removed for renewal or repairs. Dr. Stenger, who describes the lamps in the current issue of the "Zeitschrift für Wissenschaftliche Photographie," has made measurements on the extent of evaporation of the solution during a short time, and has found it negligible in one hour after lighting. The lamp attains its full temperature six hours after lighting, and in the course of twelve hours' use was found to have lost only 24 grammes of water by evaporation. The liquid filters, of which the formulæ are given in the next column, are those used by Dr. Stenger, and are found greatly superior to ruby glasses in point of brightness for the same, or a much higher, degree of safety.

Tartrazin .05 per cent. solution absorbs to λ 510.
 Potass. bichromate 10 per cent. solution absorbs to λ 550.
 Potass. bichromate 10 per cent. solution, with fuchsine 1 gm. per litre, absorbs to λ 620.
 Potass. bichromate 10 per cent. solution, with fuchsine 2 gm. per litre, absorbs to λ 630.
 Potass. bichromate 10 per cent. solution, with fuchsine 5 gm. per litre, absorbs to λ 635.
 Potass. bichromate 10 per cent. solution, with acid violet 2 gm. per litre, absorbs to λ 650.
 Tartrazin .05 per cent. solution, with acid violet .2 gm. per litre, absorbs to λ 645.
 Tartrazin .05 per cent. solution, with methyl violet .2 gm. per litre, absorbs to λ 660.

AN APPRECIATION OF STRAUSS.

[Mr. J. C. Strauss, of St. Louis, has always compelled our admiration, not purely for his versatility in photography, but for the genius with which he makes himself one of the men—and his studio one of the places—of St. Louis. This side of Mr. Strauss' talent is exhibited with some prominence in an article in the "Mirror" of St. Louis. We reprint with the article a reduced reproduction of the caricature portrait of its subject.—EDS. B.J.P.]

No, that is not a nursing bottle which he holds in his hand. It is the bulb by pressing which he closes the camera-shutter and signals that you are no longer to sprain your face in an attempt to "look pleasant." If your endeavour to look pleasant results in such a smile as Caricaturist Bloch puts on the face of his subject, you are sure that the photograph will hardly fail to do you justice for your many sins. Mr. J. C. Strauss, the greatest photographer in the world, did not pose for this picture. His business being to pose others, he cannot pose himself; the shoemaker's children are rarely well shod. Strauss is an artist with a cynic streak through his kindness. Why not? What is photography of men and women but a study of their vanity, and what is more wearying than the vanity of other people, even when it does make you a fortune, build you a bijou studio, and enable you to charge as high as 100 dols. per dozen for the photographs.

Strauss is a condemned optimist. He has to put a good face on everybody and everything. He is forced to take well with people even if he has to take all their spare cash every time he takes their pictures. Strauss has to jolly people into looking their best, and then he has to improve on that best with a few touches upon the negative. Withal is Strauss no fakir, for he does, more than any man of his craft, get character into his photographs. The others generally take out character to obtain prettiness. Strauss has humour, and, therefore, he puts some of it in his work, with the result that his subjects are never pictured quite too consciously as being "stuck on themselves." That quizzical look he wears stamps him as the "jollier" par excellence, and your artistic "jollier" is the man who can put his victims on their best appearance. He takes a picture of you that delights all your friends, and all the time he is taking it you feel as if he is guying you for being so concerned with yourself as to think people want your picture.

A Strauss photograph is never conventional. It has an "atmosphere," which most photography has not. He is daring in his unconventionality, and particularly in his unhesitating application of the method of the painter and draughtsman to heighten or soften, strengthen or diffuse the picture-making of his servant sun. This painting quality in his photographs is their unique distinction throughout the world. His effort is for truth of the inner ego of

the sitter rather than for a merely pleasing arrested shadow of that sitter's facial superficialities. Commercial he is in a way that does justice to the Jewish blood of which he is so proud, but while he gets his price he gives value. He will use up more plates on one sitter than any dozen other photographers. He will work over a sitting all day until he gets it right. He will have it his way, the right way to his thinking, before done with it, and then it is done. He is as whimsical as Whistler, and at the same time as careful as a miniaturist, with a shrewdness in handling people that has made them "come again." Strauss does not cultivate patrons. He pays more



attention to a whole lot of people who cannot afford his prices, like the artistic contingent during the World's Fair, writers, men of note, but not of money, and they being of the world of "the know" have assured the others, the profitable others, that the right thing in photography is the Strauss brand. His pictures of women are remarkable for truthfulness, and yet the women shun him not. That is a triumph. Strauss is the poorest speech-maker and the worst poker-player in the whole wide world, but he makes an inimitable cocktail, and he has a man or woman "mugged" and done with before they know it. He gets the money, and he gets it from the wisest people. He is not less a hypnotist than Elbert Hubbard in that regard. Strauss is far from being the least of the men who have made St. Louis famous by good work. He is one of the few men you are asked about when you are away from home. And he is one of the fewer still concerning whose distinction in his

There need be no wonder, for he is of unique character as a man, in addition to being an originating individuality in an art that is only saved by such as he from becoming mere mechanism and button-pushing and trickery. He leads in his class, and his class is the topmost best. He makes it pay—yes, and he rather laughs

at how easy it is done, and then he likes to put much of his profit into edibles and potables and get a gang of Bohemians into the "Growlery" underneath his studio, and—"forget it" in a way to make them all go out at ever-so-much-o'clock in the morning, a band of boomers of the art and heart of Strauss the smart.

THE PHOTOGRAPHIC SALON.

A FIRST IMPRESSION.

The thirteenth annual exhibition of the Photographic Salon opens its doors at 5A, Pall Mall East to the public to-day. At the private view yesterday we gained a general impression that this year's show will be regarded as one of the best that has yet been produced under the ægis of the "Linked Ring." The Salon has commenced to be reasonable. The character of the work this year tends less to the striving after bizarre effects, which appear to have been the sole aim of the bulk of the exhibitors at certain previous Salons, and a display of pictorial work savouring less of affectation is the result. The environment of the present show has been suggested as a contributory cause of this return to saner photography. The room in which the exhibition is held is the old home of the R.P.S. exhibitions before the finer and more suitable quarters afforded by the new Gallery were obtained in 1899, and the effect produced is more cheerful and brighter than that which seemed to prevail in the somewhat gloomy atmosphere of the Dudley Gallery.

This may be due to the fact that the added space afforded by the greater wall accommodation has been made the most of in the capable hands of Frederick H. Evans, who is again solely responsible for the hanging arrangements, or it may be the suit of green arras cloth with which the Salon's new quarters are draped has something to do with it, but anyhow we are thankful for the relief. The green colour of the background is very restful to the eye, and, as thirty less frames are hung this year than last, the background has plenty of opportunities of being seen. A moulded cornice of cream and gold, and a dado of a brown colour, heighten the good impression created by the disposition of the frames, which are again arranged in groups, the panelling being formed by thin gold beading instead of the somewhat obtrusive white beads previously employed. The lighting of the gallery is good, but when the sun is shining the reflections from the glass of many of the pictures will be found rather troublesome. In fact, most of the work hung in the far corner of the room, which will doubtless be known as the "hot French corner," because of the brilliant reds of some of the pictures of the French photographers hung there, will have a very trying time if there is much sunshine during the run of the exhibition, as the sun strikes right on to this section of the walls during the greater part of the morning.

Although the general effect is more cheery, and the bulk of the pictures are good, we do not mean to infer, however, that weird efforts and glaring examples of "faking" are entirely absent from this year's exhibition. It would not be our own Photographic Salon if this were so. We have come to look for these specimens of the extent to which a beautiful and wonderful process may be tortured, and would confess to a feeling of disappointment if they were absent. It is to the credit, however, of English photography that most of these examples of mental strain and misplaced energy are to be found among the works of the American and Continental schools. As the foreign works were chosen by the Selection Committees of their respective countries, no blame can be attached to the

English "Links" for the inclusion of some of these fearful and wonderful productions of handwork.

To that important personage, "the man in the street," this year's Salon will still present a certain amount of material for thought and amusement. The aspect of such an individual is somewhat fittingly illustrated by the first and last pictures in the exhibition. No. 1, by Will Cadby, is a simple little child study. Here we have depicted "Innocence." This is the state of the mind of the man from the street as regards pictorial photography when he enters the portals of 5A Pall Mall East. No. 254, the last picture, is by J. Page Croft. It is entitled "Disdain," and it portrays a female head, "with wrinkled brows and sneering lips." This may be the state of the man returning to the street. Anyhow, to the great body of pictorial photographers who know their Salon the show will appeal as not only interesting, but as containing some really good things. Hinton's are well to the fore, and can be easily spotted. The Jobs are poor compared with previous work from this master of landscape work. The Keighleys are obvious, but have a very marked tendency to flatness this year that detracts from some very fine compositions. The Craig-Annans are of the best, and that is very good. No. 24, "Miss Jessie M. King," is the finest thing of its kind in the show.

The David Blounts are somewhat weak and scratchy, but clever withal. The Cadbys are dainty as ever, but the weird monstrosity by Mrs. Cadby, entitled "The Cat that Walked, by Himself," is more fitted for the technical section of the Royal. It may make a good picture postcard, however. Of the work of Charles Moss only one sample is shown, but that demonstrates amply what can be done with a negative, some gum and pigment, and plenty of time and patience. Reginald Craigie has also only one portrait this year. The Beningtons are disappointing, and the Ward Muirs are trivial. The Evanses are versatile, and the portrait of H. Horsley Hinton underneath "The Hill Top" does not do Mr. Evans credit. The Callands are good, as usual; the contributions of Mrs. Barton and F. J. Mortimer betray themselves at once, and the variety of Arthur Marshall's work does not detract from its excellence. The American pictures are hung together, as also are the works of the Continental exponents of the use of the camera, and among the latter the productions of Dr. F. V. Spitzer, R. Duhrkoop, Heinrich Kühn, R. le Bègue, C. Puyo, G. Grimpel, Demachy, and Steichen stand out for recognition. Of the Americans Mrs. Kasebier, Alvin L. Coborn, Alfred Stieglitz, J. T. Keiley, and Clarence White are well to the fore, and their work and that of the English exhibitors will be reviewed in a future article. It will be evident from even this brief list of the exhibitors that this year's Salon is a strong one, and the general impression created is that it is a "portrait" show. One of the pictures that will probably compel much attention is a very fine figure composition by F. Benedict Herzog entitled "A Tale of Isolde." It is also a most flagrant example of handwork, and its price is only £100.

A SCHEME THAT PAYS.

AN example of trifling with the dignity of the President of the United States (says the "Pittsburg Post") may be seen at a tin-type studio on Smithfield Street, this city.

Passing along the street, one is almost startled by this invitation, placarded in front of the studio: "Come in and Have Your Picture Taken With the President." Near the placard is a cabinet in which are displayed pictures showing President Roosevelt standing in a group of young men, or in the attitude of shaking hands with someone. One of the pictures has the Chief Executive standing behind a young woman, who is sitting in a chair.

It would seem that the privilege of having one's picture taken with the President is put forward as a drawing card. The artist says it is making a great hit with his patrons. The idea of being able to show a picture of one's self standing beside the President of the United States has fascination for many, says the artist. Girls particularly like the idea, he added.

The scheme is worked out by having a large picture of the President on a background canvas. Those desiring to have their pictures taken with the Chief Executive arrange themselves about the painting in the background.

To produce the handshaking effect, a slit is cut in the canvas on which the President's picture is painted. As this picture shows the President with one of his hands in his pockets, the slit in the canvas is made at the pocket. The person who wants to be shown shaking hands with the President puts his hand partly through the slit, producing the desired effect.

In rivalry with the President-picture scheme as a drawing-card is a back-ground canvas containing the pictures of two picnic-girls. One of the girls holds a guitar and the other a mandoline. If a young man would give the impression that he is popular with the girls, he may sit before the pictures on the canvas. The effect suggests the idea that the girls are singing to him, and his face may wear a look as of one being bored or delighted, according to taste.

BIRTHDAY PHOTOGRAPHS.

IN an interesting interview with an American photographer in the "New York Sun," a method of making and collecting a series of autobiographical photographs is mentioned which, although apparently quite an old idea, opens up a new field for the pushing photographer in this country. The American worker says:—"I have taken that man's picture on the second day of August every year for twenty years," said the old photographer, as a sitter passed out of the studio. "August 2 is his birthday, and he has faced a camera on that day every year since he was born. He is now fifty-six, and in an album at his house he has fifty-six pictures of himself, and there is room in the book for seventy. If he lives beyond the allotted threescore and ten he will get another album. He first came to me the year after I began business. The photographer who had made his birthday pictures for many years before that had died, and the new proprietor did not please him. The first time he came in he said nothing to indicate that he was other than an ordinary passing customer. Then on August 20 he came back with a woman about his own age and had a picture made of her. On the 18th of the next January he came with a boy of sixteen and had his picture taken. By that time I had begun to feel pretty well acquainted with him, and he told me the story of the photographs. His father had lost a favourite son, before my friend was born, of whom a picture had never been made. The old man had mourned the dead boy, and his grief was the more keen because he had no effigy of him. So he declared that if he was ever blessed with another son he would have his picture the day he was

born, and on every birthday after. Accordingly, on the day a customer came into the world he had a picture made of him in his nurse's arms. On August 2 every year thereafter as long as the father lived he took the son to have his picture made. After the father's death the birthday photograph habit was kept up, and the pictures gave so much pleasure to their owner that when he married he established the custom in his household, and had a picture of his wife made on her first birthday after their marriage. Children came to them in due time, and each little one was photographed on its birthday and on every anniversary. He has an album for each member of his household, and I can assure you they form an extremely handsome and interesting series of human documents. Two of the sons are married and live far away from New York. They follow the custom their father taught them, and each year send him pictures of themselves and their families, and in return pictures of all those at home are sent to them. As a photographer I may be a bit partial to the custom, but I cannot imagine a more delightful plan for keeping alive family affection, nor a more interesting book than one of those albums, carrying its hero through the seven ages of man. These albums are not only valuable to those who are bound to the originals by ties of relationship and love, but the historian may see in them the progress of fashions in apparel, styles of hairdressing, and the advancement made in the art of making pictures."

New Materials.

Matt Rough White "Seltona." Made by the Leto Photo Material Company, Ltd., London E.C.

A trial of the new grade of "Seltona" strengthens the good opinion we had formed of the other varieties of this self-toning paper. The surface of the paper has a distinctly pleasing grain, and is yet sufficiently fine to preserve all detail. Self-toning papers appear to fill a want among the present-day photographers who desire not only reliability and uniformity in results, but who also want to obtain those results with the least possible expenditure of trouble. "Seltona" can therefore be recommended as fulfilling all these qualifications, and moreover is obtainable with a variety of surface to suit all tastes and purposes. The procedure for the production of warm brown tones on this paper is simplicity itself. The prints are made in the same way as ordinary P.O.P., but the printing is carried considerably further. A fixing bath composed of 2 oz. of hypo dissolved in a pint of water to which a pinch of bicarbonate of soda has been added, is all that is required. The prints are first slightly washed for a minute or two in a couple of changes of water, and placed in the fixing bath for twelve to fifteen minutes. They are then washed and dried. That is all. And prints result rivaling any produced by separate toning and fixing on ordinary P.O.P. If colder tones are desired, the prints are placed in a bath composed of 1 oz. of common salt dissolved in half a pint of water before fixing. The new grade Seltona should certainly be tried by all wanting a reliable moderately rough surface paper for printing-out purposes. The paper is sold in packets at 6d., 1s., and 1s. 6d., and in sheets.

The Watkins Dark-room Clock and Factorial Calculator. Made by the Watkins Meter Company, Hereford.

There is no doubt that factorial development is slowly but surely receiving recognition among every class of photographer. To Mr. Watkins is due many of the little helps to make smooth the path of the worker who desires exact results with as little trouble as possible, and in the new dark-room clock and factorial calculator

further incentive to rely on what may be termed mechanical methods is introduced. It appears to be quite settled now that the principles of the Watkins method of development are perfectly sound. Investigations show that the time of appearance—that is, the time elapsing between pouring on the developer and the first appearance of the high lights of the image in a negative—is a sure guide to the total length of development under ordinary variations of temperature and alkali. When the time of appearance is noted, it is multiplied by a factor to get total strength of development under ordinary variations of temperature and alkali. This factor varies with different developers. The "Watkins Factor" must not be confused with the "Development Factor" in the Hurter and Driffield system, but is merely a convenient term to express the amount of work to be done to secure the right contrast in the negative after a time of appearance has given the comparative speed at which the developer is working. A series of factors are supplied as a guide for most of the developers in use, but individual workers can work out factors to suit their own method of development. With the new Factorial Calculator the times of complete development, with various factors and times of appearance, are seen at a glance,



The Watkins Dark-room Clock.



The Factorial Calculator.

Moreover, being made of bright aluminium with the figures stamped in relief, can be seen easily in the dark-room. The outer scale is a scale of factors, and is also used to denote the total time of development in minutes. The inner movable scale denotes time of appearance, either in seconds or minutes. In use, the pointer is set to the Watkins factor for the developer, and against the time of appearance given on the inner scale will be found the total number of minutes to develop. This calculator can be used with an ordinary watch, but the new dark-room clock (a former pattern of which was called the eikronometer) will be found not only a useful adjunct to every dark-room for various purposes, such as timing exposures, etc., it is specially constructed to facilitate factorial development. It has many improvements over the old pattern. It has two hands, one of which completes the revolution in one minute, while the other takes ten minutes. The face of the clock is large, and the figures are plainly marked for use in the dark-room light. The ten minutes dial is right for the longest ordinary development. A stop motion permits both the hands to be started from zero as the developer is poured on. Legs are provided at the back to allow the clock to be used face up—the most convenient position in a dark-room. It is an English-made clock, and sells at 10s. 6d. The Factorial Calculator costs 2s.

"Nobra" Developer for Glossy Gaslight Papers. Sold by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

"Gaslight" papers have now become such universal favourites among photographers of every class that any introduction to insure the best working and best results with this form of printing process deserves careful attention. The curious markings that make their appearance on papers of this description, especially the glossy varieties, have long been a source of speculation and annoyance to the printer who has a large output. The fact that they can be easily removed by

the aid of methylated spirit, rubbed over the surface of the dry print with a tuft of cotton wool, does not make the appearance of a developer that prevents the formation of these hair-like and spotty marks any the less welcome. The marks are usually stated to be due to abrasion of the somewhat tender film of glossy gaslight papers, either before or during development, and it is a fact that deliberate rough handling, such as drawing the paper carelessly from its packet, will cause them.

It is claimed for the new developing solution Messrs. Kodak have now put on the market that these markings are entirely avoided. Its name, "Nobra," is intended to indicate its non-abrasive qualities, and in our hands it fulfils these qualifications perfectly. The spirit that is necessary for the removal of the marks after development in the usual way, appears to be incorporated in the developer itself, and with the roughest handling, under-exposure, and forced development—certain methods of obtaining surface markings—prints of remarkable clearness were obtained. With correct exposure the developer gives on any gaslight paper clean, rich prints of good colour and entire absence of stains. Its use will save a great deal of trouble and extra labour where much work on glossy development papers is done, as we find it applies equally well to glossy bromide papers. The developer is sold in bottles containing 8 oz., sufficient to make 24 oz., at 2s. per bottle.

CATALOGUES AND TRADE NOTICES.

THE coming of age number of "The Picture Framer's Journal" has been sent to us. It contains a very complete list of every possible requirement of those engaged in the framing trade, in the shape of mouldings, tools, etc. There is in addition a very full list of pictures, engravings, and carbon prints included. The "Journal" is edited by Mr. C. G. Engert, and should be in the hands of every one interested in the work. It will be posted for 1s. by Messrs. Engert and Bye, North Finchley, London.

WE have received from Messrs. Marion and Co., Limited, of Soho Square, W., a specimen showcard for their "Iso" plates. The results given by an ordinary plate exposed under a graduated screen containing squares coloured blue, green, yellow, and red, when compared with those obtained on the "Marion-Iso" plate, make a very strong case for the latter. These showcards will be supplied free to dealers on application.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between August 28 and September 2:—

DEVELOPING APPARATUS.—No. 8,616A. Improvements in process of developing, fixing, washing, and drying webs of photographic paper, and in apparatus for carrying same into effect. Frederick Heinrich Lange, 79, Augsburgerstrasse, Berlin, Germany.

DISHES.—No. 17,425. Improvements in photographic dishes. William Laurence Parkinson, 15, Water Street, Liverpool.

CAMERAS.—No. 17,553. Improvements relating to photographic cameras. William Fraser Cloughton Kelly and John Arthur Bentham, 7, Southampton Buildings, Chancery Lane, London.

PRINTING.—No. 17,605. Improvements in apparatus for printing photographs. Frederick Heinrich Lange and Oscar Prange, 79, Augsburgerstrasse, Berlin, Germany.

DRYING ROLL FILMS.—No. 17,620. New and improved means for removing the moisture from photographic roll films after de-

velopment. Randolph George Goodwin, 38, Chancery Lane, London.

THREE-COLOUR PROCESS.—No. 17,608. Improvements in photographic three—or four—colour processes. Max Grünbaum, Norfolk House, Norfolk Street, London.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
16.....	South London Photo. Society ...	Outing to Uxbridge and West Drayton.
16.....	London and Prov. Photo. Assn.	Outing to Hainault Retreat, in combination with South Essex Camera Club.
18.....	Bowes Pk. and Dis. Ph. Soc. ...	"Time Development." Demonstrated. Mr. C. S. Carr. Competition of Whipp's Cross Outing Prints.
18.....	South London Photo. Society...	"Bromide Work." Mr. C. Winthrop Somerville, F.R.P.S.
19.....	Manchester Amat. Photo. Soc.	"Enlarged Negatives." Mr. C. J. Harrison.

A LECTURE ON CRYSTALS.

At a monthly meeting of the Rotherham Photographic Society, held on Tuesday evening, September 5, Mr. J. Leadbeater, a vice-president of the society, gave an interesting lecture on "Crystals and Crystallisation," showing by means of a vertical lantern how this beautiful process goes forward in regard to certain salts. He said: The subject of crystallisation had long been a most interesting one to scientists, and one that had puzzled them for years as to the forces nature employs to produce such wonderful and beautiful results. Opinions differ among scientific men as to the cause, and no true basis has yet been arrived at. It seemed to be generally understood, or, at least, it was the general opinion, that either electricity or magnetism, or perhaps a certain combination of both, acts on the molecules in the atmosphere, producing what is known as polar force; and it is by the action of this unseen agent that wonderful patterns are produced, the same force being at work which makes the beautiful designs of crystals on window panes.

Dealing with crystallisation from a photographic point of view, Mr. Leadbeater said the preparation of salts for crystallisation and photographic purposes was exceedingly simple. Let them make a saturated solution of any salt by dissolving in hot water, using as much of the salt as the water will take up. If a little sugar be added, or if the salts are dissolved in hot beer, it would tend to fasten the crystals more permanently on the glass when the solution has dried and the crystallisation has taken place; it will also act as a preventive against the crystals running off the glass while being subjected to the heat of the lantern. Having the solution in readiness, procure some pieces of clean glass, quarter or half plate, according to the size of condenser in the enlarging lantern, and coat them either with a camel hair brush, or by holding the glass level between the finger and thumb, and pouring the solution on the glass in the same way as would be done in coating a plate with collodion. After draining the glass a little while, lay it on a level stand for the crystallisation to take place. Crystallisation is accelerated by warming the plate before and after coating. Some salts will dissolve only in alcohol and crystallise much quicker than those dissolved in water or beer, because the spirit evaporates much more quickly. In order to photograph salt crystals an ordinary magic lantern is required, or, better still, an enlarging lantern, so that when the salts are crystallised on the pieces of glass, the plate may be put in the lantern and a negative taken from it, just in the same manner as an ordinary enlargement is taken; or if the

photographer is not possessed of a lantern, he may take a negative of the crystals by contact in the usual manner. Dr. Carpenter in his work on the microscope, recommends microscopists to work in this direction. If it is useful to microscopists it should also be useful to photographers, on account of the permanent records that may be made by photographs. Dr. Carpenter says:—"In this branch of science there are many chemical and mineral substances which give us a variety of both interesting and beautiful objects, some for their diversity and wonderful forms, and others for their elegance and beauty. The natural forms of such substances, which in any way symmetrical, are so in virtue of that peculiar arrangement of their particles which is termed crystallisation; and each substance which crystallises at all does so after a certain type or plan, the identity of the difference of these types furnishing character of primary value to the scientist."

Continuing, Mr. Leadbeater pointed out that it did not follow that the forms of crystals would be constantly the same from each kind of salts; on the contrary, the same plan of crystallisation may exhibit itself under a great variety of forms entirely depending on the strength of the solutions, that is to say, upon the amount of salts held in suspension by the liquid; and specimens of these such minute crystals are appropriate subjects for the scientist or photographer. The following is a list of salts which will give good class of crystals:—Chromate of potash, nitrate of barium, nitrate of soda, chlorate of potash, oxalate of potash, microcosmic salt, benzoic acid, phosphate of soda, acetate of copper, alum, sulphate of iron, acetate of zinc, citric acid, nitrate of uranium, and oxalate of soda.

SOUTHAMPTON CAMERA CLUB.—At the meeting held on Monday at the Philharmonic Hall, Mr. W. R. Kay read a paper on "Pin-hole Photography."

SHEFFIELD PHOTOGRAPHIC SOCIETY.—The Sheffield Photographic Society commenced the winter session on Tuesday evening, at the Builders' Exchange, Cross Burgess Street, with Mr. J. W. Charlesworth in the chair. An illustrated lecture on "Composition and Selection" was given by Mr. W. E. Tindall, R.B.A.

Commercial & Legal Intelligence

AURAL CLINIC, LIMITED.—Registered September 4, by Rodgers and Gilbert, 4, Walbrook, E.C. Capital £500, in £1 shares. Objects: To carry on the business indicated by the title and that of chemists, druggists, dentists, opticians, dealers in photographic materials, etc. Registered office, 102, New Oxford Street W.C.

PHOTOGRAPHER and Canvasser.—Edwin Morton, of 34, Cresswell Road, a photographer, was charged before the Croydon Borough Bench on a warrant with embezzling 3s., the money of Henry Lush, trading as H. Boyd and Co., of 223, Portland Road, South Norwood. Mr. Lush stated that the prisoner entered his employ in February as canvasser. He had to solicit orders and receive deposits. He had a nominal salary of 5s., 15 per cent. on orders for photographs, and 20 per cent. for enlargements. It was his duty to account nightly for all sums received, with the exception of 6d., which he was entitled to retain on each order, and the counterfoils which he handed to witness should have corresponded with those handed to the customers. The counterfoil produced showed that prisoner had received 9s. from a customer, but he had only accounted for 6s. Prosecutor also gave evidence in respect of other items. After a lengthy hearing, the Bench committed the prisoner for trial, but admitted him to bail on his own recognisances.

A PHOTOGRAPHIC Lens Case.—Messrs. Brickell and Jones have

then to us regarding the report published recently in this column the case in which they were defendants, and Messrs. Perken, and Co., Limited, plaintiffs. They mention that the cause of action arose from the fact that, in June last, they published an illustrated photographic catalogue containing blocks illustrating lenses. These blocks had been obtained by request from Messrs. Perken, Son, and Co., and were not intended to be illustrations of the plaintiffs' lenses at all, as the prices quoted were lower than Messrs. Perken, Son, and Co.'s quotations. Messrs. Brickell and Jones, however, did not observe that the plaintiffs' name was on the blocks, and, in reply to a written order for "one R. R. lens as illustrated," the price being enclosed, supplied an ordinary R. R. lens, not Messrs. Perken, Son, and Co.'s make, and it was in respect to this that the action was taken. When their mistake was pointed out by Messrs. Perken's solicitors, they saw they were in the wrong, and removed the page containing the illustrations from their catalogues, and through their solicitors offered to pay 40s. damages, giving an undertaking in the terms of the writ which they had been served.

News and Notes.

THE IPSWICH CAMERA CLUB holds its second photographic exhibition on November 14, 15, and 16. There are five open classes, and a gold medal is offered for the best picture in the show. Entries must be received at the Art Gallery, High Street, Ipswich, by November 9. Entry forms will be supplied on application to the hon. secretary, I. Sutton, 37 Henley Road, Ipswich.

THE DEVELOPMENT OF THE ZOETROPE.—In reference to a statement in the "London Magazine" for July last, to the effect that the improvement on the zoetrope was the zoopraxiscope of Mr. Muybridge, Mr. Thomas Ross sends us the letter which we print in our column and the following notes, of which presumably he is the writer, in the "Cape Times":—"Many minds were bent on the idea of putting the zoetrope into the lantern, and it was not until, when the feat was accomplished by Mr. Thomas Ross, of Glasgow, by means of two revolving discs, one of glass containing the subject, and the other of metal with its thirteen slots or openings according to the principle of the zoetrope. This invention was patented and sold to Messrs. Negretti and Zambra, of London, and was also pirated and published successfully by two different lantern-makers. The great defect of this first invention by Mr. Ross, though strictly correct according to the principles of the zoetrope, was the slowness of the revolving disc with its thirteen slots or openings. As the metal disc only made one revolution for one of the glass disc, the slots were visible on the screen, although the motion was otherwise perfect. To get quit of this defect was necessary to get a perfect result. Another defect was that a thirteen-figure disc showed twenty-six figures on the screen, a defect common to all wheels of life or zoetropes. After a deal of hard study and thinking, Mr. Ross solved the problem successfully by making the disc with one opening equal to all the thirteen put together, and the disc to revolve thirteen times for one of the glass disc containing the subject. This new invention gave thirteen times more motion, and the disc completely disappeared on the screen, while, instead of twenty-six figures, only fourteen appeared, much larger in size and more perfect in motion. This slide was also patented and sold to Messrs. Pumphrey Brothers, of Birmingham. A full description was published in the BRITISH JOURNAL OF PHOTOGRAPHY for the time. This slide was an advance upon all the wheels of life previously published, and has found its way all over the world. Mr. E. J. Muybridge all credit for his trotting horses from a

scientific point of view, without Mr. Ross's invention he could never have exhibited them. Mr. Muybridge's method was never published, and, furthermore, without the invention of the revolving disc by Mr. Thomas Ross there would be no cinematograph or biograph to-day."

THE prospectus of the Sheffield Photographic Society's third annual exhibition, to be held at the Montgomery Hall, Surrey Street, Sheffield, from October 28 to November 4, contains particulars of seven open classes and five members' classes. Plaques are the awards, and the judges will be Messrs. F. M. Sutcliffe and C. Barrow Keene. Full particulars will be supplied by the joint exhibition secretaries, J. W. Charlesworth, 1, Joshua Road, Sheffield, or J. W. Wright, 62 Vale Road, Sheffield.

EFFORTS are being made to secure the St. Louis collection of pictorial photographs now at Rochdale for an exhibition at the Art Gallery, Bolton, from October 14 to November 30. We wonder what the condition of the frames will be when they finally reach their owners.

WAR at the Peace Conference.—From the American papers we learn that the Peace Conference at Portsmouth, U.S.A., had as one of its incidents a cavalry charge, the assailants being not Cossacks or Japs, but a picket of U.S. cavalry, and the vanquished a detachment of the camera brigade. It was stated that many of the photographers were knocked down, and their "boxes" smashed, but there appears to have been no fatalities.

THE death is announced of Mr. Thomas Stearn, head of the firm of that name in Bridge Street, Cambridge. Mr. Stearn was in his eighty-second year at the time of his decease, and had been in business in Cambridge for sixty years.

"IN case the doings of the ubiquitous Tanqueray still interest you," writes a Réunion correspondent to "Truth," "it may amuse you to hear that his free-portrait dodge has reached this forgotten little island in the centre of the Indian Ocean." This certainly does interest me, remarks the editor of our contemporary, for now that the swindler is preying upon French colonists, perhaps the Paris police may at last find a method of bringing him to justice.

ON Friday week the British Association brought its South African meeting to a close in Johannesburg. One of the most gratifying features of the meeting has been the number of papers read on South African subjects, many of them by residents. Such an awakened interest in the less material aspects of the country cannot but have a beneficial effect on scientific and educational development. Professor Darwin referred to this fact in his closing remarks, in which he also declared that the meeting must be considered the most successful in the whole annals of the Association, and thanked the country for the lavish hospitality which had been everywhere extended to members. It was announced that Professor Ray Lankester had been elected President for 1906.

THE Pictorial Selection Committee of the R.P.S. Exhibition are having a week's hard labour from all accounts, and it is to be regretted that only five out of the six good men and true chosen for the work are able to be in attendance. The absentee is Mr. Furlley Lewis, and it goes without saying that his services in this capacity will be sorely missed. He is at present on a bed of sickness, and will be quite unable to get about for some time to come. His many friends in the photographic world wish him a speedy recovery.

MR. F. W. SPEAIGHT, of the New Bond Street Studios, writes from the Constitutional Club, to the "Pall Mall Gazette":—"I have always understood that flags should be hauled down at sunset. Imagine, therefore, my surprise at 7.30 to-night when I noticed the flag still flying over the Admiralty buildings in Whitehall. Perhaps the Lords of the Admiralty mistook the harvest moon for the sun, and were patiently waiting for it to set."

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

RETOUCHING BY NIGHT.

To the Editors.

Gentlemen,—Being a regular reader of your valuable paper, I noticed in your "Answers to Correspondents" page that P. W. Webb would be glad to know of the best light to retouch by after dark, and should be glad to help him in the matter, and may be interesting to your readers. If your correspondent gets the "Bruce" outfit for retouching at night, I think he will find he has got all he wants. I have used it for some long time, having to do my work at night very often, and I can say the light is equally as good as daylight. Gas or electric light is not wanted, ordinary lamp oil being used. The outlay is small, but to me I can say it is worth pounds. Mr. Bruce is doubtless known to your readers.—Yours faithfully,

AN ASSISTANT.

PHOTOGRAPHIC TRADE IN NORTH AFRICA.

To the Editors.

Gentlemen,—I observe in the *BRITISH JOURNAL OF PHOTOGRAPHY*, August 25, 1905 (p. 672), a suggestion that agencies for the sale of British photographic goods should be established abroad. Although I rather doubt the likelihood of manufacturers combining in the manner indicated, I am ready to enter into relations with any of my countrymen with a view to setting up such an agency for Tunisia and Algeria, for which my long practical experience in photography and projection, as well as my acquaintance with these countries and the languages there spoken, peculiarly qualify me.

I need not remind you that these regions are very numerous visited by wealthy tourists, many of whom are amateur photographers.—I remain yours faithfully,

J. WILSON.

Publicité Nocturne,

Porte de France et Rue Al-djazira, No. 1 bis, Tunis, Africa.

September 1, 1905.

[Mr. Wilson appends a list of references and other particulars which we shall be agreeable to handing to any interested parties.—Eds. B.J.P.]

AN ACETYLENE QUERY.

To the Editors.

Gentlemen,—Referring to the inquiry of Mr. J. E. Organ in your number of the 25th inst., we would like to state that, although we are not experts in portrait photography, we get, as the largest British makers of carbide of calcium, a good deal of information on such matters.

If Mr. Organ will communicate with us, we will with pleasure lend him some new incandescent mantles for acetylene, which give roughly three times as much light per cubic foot as the open burners do.

We have not yet tested these mantles in order to ascertain their spectrum, but they seem, judging by the colour, to give a light of higher value for photographic work than the coal-gas mantles, and than the ordinary twin-jet acetylene burners. In all probability they will be found to have the same proportionate value as compared with the twin-jet acetylene flames as is the case with coal-gas—i.e., as 44 to 12 (Vidal's figures).

Anyway, it will cost Mr. Organ very little indeed to make a trial.—Yours faithfully,

THE ALBION PRODUCTS CO., LTD.

11, Queen Victoria Street, London, September 11, 1905.

THE DEVELOPMENT OF THE ZOETROPE.

To the Editors.

Gentlemen,—Mr. Edouard Charles, in his introduction to an interesting article in the "London Magazine" for July on the Bioscope makes the statement that Mr. Muybridge was the first to make any improvement on the zoetrope, but I claim that position for my invention, which was made thirteen years before Mr. Muybridge exhibited his trotting horses in 1882 in London. By referring to your volume for 1869 your readers can verify my statement. When I showed my invention to Mr. Traill Taylor, who was then Editor of the *BRITISH JOURNAL OF PHOTOGRAPHY*, he requested me to write a full description of my invention and the theory of its working, and this I did. As I was for a number of years a lantern-slide maker, I also invented a method of colouring which was also published in the *BRITISH JOURNAL OF PHOTOGRAPHY* in 1876 in a series of articles.—Yours faithfully,

THOMAS ROSS.

Gordon House, Milton Road, Observatory,

Near Cape Town, South Africa, August 23, 1905.

[We can give Mr. Ross the credit for the invention of the lantern zoetrope, or wheel of life, as it was called, which was patented by him in 1869 and 1871, and was the first popular form of moving picture on the screen. Muybridge's instruments were no doubt derived from the first Ross apparatus, though we cannot agree with Mr. Ross that the "wheel of life" with its constantly moving disc is in any sense the progenitor of the cinematograph film, moved forward step by step and kept at rest whilst it is uncovered. Our space will not permit us to enlarge further on the early history of the living picture, but those to whom the subject is of interest may be referred to "Living Pictures," by Henry V. Hopwood. Part of some comments on Mr. Ross's invention from the "Cape Times" are quoted in another column.]

"GUMRIHMEIATE."—We cull the following from "The Federation Record":—"An intelligent compositor, in setting up a report of the Crook Society's "doings" for the winter season, included a lecture on 'Gumrihmeiate.' Bi-Gummers are requested to give the new word their earnest consideration. If they can once 'get their tongues round it' or 'the hang of it' it is most euphonious, and withal pleasing to the eye either in print or ordinary calligraphy."

R.P.S. AFFILIATION MEETING.—On Friday evening, September 29, at 7 o'clock, there will be a special meeting of members of affiliated societies at the R.P.S. exhibition, New Gallery, Regent Street, by kind invitation of the Royal Photographic Society. Admission will be free to members producing their red books. This occasion will again afford members of societies an opportunity of meeting members of other affiliated societies, and also of seeing the R.P.S. exhibition, and it is hoped that a large number will attend, in view of the great success of last year's meeting.

THE prospectus and entry forms for the eighth annual exhibition of the Croydon Camera Club has been published. The exhibition opens on November 8 and closes on November 15. Entries must be delivered at the Horniman Hall, Y.M.C.A., North End, Croydon, on or before October 28. There are six open and five members' classes, and the judges will be Messrs. H. W. Bennett, Reginald Craigie, and J. A. Sinclair. Further particulars will be supplied by the exhibition secretary, W. H. Rogers, 88, Woodville Road, Thornton Heath.

THE death of Mrs. S. W. Fisher, wife of Mr. S. W. Fisher, J.P., of Scarborough, is recorded in the Scarborough papers. The deceased lady, who was well known in the district, was a daughter of the late Mr. Napoleon Sarony, of New York, one of the founders of Sarony and Co., the eminent firm of photographers, with whose English house Mr. Fisher has been long associated.

Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

A. Harris, Wesley House, Merthyr Tydfil. *Photograph, Postcard View of the Recreation Ground at Merthyr.*

Ross, Norman Place, Leslie, Fife. *Two Photographs of Part of Lochleven, showing Stitches and Bishop Hill.*

A. Baker, 118, London Road, Southborough, Kent. *Photograph of Old Oak Room interior of the "George and Dragon" Hotel, Speldhurst, Kent.*

Green, 67, High Street, Dudley. *Photograph of Wesleyan Church, King Street, Dudley.*

R. Protheroe, 30, Wine Street, Bristol. *Two Photographs of the Bristol Rovers Football XI., Season 1905-6.*

C. Macmahon, 27, Academy Street, Inverness, N.B. *Photograph of House Party at Moy Hall, including Prince of Wales.*

E. P. Davies, 26, High Street, Ross, Herefordshire. *Photograph of Two Children in Ragged Attire, taken in the Street.*

W. Ellis, High Street, Sidmouth. *Photograph of the Solar Eclipse, August 30, 1905, 1.10 p.m.*

F. Usherwood, 5, Hounds Gate, Nottingham. *Photograph of Act 3, Drama entitled "Drummed Out."*

Thirlwell, 21, Bridge Road, Stockton-on-Tees. *Two Photographs of "General" Booth.*

T. ARMITAGE CUTLER.—L. Gaumont and Co., Cecil Court, Charing Cross Road, London, W.C.; Hepworth and Co., of the same address; Chas. Urban Trading Company, Rupert Street, London, W.; Warwick Trading Company, Warwick Court, High Holborn, London; and the Prestwich Manufacturing Company, 1, Landsdowne Road, Tottenham, will supply what you require.

EAKEY STUDIO ROOF.—I have had considerable trouble recently by leakages in my studio roof. It is built rather flat, and although I have had it done up repeatedly by local builders, the leakages continue. I should be grateful if you could oblige me as to any preparation likely to answer the purpose better than putty and white-lead paint.—W. J. B.

It is possible that the trouble may arise from the sash bars not being sufficiently rigid, so that they bend under the force of a strong wind? If this be the case, it will be next to impossible to make the roof waterproof, as when the putty gets hard it will crack with the strain. The remedy, if this is the case, is to strengthen the sash bars by having one or more T-iron bars fixed under them, laterally, and screwed to them. Then the old putty should be cleaned away, the rabbets given a coat of paint, and fresh putty, mixed with a little white lead, applied. After that the work should receive a coat or two of good paint. We have heard of tar instead of paint being used for the sash bars with good effect.

ARISTOTYPE.—I should feel greatly obliged if you could tell me if there is a printing paper on the market called "Aristotype," I believe made by the Aristotype Company, Limited. If so,

can you give me the address of same, or address of agents?—S.P.

You evidently refer to "Aristo" paper made by the American Aristotype Company, Limited, and sold in this country by Kodak, Limited, Clerkenwell Road, London, E.C.

CHEMISTRY.—Could you kindly inform me through your paper what chemical action takes place when the developer is poured over an exposed plate, also when the plate is placed in the fixing bath?—C. C. B.

To answer your first question fully would require a series of articles, and involve a good many debatable statements. You should study a book on the subject, such as Townsend's "Chemistry for Photographers" (Dawbarn and Ward, ls.) or Meldola's "Chemistry of Photography" (Macmillan, 6s.). Roughly, the developer reduces to the metallic state the light-affected silver bromide or chloride. The fixing bath dissolves (by conversion into soluble silver thiosulphate) the unaltered bromide or chloride.

COPYRIGHT.—1. Copyright of a photograph, taken in the usual course of business, is, I suppose, after decease of sitter, vested in his heir? 2. In the event of photographer selling prints, etc., after death of sitter, can sitter's heir bring a claim against him if copyright is not registered?—ESMOND.

1. Yes, that is so. 2. A sitter can prevent the sale of copies of his portrait, whether he has registered the copyright in it or not. We should presume that the heirs have a similar right, but we cannot call to mind any case where a legal decision on the point has been given.

N. EVANS.—The fault certainly seems to be with the lens. Are you sure it is always quite clean, and has not a slight film of dust or grease on one of its surfaces? This would give the effect seen in the negative, which appears in all other respects quite correct and free from fog. You do not say what type of lens it is, but careful wiping of the surfaces of the lenses with an old clean soft cambric handkerchief dipped in alcohol will clean off any foreign matter, and a final light polish should be given with a dry part of the cambric.

A. WALKER.—The Rotary Photographic Company, Ltd., New Union Street, Moorfields, E.C.

H. A. M.—It is probably not a gelatine paper, but platinum, or carbon.

J. C. R.—1. The print is a tinted P.O.P., faced with celluloid. 2. Messrs. Dorrett and Martin.

BROMIDES AND GASLIGHT.—1. Will you kindly inform me through the B.J.P. of the best method of developing glossy bromides to avoid dirty skies? 2. Also the best formula for sepia toning bromides? 3. Is there not a good self-toning gaslight postcard on the market, which could be used commercially?—BROMIDE.

1. If you will refer to "New Materials" in this issue you will find a notice of a developer sold specially for the purpose of avoiding markings on glossy bromide and gaslight papers. 2. Bleach the prints in potassium ferricyanide 10 grains, potassium bromide 15 grains, water 1 oz. Wash in frequent changes of water for five minutes and immerse in sodium sulphide 10 grains, water 1 oz. until toned. Then wash well for about a quarter of an hour. 3. There is no self-toning gaslight postcard on the market.

COPYRIGHT.—As a constant reader of your journal, I should be glad if you would inform me how I can find out whether a postcard is copyright, as I have one which I should like to reproduce.

It was bought at Ottawa, and, I believe, produced in Sweden. There is no copyright stamp to be found on it, and I think the card rather clever.—POSTCARD.

The country of production of the card is no help to you. You need to know the country in which the photographer took and registered the photograph. Even with that knowledge it will be difficult for you to find out whether there is copyright in the print; but you will be fairly safe in assuming that there is. In any case, we admire your candour in proposing to take what is not yours.

FOCAL-PLANE SHUTTER.—A customer has asked me the following question, and I shall be glad if you can enlighten me on this point. He wants to know which is the better way of working his focal-plane shutter—whether to work it with the first tension and a certain slot opening for a speed of, say 1.60 sec., or whether to use the second tension and a larger slot, and so get the same speed. Is there any difference?—A. H. D.

In practice the second method will be found the best. The first method is more apt to give distortion.

ARTIFICIAL LIGHT.—As a reader of the B.J.P., I will esteem it a favour if you will answer one or two questions through your "Answers to Correspondents" column. 1. Are any books published on electric and other lighting for portraiture? If so, where obtainable. 2. How many candle-power electric is necessary to obtain best results for single figures and small groups, special rapid plates and fairly quick lens? 3 What is the difference between arc lamps and incandescent lamps? 4. Are those without glass globes any better than those with?—FLASH.

1. "Artistic Lighting," by Jas. Inglis (Dawbarn and Ward, Ltd., 6, Farringdon Avenue, E.C. 2s. 6d.) is the only book, but it does not touch electric light. 2. From 1,000 to 2,000. 3. The incandescent light, produced from a heated carbon filament, has an intensity of only about sixteen to fifty candle-power. The arc light is produced between a pair of carbon rods, and has a candle-power of 1,000 to 2,000. 4. The globe is usually used only to diffuse or protect the light.

COPYRIGHT.—1. I have been given the order to take some photographs, which are paid for in the usual way, and my clients have very kindly offered me the copyright. Would you please give me the necessary wording for an agreement to that effect? 2. It must be witnessed, must it not? 3. Where do I get the 6d. stamp put on you advised a correspondent recently—through the post-office? 4. Will one agreement do, or must I have a separate one for each photograph? 5. Rubbing the plates with chalk before squeegeeing I find very messy, and the prints liable to markings. Can you advise a better method, at the same time certain to strip? 6. What address do I write to for copyright forms?

1. The following form of assignment is recommended to its members by the Professional Photographers' Association:—"To Mr. A. B. In consideration of your this day, I hereby agree that the copyrights in such photographs shall be reserved to you, and that I will not deal in any way with the photographs to prejudice your interest in the copyright." In reference to passage left blank, there must be some consideration, such as reduced charge, even if trifling, and the assignment should be made at or before the time of sitting. 2. It should be witnessed. 3. An agreement stamp from the post-office. 4. Several photographs can be included in one agreement, a list of them sufficient for identification being made. 5. French chalk is the best polishing medium;

but try the following:—Spermaceti wax 20 grains, benzol 1 oz. 6. Stationers' Hall, Ludgate Hill, E.C.

OXYGEN GAS.—I have the opportunity of purchasing an "oxygenator," second-hand. Will you kindly say whether oxygen generated from "oxylith" compares favourably with that compressed in cylinders as regards purity and safety in use, have been wondering whether the chemical used, viz., oxylith has any tendency to attack the metal forming the inner wall of the generator, and in so doing to throw off gaseous fumes likely to contaminate the oxygen. Do you think so?—GENERATOR.

No. We believe the "oxylith" is a peroxide preparation and the evolved oxygen is fully as pure as that supplied in cylinders, for this latter is also made by a peroxide process.

OLD NEGATIVES.—Will you kindly inform me if there are any firms of plate manufacturers, or others, open to purchase old negatives, as I have an accumulation, many of them collodion (wet plates) on patent plate glass, which I should be glad to be rid of? The names and addresses of any reliable firms will much oblige.—B. V. REEVES.

If the subjects are of an attractive character, suitable for window bills, and if they are also suitable for printing on the modern papers, it is possible that one or other of the leading manufacturers would make you an offer for them.

THE SNOB-CRITIC.—There are some folk who are under the impression that the snob has become extinct since the days of William Makepeace Thackeray. Alas! for these hopes. The "Maggie," writing in a contemporary, falls foul of the management of last year's R. P. S. exhibition. "On one occasion," he says, "a very distinguished gentleman *who was only incidentally an amateur* (the italics are our own) appeared in order to lecture. He was dressed 'within an inch of his life,' and was accompanied by a lady who looked like a costly fashion plate." We wonder whether the lady or the gentleman is the better pleased with this description, and how the readers of our contemporary enjoy the distinction drawn between a gentleman and an amateur photographer. The "Maggie" goes on to say that "the room was full of seedy-looking half-pricers and free-passers," and winds up his diatribe by saying that the distinguished guests were, in the absence of the exhibition officials, received by a young man in a tourist's suit. The magpie has long been supposed to be unable to distinguish between his own property and that of others; when gifted with speech he is said to be a perverter of the truth, but now that he uses a pen he reveals himself as a snob *in excelsis*.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

PRELIMINARY ANNOUNCEMENT.

Our forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC have been maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of general photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may be of use to our readers as susceptible of improvement.

The ALMANAC for 1906 will appeal to photographers all over the world as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable features of an informative nature will be added.

*** IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1st, as well as in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

EX CATHEDRA.

What Should be the Life of a Silver Print?

At the present time there are more processes, and modifications of them, for the production of silver prints than at any period in the history of photography. One of the chief claims put forward by their different advocates is that with their methods of working them they yield permanent results. In proof of this it is sometimes stated that the prints have lasted two or three years, and show no change. Is that to be taken as a proof that they will not change later on? Theoretically a silver picture is not a stable one, yet we have it in evidence that some silver prints made thirty or forty years—even longer ago than that—are still, to all appearance, as good as on the day they were produced. This may be taken as a proof that silver prints need not be so fugitive as some would have us imagine. If only a single print had stood the test of time for forty or fifty years—and there are some still intact that were made in the very earliest days of photography—there is no reason why every one, if made under the same conditions, should not be equally as permanent. No one will question, we think, that there are more silver prints being produced daily that will in the very near future pass into the "sere and yellow leaf" than there ever was before. But is that the fault of the modern processes producing them, or is it due to those who practise them? We unhesitatingly say to the latter rather than to the former. By far the larger proportion of silver pictures now made are by gelatine emulsion processes. The bromide process, for example, should yield very permanent pictures if worked under the conditions necessary to secure them, but they are too often ignored through ignorance or neglect on the part of the workers. Bromides are frequently toned, and sometimes by methods that are certainly conducive to fugitiveness. But that cannot be charged to the process itself. The gelatino-chloride process, again, should yield stable results if worked with care and judgment, but very frequently it is not; just the reverse. The prints are often very imperfectly fixed. Combined toning and fixing is one very prolific source of instability, not because the method itself is so bad, but because the bath is often used long after it has been exhausted of its gold, and also by reason of the desired tones being sometimes arrived at long before the prints are properly fixed. However, we are pleased to see that the majority of the makers of the P.O.P.s now rightly discourage the use of the combined bath. Collodio-chloride, theoretically, should be, perhaps, the most permanent of all printing-out processes. Yet we frequently hear of the prints breaking out in spots soon after they are finished, this being generally due to their being toned with platinum, and the acid

toning bath not being removed before the prints are put into the fixing bath. Here again it is not the fault of the process, but of its workers.

* * *

Criticisms of Retouching.

As many of our readers are aware, we make a practice of offering criticism of retouching submitted to us for that purpose. This standing offer is constantly accepted by retouchers of all degrees of skill, whence we infer that the help which we are glad to afford proves of assistance to them. But we would draw attention to the fact that such criticism, to be any good at all to the applicant, must be based on a fair variety of work—and work properly finished. In many cases we receive a single untuned and unfixed P.O.P. print, with the request to pass judgment upon the retouching. Criticism under such circumstances is, of course, of very little use. The conditions are not in line with practice, and we therefore beg applicants to observe one or two simple rules in submitting specimens of their work:—The prints should be on glossy P.O.P., properly toned and fixed. Two should be sent from each negative, one before and the other after retouching. The subjects should preferably be varied, so as to display the applicant's ability to adjust his treatment to particular requirements. An excellent selection on which to base useful criticism is the portrait of an aged person, of a young man or woman, and of a child. We are frequently asked to say what salary the work should justify, and though any figure must be misleading in the absence of information as to the worker's personality, etc., it is impossible to give any sort of estimate unless the time taken over a given piece of retouching is stated.

* * *

The R.P.S. Exhibition.

It has not been generally observed that this year's exhibition of the Royal Photographic Society, which was opened yesterday at the New Gallery, Regent Street, W., constitutes a jubilee. Fifty years ago the first exhibition of "The Photographic Society" (it did not attain the dignity of Royal recognition until 1894) was held at the Society of British Artists, under the presidency of Sir Chas. Eastlake, then president of the Royal Academy. Since then the exhibition has been housed in Conduit Street and New Coventry Street, but for the greater part of its history has been assembled at 5a, Pall Mall East, until finally in 1899 the New Gallery was selected as the venue for the show, and it would be difficult to find a more suitable environment for this annual demonstration of the progress of photography. This year's exhibition can be regarded as being of a high standard of general excellence, and representative not only of British pictorial work at its best, but also of the profession and the trade. In most quarters the show will be regarded as one of the finest of the series. The good quality of the pictorial exhibits is undoubtedly due to the rigorous weeding-out process adopted by the Selection Committee. If the honour of being hung at the New Gallery is to be the future incentive to fill the place lately occupied by the defunct R.P.S. Medal, this draconic severity will doubtless serve its purpose. When it is considered, however, that over 2,000 pictures were entered, and only 247 are hung, the effect on next year's entries will be interesting to watch, the chief point to observe being not so much the numbers, but whether the names of certain photographers who have hitherto held aloof from the exhibition because of the Medal will appear in the catalogue. They are not there this year.

Some "Royal" Data.

At the private view of the R.P.S. Exhibition on Wednesday, it was a matter for comment that the quantity of pictures hung at this year's Photographic Salon exceeds that in the Pictorial Section at the New Gallery. Whether this reflects in any way on the respective quality of the two shows is a matter of personal opinion. It is more interesting to compare the number of exhibits at the "Royal" with those of last year's show, and draw conclusions from the general advance in the support rendered in all sections. As we mentioned last week, the number of entries in the Pictorial and Technical Sections exceeded the previous year's total by about 500. In the Pictorial Section only 247 pictures, by 147 exhibitors, are hung, compared with 345 by 207 exhibitors last year, thus pointing to a much higher standard of work. In the Technical Section there are 211 exhibits, including 102 lantern slide entries. In 1904 there were only 164, including twelve lantern slide numbers. Five professional photographers only took space in the last show, but this year there are ten, and their display is of a high order, and very representative. In addition to this, it is satisfactory to note that the trade is represented on this occasion by twenty firms, as against fifteen last year. The presence of the foreign loan collection made the total of American and Continental exhibitors higher at the last exhibition, but otherwise the number of exhibits from abroad averages about the same.

* * *

The Photographic Salon.

Probably few of the professional photographers of London go to the exhibition organised by the members of the Linked Ring. They have seen reproductions of some exhibited picture, or they have been to a previous show and have seen some very bizarre work, and they no doubt imagine visit would mean a waste of both time and money. The exhibition this year contains nothing startlingly extraordinary, and we may also add that there are few pictures which leave a distinct impression of being above the general average. We would urge that a visit be paid to the gallery at 5a, Pall Mall East, though we do not suggest that the portraiture shown is the work all professionals should attempt to produce. Critics must remember, as the forewords in the catalogue suggest, that there are more ways than one—your own—of doing a thing. It should be borne in mind that in several instances the work shown is professional photography. We are sure that if the portraits are examined in a broad-minded spirit valuable lessons may be learned from them, and knowledge assimilated which will be very helpful to the better class professional in his attempt to reach the top.

* * *

Prices at the Salon.

Some of our readers may be interested in the prices affixed to some of the portraits in the Salon. For the large carbon print of Dr. Cleland, Mr. Craig Annan asks four guineas. This picture is somewhere about 20in. by 16in., and if any hand work has been done at all, it is either on the original or reproduced negative or the intermediate transparency. The exhibited print shows no trace of the ordinary "finishing." It is most probable that the effect has been obtained by correct lighting in the studio, though a little work may have been done on the negative to prevent undue prominence of other parts than the face and head. To Mr. Evans' portrait of Mr. Horsley Hinton no price is fixed. This is most probably a direct untouched platinotype from a direct untouched negative, as Mr. Evans believes in pure photography—suitable lighting, suitable exposure, and correct

length of time in development. For his gum-portrait, a print about 7in. by 5in., M. Demachy asks five guineas. The most highly priced picture in the exhibition, however, is a circular print, in appearance something like a carbon print, and about fourteen inches in diameter. The price asked for this work is exactly one hundred pounds sterling. It is doubtful whether the photographic world possesses a Mr. Pierpont Morgan, but if the picture should find a purchaser the Salon committee would make a nice little commission of fifteen pounds. The picture, which is entitled "A Tale of Isolde," is worth studying. It is a portrait group of three female figures, and the arrangement is very reminiscent of many of the late Lord Leighton's fine pieces of composition.

* * *

Suggested Opening of the Ben Nevis Observatory.

In a letter to the *Standard*, last week, a correspondent, Mr. W. Arnold Burgess, directs attention to the closing of the summit and base observatories on Ben Nevis about this time last year for lack of funds to keep them going. He suggests that another effort should now be made, by private subscription, to re-open these establishments before the winter sets in. Of the value of the two observatories, one some 4,400 feet above the other, to meteorological science there can be little question. This country, it is generally admitted, is much behind many others in the matter of meteorology. The Meteorological Council, it is true, receives an annual grant from the Treasury of £15,300, and some time back a committee was appointed to inquire into the expenditure of this sum and report on the subject generally. So far as we are aware very little has come of it up to the present. Out of the £15,300 granted the Council, only £350 was paid towards the support of the Ben Nevis observatories, the remainder being, for the time, provided by a munificent donor. A hundred pounds more, says the writer, was obtained from other sources for keeping it open. Thus £450 was secured towards the £750 required to maintain the observatories. The Meteorological Council will not supply the other £300, hence the observatory has continued closed for the past year. It remains to be seen if Mr. Burgess' appeal will receive the attention it deserves.

* * *

F.R.P.S.

During October the advisory committees, appointed by the council of the Royal Photographic Society to consider applications for the Fellowship, holds one of their two yearly meetings. The Fellowship of the society is open only to members, and is awarded for important contributions to photographic theory, practice, or invention, to pure or applied photography, and in public service in the advancement of photography and dissemination of photographic knowledge. Wide as is this range of qualifications, the council and its committees perform their duties with considerable strictness, and we are in complete accord with their aims to make the letters F.R.P.S. a distinction to anyone associated with photography. We would add that applications are considered by separate sub-committees according as the qualifications are "pictorial" or "scientific" in their character.

The Prince and Princess of Wales have both been photographed preparatory to their tour in India, and an order has also been recently completed by Messrs. Downey, for portraits of the King, which are to be sent out as presents for the native princes. The photograph, for which a special sitting was given at Buckingham Palace, shows his Majesty standing in Field-Marshal's uniform, his left hand resting on the hilt of his sword. The portrait has been reproduced in oils, and also by the three-colour process.

THE POSITION OF PRESS PHOTOGRAPHY.

MUCH has been written about press photography, and the usual line taken has been to advise photographers how to approach editors; and to tell them that very special prices may sometimes be obtained, or that the same picture may be sold "several times over to different editors." Unfortunately the other side of the business is not always dwelt on, and the result is that many men waste time and money, for which there is no reasonable prospect of any return. For press photography is essentially a business, and the man who occasionally submits what he thinks an interesting picture may from time to time make a little pocket-money, but in the aggregate such men stand to lose—the amounts spent in prints and postages totals up more than the half-guineas received by the fortunate ones. Papers which depend largely on one class of work—as the sporting papers—usually employ their own photographers or some firm specialising in their work, and the daily papers which give topical illustrations are doing the same to a greater and greater extent. Then certain names occur to anyone in connection with portraits of theatrical or other celebrities, marine work, etc. These firms have devoted special attention to these lines. Some of them have sunk much capital in assembling a large stock of negatives of eminent people, or in equipping studios for theatrical work. If any prominent person comes to the front for a moment their prints of him are with the editors in a few hours, before the countryman, who has a similar negative, can send his picture through the post. When it comes to speed, the daily papers, who are turning more and more to photography, must have things in time. Saturday's events must be pictured on Monday morning, and this means that the editors must have the prints on Sunday. The press photographer secures his pictures—football or what not—and his negatives are developed and often printed the same evening. The editor receives them on Sunday, and on Monday morning, hours after his paper is selling, the amateurs begin showing their views. Where an event occurs during the week the pictures must, of course, be offered the same evening.

Many photographers fail from their inability to gauge what is of sufficient interest. To quote sport again, during their seasons, cricket and football pictures are always in demand. But a dozen first-class cricket matches take place every week, and half a hundred prominent football matches every Saturday through the winter. As editors cannot present a tithe of these, it is not sufficient to have good photographs in order to make a sale. There are many things, too, which, though of local interest, are of no moment to people in another county, and editors must consider what will interest the largest number of their readers, who are scattered all over the country. A local bazaar, or even the opening of a town hall, may fail of acceptance for this reason. Interest, too, varies with the class of paper. A sixpenny weekly, for instance, seldom takes cognisance of a murder. The portrait of a murderer or his victim may appear as a line sketch in some evening daily or Sunday paper, but beyond this there are only two or three papers in London to which such pictures might be shown.

Journalistic conditions being what they are, the press photographer earns every penny of his money. His efforts are directed to turning out good work speedily. Exposures of one day may have to be delivered the same evening, or, if not, early the following morning. When an event takes place in the country he returns by a night train and at once proceeds to development. Or the negatives are sent by passenger train, which is met by some co-worker, often in the chill, small hours of the morning.

And the prints which are sent out a few hours later must bear no traces of hasty work. The negatives have to be carefully developed, and the prints dry and glossy. But the man has his reward, for his pictures sell. It is interesting to note how often the press photographer scores in events where it would seem that local men or amateurs would have a good chance. Recently a statue was unveiled some 200 miles from London. The event was anticipated, and several London papers asked local men to send them prints. But if the prints reached the editors they came too late to be any good, and the press photographer got the business.

The man who occasionally strays into press work cannot understand why his work is not accepted, when he sees work reproduced which is no better. He overlooks that such work as appears is less than 1 per cent. of the good stuff available. From time to time some paper will give a picture of, say, an interesting church. But there are hundreds of interesting churches in existence which have been photographed, and fifty may have been unsuccessfully submitted to an editor before, for some obscure reason, he accepted the fifty-first. And interest is only relative, and editorial space is limited. When anything of widespread interest happens—it may be the visit of a foreign navy or riots at Baku—pictures of such happenings crowd out other pictures. When all the world is at peace, and a quiet season is on, editors have space in which they can handle the things which are "good enough."

For the dilettante press photographer these are unconsidered trifles. Some men—usually amateurs—have a

very happy knack of picking up odd scenes or happenings which sell because they are interesting. Quaint old customs or old relics occasionally fill a spare corner in a paper. The revenue from this source is largely to be considered as a little pocket money *plus* the pleasure of seeing one's pictures in print. Sometimes a photographer will sell a page of prints in this way, but the field is limited and scarcely worth serious consideration unless a man has the special gift of seeing the right things.

Reference to press photography would not be complete without consideration of the picture postcard. There is still a big output of cards, though the publishers are more stocked with views than they were a few years ago. We constantly receive letters enclosing views in reference to their sale to postcard publishers. Usually the views are quite useless for the purpose. Many postcards are being issued in conjunction with local photographers or stationers, and unless his views are exceptionally good and of some district not yet represented, the photographer may expect disappointment. Postcard publishers are keen buyers, and they will often try to purchase *negatives* at a price below the "usual" half-guinea for a single reproduction.

In conclusion, press photography may be summed up as a highly specialised line of business—one which has but little scope for the average occasional man; and where a man needs to be alert and speedy if he would succeed. It affords a livelihood for a large and increasing number of men, but has little possibility for the man who wants to pick up money easily.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

III.

Reporting Society Meetings.

LAST week a reference was made to the necessity for reporting the meetings of photographic societies in the local and photographic press. Not only is this a necessity for the continued well-being of the society, but the influence that this kind of publicity has on the membership is usually very marked. Societies have been known to exist for years in a state of stagnation, holding occasional meetings at which nothing has been done either to further the interests of the society or photography, and outside the little circle of friends nothing is known of its existence. If the object of such a club is photography and the improvement of the photographic knowledge, etc., of its members, steps should be taken by its executive to make its existence known. This will not only bring in new members, who may include useful workers, but the interest of the present members will be quickened by competition and argument with them. Every year we hear of societies becoming defunct, and the cause of their winding up can usually be traced to this state of continued obscurity.

The Need of Publicity.

The members of these societies may argue that so long as their revenue is sufficient to cover expenses, why need they trouble to do anything further? In other words, they have no practical interest in photography, and their society is simply a social club at which they occasionally discuss photography or have a passing desire for investigation aroused by a trade demonstration. They have ceased to emit ideas themselves and have exhausted all the ordinary topics of photography as it appears to them. How changed all this would become by

the introduction of a few "live" members to stir matters up and promote research. This state of things can, however, only come to pass by giving publicity to the affairs of the society, first in the local papers, and then in the photographic press. The doings of the society are chronicled, and when the name of the association is sufficiently well known by constant repetition in print every photographically inclined person in the district who reads the papers will think it is his duty to join. At all events, there will be less difficulty in persuading him to become a member than if he had never heard of the society.

The Wrong Sort of Report.

There are many societies that fully appreciate the necessity for publicity in the press in order to bring them to the front. They have "live" members, good programmes, and an energetic secretary, and more often than not have also a reporter. Yet they are not heard of to the extent they desire or merit. The reason of this is because the wrong sort of reports are submitted to the papers for publication. The editor and the paper itself must be considered when drafting a report of a meeting, and, as mentioned previously, it cannot be expected that valuable space in a photographic or local paper will be filled with information that is of interest to one or two people only. At the same time a certain amount of difference can be made in the reports sent to local papers and to the photographic press. In the first case the names of any prominent local men who may be present can be included and will doubtless be noted by the editor. This serves the double purpose of pleasing the persons named and drawing attention to the

status of the society. The editors of the photographic papers do not, however, want to know who were present at the meetings or anything concerning the formal business of the evening. They want to know about any practical photography that was discussed or demonstrated, and if any new methods of working were put forward. They want information that will be of use and interest to their readers. Something that their readers can read and profit by, which, if successful, becomes a further advertisement for the society sending the report.

An Example.

As an example of the kind of report that might be submitted to a local paper, but *not* to a photographic journal, the following will serve:—

"A highly successful meeting of the Blank Camera Club was held at their comfortable rooms in Nemo Avenue on Wednesday last. Ald. J. Faddy, J.P., was in the chair, and there was a large attendance. Amongst those present were the Rev. Thomas Kitto, M.A., Capt. Hinchcliffe, R.N., and Ebenezer McDougall, Esq., J.P. The Hon. Secretary (Mr. Westbourne Grove) read the minutes of the last meeting, which were duly confirmed and signed. The names of Mr. T. White, of 524, Fenchurch Street, N., Mr. C. Black, of 199, Mornington Alley, W., and Mr. T. C. Green, of Pye Street, S., were submitted for election. The question of the winter programme was discussed and several members expressed their willingness to read papers, and an interesting session is anticipated. Mr. O. Jones then gave a most instructive lecture on 'Bromide Enlarging,' in which he described his own method of working, and dealt with the subject in a manner that called for the warmest encomiums from those present. The whole process was dealt with in a way which prompted the mover of the hearty vote of thanks (Mr. A. Grey) to say that, although he was a novice, he felt that he was almost competent to undertake the making of an enlargement himself, so clear had the instructions been. The vote was carried with acclamation."

Now it is obvious that a report of this kind is worse than useless to the editor of a photographic paper. It makes him angry and say hard things about the society, and the sender of the report, and yet similar reports are being constantly sent in by energetic but misguided secretaries who imagine they have said all there is to say about the meeting. The greater portion of the above report *may* be utilised as a paragraph in the local paper, as it contains matter of local interest, but in the photographic paper—if it is used at all—it will probably become: "Blank Photographic Society.—Mr. O. Jones gave a lecture on 'Bromide Enlarging' before the members of this society on Wednesday last."

The Right Sort of Report.

There is no doubt at all that from every lecture or demonstration given before the members of a photographic society, some crumbs of practical information can be extracted to make an account of the meeting interesting and instructive to readers

of the photographic papers. It is the duty of the reporter to look out for all possible items of this sort and embody them in his report for the photographic press, and to suppress everything immaterial to its general interest.

Here, for example, is a suggestion as to how the foregoing report ought to have been written:—

"The Blank Camera Club.—At a meeting held at their rooms in Nemo Avenue on Wednesday last Mr. O. Jones gave a lecture on 'Bromide Enlarging.' He recommended rough-surface paper in preference to the smooth varieties if the enlargement was larger than whole-plate size, and advised the use of a slow paper and full exposure if good black tones were desired. For enlarging from a quarter-plate of moderate density to 12 by 10, using an anastigmatic lens working at $f/6$, he found that three-quarters of a minute gave a fully exposed print with incandescent gas as the illuminant. With limelight the exposure could be cut down to 4 or 5 seconds. For vignetting, he used a piece of cardboard with a small hole roughly pierced in the centre. This was held about half-way between the lens and the bromide paper during exposure, and moved about with a circular motion, so that the head to be vignettted received the maximum exposure and the parts surrounding it considerably less. Bolting silk stretched over a light frame and used for the purposes of diffusion of detail during enlarging gave the best effect if placed about $\frac{1}{4}$ inch from the surface of the bromide paper. If placed in contact with the paper the "grain" became too pronounced, but suited some subjects. Enlargements larger than whole plate should always be well wetted before development, otherwise markings would occur. The lecturer recommended the following developer for black tones:—Hydroquinone, 30 grains; metol, 8 grains; soda sulphite, $\frac{1}{2}$ oz.; soda carbonate, $\frac{1}{2}$ oz.; 10 per cent. bromide of potassium solution, 20 drops; water, 20 oz. The prints should always be rinsed after development, and then fixed in hypo, 4 oz., water, 20 oz."

There can be no doubt as to which is the report of more general interest if these two examples are compared and the right sort will take probably less time to prepare if the lecture has been carefully followed, and a note or two made. In any case, there is far more likelihood of the editor inserting the whole of the second example than inserting a very brief reference to the first specimen, which was copied with only slight alterations from one of many such reports sent to the *BRITISH JOURNAL OF PHOTOGRAPHY*.

As mentioned in a previous article, the post of reporter is not a very difficult one to fill, and a little practice only is needed to produce the right kind of report. A knowledge of shorthand is not necessary, and in most cases the lecturer will be only too pleased to verify the formulæ jotted down in the reporter's note book. Further remarks on this question of correctly reporting society demonstrations and also preparing notices of exhibitions will be given next week.

HON. SEC.

GOERZ Lectures Free to Photographic Societies.—The firm of Goerz announces a series of lectures and slides that have been prepared for photographic societies. They include lectures entitled: "Stereoscopic Photography," "The Photographic Lens," "What Can be Done with a Hand Camera," and "Tele-Photography." Full particulars will be sent on application to 4 and 5, Holborn Circus, London, E.C.

THE prospectus of the Hackney Photographic Society's seventeenth annual exhibition announces six open classes and six members' classes. The exhibition opens November 1 for four days, and entries are due on October 16. Exhibits must be delivered at the King's Hall, Hackney Baths, N.E., not earlier than Friday October 27, nor later than Monday, October 30. Silver and bronze plaques are the

awards. A silver medal is offered for the best trade exhibit, and another for the most useful photographic novelty exhibited. Arrangements will again be made for the collection without additional charge of exhibits from the R.P.S. and Salon exhibitions, and in addition, this year free conveyance from Hackney is offered by the Southern Exhibitions to all exhibits entered for the Southampton, Hove, and Southsea exhibitions, if properly packed for transit. We are pleased to note this step in the direction of co-operation among provincial exhibitions. We have on more than one occasion recently advocated this system, and hope in time to see it still further extended. The hon. sec. of the Hackney Society is Mr. Walter Selfe, 70, Paragon Road, Hackney, N.E., and he will supply all further information.

THE WEEK IN HISTORY.

The Enlarger of Forty-eight Years Ago.

On September 22, in the year 1857, the enlarging apparatus long known as Woodward's was patented in this country. Mr. Woodward was an American, but his design of camera for direct enlarging became universally adopted. The Woodward solar enlarger, as it was long known, consists essentially of a camera with a lens of large diameter and a reflector in the rear of the objective, so that it can be used for projection as well as for the reception of an image. The "enlarger" consisted of a wooden body to the front of which a portrait lens was fixed. Immediately inside was a sliding chamber, at the rear of which was the framework (at the focal distance of the lens) for carrying the negative or sensitive plate, as the case might be. Further to the rear, at the open end of the outside body, was a plano-convex lens, adjustable by rack in relation to the negative, and behind it, at a suitable angle, the flat mirror. "The instrument being so adjusted, with the reflector passing through an aperture in the shutter and the room darkened, the sun's rays are reflected with great power through the negative, which is focussed on the sensitised paper, or canvas, of any desired size by moving the inner sliding box and achromatic lens. The image is then printed on the sensitive surface, and it is afterwards to be developed and fixed in the usual way. In using the instrument to reflect a positive picture for tracing, etc., the negative picture is first taken on glass, and afterwards copied in a similar manner by placing it between the instrument and the light, to produce a picture on glass that is positive when seen by the transmitted light, which is then placed in the open sheath at a suitable distance from the luminating lens, when the rays of light passing through it and the achromatic lens, throw a positive picture on the canvas, which, as in the former case, may be arranged and focussed in any desired size to be traced or painted." This primitive enlarging appliance led the way to a number of other types, and readers of the old text-books such as Monckhoven's "Photographic Optics," will see the shifts to which photographers were put in enlarging, until gelatino-bromide paper inaugurated a new order of things.

Woodburytype.

"Process" reproduction is often talked of to-day as though photography applied to the multiplication of pictures were a thing of the twentieth century. As my readers know, the work of Niepce was, strictly speaking, in "process" rather than photography, and Niepce did, as a matter of fact, work out a crude process of photo-engraving. In point of rapidity and fecundity the photo-mechanical process is modern, but it is yet a fact that perhaps the most beautiful of all photo-mechanical processes—in certain respects, certainly the most perfect of all—will be exactly forty-one years old to-morrow. It was on September 23, 1864, that the late W. B. Woodbury patented the process known afterwards as Woodburytype. Unlike other photo-mechanical processes, the print to be reproduced is not broken up by a screen or grain, the full tone of the original is preserved, and a good Woodburytype reproduction of a silver print is practically indistinguishable from the latter except on close examination. Perfect as it was in this way, Woodburytype fell out of use in competition with more rapid methods, for it is of necessity slow—each print has to be mounted—and it suffers from another drawback, that the clear skies and other almost white areas of any size in the prints reproduce dirty unless cleaned up by hand. Hence Woodburytype has gone to the wall against the blows of more commercial processes, and it was not so long ago that you could have picked up a plant for the process in London for very little. Beautiful as the work is, only one firm, I believe, is now producing it. In case that the process itself may be unknown to some readers, I would briefly explain that a bichromated gelatine film is employed on which to obtain a reproduction relief of the negative. This relief Woodbury sought to apply to the preparation of a printing surface by various methods, such as electro-deposition, but in vain, until he lighted upon the fact that the gelatine relief when dried was hard enough to be pressed into lead forming a mould. Such a mould having been produced, the impressions were obtained from it by taking cast after cast in pigmented gelatine.

HISTORICUS.

THE CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

FOLLOWING on our report last week of the discussion on reception-room tactics undertaken at one of the Sessions of the Photographers' Association of America, we now present a further paper communicated to the Convention, and dealing more particularly with the business side of the photographer's establishment. For the text of the lecture and of the discussion we are indebted to the very lengthy report of the whole proceedings in our New York contemporary, "Wilson's Photographic Magazine."

THE FINANCIAL SIDE OF OUR PROFESSION.

(A paper read before the Convention of the Photographers' Association of America.)

Coming from the West I was sitting with a travelling man, who asked me where I was going. I told him, and he said, "I want to ask you why photographers are such poor business men, and why classed among the poor business men of the country. You have told me there is quite a profit in making pictures, that the actual cost of the material is very little—why cannot you make it a success?" I told him the reason is that the photographer does not give the time and attention to this side of the business he does to the professional side.

I was talking to a stockdealer not long ago, and he told me that 90 per cent. of the photographers of the country were worth less

than \$500.00; that a large per cent. had to receive their goods C. O. D., and there were quite a number who could not buy goods unless the money accompanied the order. That makes me think we are seriously lame on the financial side of our business, because we cannot give it the attention it requires. Most of us are pretty good in making pictures, but where we lack is on the financial side, and if you will pay more attention to that you will find yourselves better off at the end of the year.

Now, I believe to be successful in the photograph business the essential thing is to have a first-class studio—the best in your town, whether it be in the city or outside. Have it as good as your com-

petitors. Americans like to have things nice, and patronise people who can afford to have nice things, so if you have a nice place, half the battle is won.

The Receptionist Again.

The next essential is your reception-room girl. You want to bestow a good deal of care in selecting her; she is the one who makes your success or failure, and she will earn her salary two-fold if you pay attention to getting just the right sort of girl.

I want to tell you a story which I think fits this point. You know the Jews are great business men, and if we should follow many of their tactics we would be more successful. Well, there was a Jew who advertised for a varnish salesman, and a very nice gentleman answered the advertisement. The Jew says to him, "Well, my friend, what do you want?" He replies, "I would like to get this position as salesman." "Well, have you ever travelled on the road?" The applicant said he had a great deal. "My friend, do you think you could sell varnish?" He said he thought he could. "Do you think you could sell varnish to a man who didn't want varnish?" The man replied "I don't think I could do that." "Then get out of here; we don't want you; anybody can sell varnish to a man who wants it."

A good reception-room girl that can sell to people who don't want to buy—the good-looking, up-to-date, wide-awake, intelligent girl, who knows everybody, is pleasant to everybody, and accommodating—she will make the business for you.

Business in the Studio.

Now, then, the operating-room. Of course you may have the capable girl to bring in the business, but you must "make good" in the operating-room. As Lincoln said, you can fool a part of the people a part of the time, but you cannot fool all the people all the time. So in the operating-room you have to back-up with good work the efforts of your reception-girl. You must be in touch with each other.

For instance, a gentleman comes in and says he doesn't want a picture, but his lodge or some newspaper wants it for a cut. Get out the picture he wants, and then say to him, "How would you like a few for your family, or an 8 x 10 or 11 x 14? Those clothes will photograph all right." You will find nine times out of ten that you will be able to sell the man a picture for his friends at home. That is the business side of it. Have your photographer pay due attention to lighting, posing, etc., to individualising your pictures, which can only be done by careful study. After you get a subject to sit for his picture, if you see something that will improve the situation, try it. Don't be stingy with your plates.

Advertise!

I also want to say a word about advertising. Some photographers think they do not need to advertise. That is not so. I have been in business in a little town of 15,000 or 20,000 people for twenty-five years, and been on the road for twelve years. There is advertising and advertising, and every man will find which pays him in the end. For instance, you may hire some smart young man or lady to go from door to door as your representative, not as a ticket-seller, or any cheap scheme, but with a nice line of samples. Let her talk about what a wonderful man "Holloway is," and that he makes pictures for "as high as \$100 a dozen." That is the kind of advertising that sticks. You can get a good many girls in the towns or small cities at five dollars a week, and if she will bring you in one sitting a day it will pay you; and if two sittings a day you can afford to pay her more money. She will do you good.

This same girl can take care of your prospective sitters. She finds that Mrs. Brown is not ready now, but her daughter is going to graduate or receive her first communion, and later on your repre-

sentative can call, and remind her that "Holloway (for example) is making something new, and that he would be pleased to have her call in at any time." That is the way to build up business, and doing it in a square and legitimate way.

A Town Traveller for Photographers.

How many of us pay attention to the outside business that can be gotten in our town? I believe it would pay every photographer to hire an outside man to look after that business. Every town has its factories, which contain men who would like to see pictures of themselves or their associates. By using a little tact you can see them as they come out at noon, not detain them long, and make a picture on the prospect. Those pictures can be sold at from fifty to seventy-five cents, and orders will follow. That is outside business. When I first went to Vincennes we photographed the schools. I was looking out for extra business, and we went to the superintendent and explained to him that we would like to make pictures of all the children in the city. We said that lots of poor people never have the opportunity to have pictures, and we would take only five minutes to a room, and make the pictures cheaply, and enable all to have them, thereby benefiting the poor children of the schools. I made 1,900 pictures for the schools of Vincennes, and, not only that, but I got more calls from those 1,900 pictures since then; I possibly have made 25 enlargements of children who have died, and who had no other pictures; and we have made many copies from those pictures. That is looking after the financial side of the business, which an outside man can do.

The Miscellaneous Commissions.

Every town has a certain amount of commercial work to look after. The way to do that is to tell people that you do it. Have your man go out and say, "We are making pictures of your merchandise, and can save you money. We will make them at the same price that you have been paying outside."

Then there is the man who builds a house and wants a nice picture of it. He will pay you a dollar for such a picture, and that sort of business you can get by simply going for it. Your outside man can also work up flash-light groups—weddings, lodges, etc., which your outside man can bring in during the evening. With the aristo lamp, if you can get ten extra pictures in a year, you have made 10 per cent. on your investment.

The Best Citizen.

Another word—the social side. I believe that every photographer should make himself felt as a citizen in his community, as a good citizen. He ought to take enough interest to go out and vote. Lots of men say, "I don't care anything about politics," but the man who doesn't take any interest in home affairs cannot amount to much. I believe every man should belong to some lodge in his town. Take an interest in the things about you and then people will take an interest in you, and it won't be long before they will say, "There is a good, energetic photographer, and the only one we have had in our town." See that your daughters and wives entertain and go to entertainments; it makes you social, and that brings you business. Don't go back in some little bit of a house and be too stingy to have a little outside popular amusements, for it will come to you two-fold if you go out. That is the way you can make yourselves felt, by being a part of the community in which you live.

The Cost of Production.

Now I have a memorandum here. How many can tell what a dozen pictures cost for the last year—to get them out? What? Just simply the cost? You haven't given it any thought? I believe it is important to take care of your business, though it may be small—to know just what it costs to do business.

I remember when I first went into business I had a pretty good

rating among the stock men, and flew a little high. The first I knew I was a thousand dollars in debt—before I knew it. If I had kept a strict account of cash it would not have happened. Of course I waked up, and to-day we keep a careful account of everything. The reception-room girl takes care of the cash, and if out twenty-five cents she has got to find it.

Keep a good set of books, not only cash, but stock, and systemise

your business. Go out socially; be felt in the community; be a good citizen; do unto others as you would have them do to you, and you will be successful. And at the last, when you turn from this earthly career, and are enwrapped in the great cloak of eternity let it be said by your children's children that you have made pictures that have lived, and at the same time you have been successful in a financial way.

E. E. SHORES.

In the course of the discussion of Mr. Shores' paper the following views were expressed by the speakers:—

Mr. Barrows: I would like also to call your attention to a little matter of advertising, something that Mr. Shores has touched upon—a little advertising I am doing. My method is this—it is something like the clock you saw in the exhibit. The pictures are from children; it is photography pure and simple, brought together in a scheme of advertising. That clock after we are through here will appear in our Boston stores and windows. I expect every person will step up and talk about me—I expect to have half of Boston talking "Barrows."

All of you can do it. That clock has taken a year's time to experiment with those little children and bring them up to that standard. It was made large first and reduced to this size, and I expect later to have it in the original size. It is simply an advertising medium for myself. You can think it over, and devise schemes for yourselves.

Another means are little circulars which I send out. I have attracted the attention of such men as Mr. Strauss, Mr. Sperry, Mr. Barney, as well as W. I. Scandlin, the advertiser, who have used some of my ideas in perfecting their work.

In advertising, when you can reach your people through some medium that will gain their attention for a few moments you have that person with you. And don't stop with the first announcement. After reaching that person once get at him two or three times afterwards; after making him a customer see to it he is made your friend. You can save five out of eight people possibly—I might say you could save six out of eight who come to you. No photographer was ever yet born who could please everybody; be pleasant even though they offend you—be pleasant all the time. I am not infallible, but I believe I can keep as many people after I get them as anybody can.

The matter of proofs. Now, I am a very independent photographer. I try to treat people as honestly as I know how, but I have set rules for conducting my business. One of these is the proof question. I feel that my people do not take offence at my action. I show many proofs, and I sell many pictures from those proofs; but I say on the back of these proofs that they are the property of the Barrows Studio, and they must be returned. We follow it up rigidly, and if once or twice we offend they generally see the force of our reasoning and position. Those proofs we send out, but we require them to be returned or charge for them.

Frequently a person comes into our studio and says, "I would like a half-dozen pictures, but would like to keep the proofs," to which I reply, "Those will cost you as much as the finished pictures. We file them away." Only last week a lady came into one of my

studios with tears in her eyes. "Mr. Barrow, have you the proofs of my little girl?" In half an hour I had found them and got a \$30 order from that lady.

If you are to be a business man why should the community rule you? You have your products for sale; now sell them, don't give them away. You go into the operating-room, take your subject, work hard hour after hour to make your plates; you submit your work, and if you do not secure yourself, at the end of the year where are you? You are simply furnishing material on top of considerable labour, and when you are through the public has got the best of you by hundreds of dollars.

Mr. Sperry: Let me offer you a suggestion about proofs. I do the same way, only I take each proof—as many as fifteen sometimes—and mount each one on a separate slip—just the stock you use in making a folder; then put in an outside enclosure and fasten together with a clasp; and on that outside slip I write the name of the sitter. It is merely a memorandum which is put away on file. On the inside of the cover is suggested who they are, and to send them back.

Mr. Barrows (continuing): That is a very nice plan to follow. Mr. Bridges to-day is taking scrap paper from his folders, trimming it in a certain size for cabinet proofs, in various colours, and printing it for your outside folder, which when you pin it together with the proofs attached makes a complete little album of proofs that is very pretty. He will also print on the face of those proofs any little matter that you want additional. I think he charges you \$5.00 a thousand for the outside folder, and \$2.00 a thousand for the inserts. If you order 5,000 of the outside leaves you would need 10,000 of the inside slips, which would cost you \$20.00 and the outside \$5.00. Thereby you could wait on your customers in the most polite and genial way for \$20.00 in showing your proofs, and go to Bridges and tell him I told you about it.

I believe that we as photographers, if we would talk less about art, less about how we should condense the light upon our subjects, less about many of the technical things, and pay more strict attention to getting before our subjects that which pleases them—instead of fussing over some of these little doctrines as we do—about negatives and plates, to please ourselves, we would draw the public better to us than by asserting our rights, or by pressing upon the public pictures we like but they do not. We should follow more the inclinations of our patrons, at the same time doing good work as long as we can do it—doing it in the way our people like rather than catering to our own whims. Then you will hold your trade more to yourself and longer live in your respective communities as the leading man.

LADY photographers who can turn out good work have never to lament an empty studio, says "London Opinion." But it must be good work, and this depends on the presence of artistic faculty—a faculty which women possess in a higher degree than men. It has been well said that "photography is now almost a fine art. It means something more than simply turning the camera on a sitter, and 'taking' him just as he is, with all his drawbacks thick upon him. The artist immediately sees the best in his (or her) subject, and knows

how to bring it out. Make your patrons think well of themselves. That's what makes some persons get on where all others find the road stony. They have a way of increasing the self-respect of everyone they encounter. It is a beautiful and benevolent art."

THE third annual exhibition of the Northcote Camera Club will be held in the St. Michael's schoolroom, Northcote Road, Walthamstow, on October 11 and 12. There are three open classes. H. Clifford Bennett, 26, Granville Road, Walthamstow, is the hon. sec.

THE PINATYPE PROCESS OF COLOUR PHOTOGRAPHY.

exhibition of the Royal Photographic Society which opened at the New Gallery, Regent Street, there is demonstrated for the first time in this country the process of colour photography invented by Dr. König, of Messrs. Meister, Lucius, and Brüning, of Berlin. The process which was briefly outlined in our last issue is designated "Pinatype," and will be seen to resemble the process of Charles Cros, patented in 1880, and that of Sanger and Sanger, introduced in January, 1903. "Pinatype," as a distinct process, commences after the three colour-sensation negatives have been made. The following working instructions, abstracted from a booklet just issued by Messrs. Meister, Lucius, and Brüning, will give an idea of the operations concerned in the production of the transparencies:—

The Theory of Pinatype.

In the bichromated gelatine plate be exposed to light under a photographic negative, the gelatine, as is well known, is hardened at the parts exposed to the action of the light—that is to say, it becomes insoluble in water to a greater or less extent. If the unexposed gelatine still contained in the gelatine layer is removed by washing, a picture is obtained, only visible to a slight extent, consisting of hardened and unhardened portions.

Pinatype dyes have, however, the property of dyeing the unhardened gelatine very strongly, whereas the hardened portions are not at all or very slightly coloured. Therefore, if moistened with specially prepared gelatine is brought into intimate contact with the gelatine layer coloured by means of a Pinatype negative, in a short time a coloured paper picture with all the half-tones is obtained, which appears most strongly coloured on those parts not affected by light, whilst the most exposed parts remain white. From this it is evident, that in order to obtain a positive image, the bichromate gelatine layer must be exposed under a positive transparency.

The printing of the picture on paper from the exposed and coloured gelatine can be repeated as often as desired.

The Negatives.

As already mentioned, the negatives are not suitable for Pinatype unless special conditions are observed; they should be full of detail and not too hard, so that good transparencies may be prepared from them.

Whilst the preparation of the transparencies involves only a slight modification of the method when copies are required of the size of the original negative, the preparation of enlarged pictures is very greatly facilitated by the necessity of employing transparencies. The negatives can be enlarged direct, and thereby all the details are better preserved than when an enlarged negative has to be prepared from the original negative.

The facility with which enlarged copies can be made is especially important for three-colour photography, as the direct production of enlarged plates in three colours offers many technical difficulties.

The Transparencies.

The three partial negatives have been properly exposed and developed, and therefore completely uniform, the transparencies are then printed and developed simultaneously, or at any rate the time occupied in the operation.

Slight differences in component negatives may, however, be compensated for by slight alterations in the times for exposure for the transparencies; a white object affords the best guide for the fitness of the component transparency. This white object should have exactly the same appearance on all three transparencies, whilst the black parts should in all cases possess the same depth.¹

¹ It is advisable in most cases to make the transparency corresponding to the blue filter negative a little more vigorous than the others.

The pyrocatechine developer is particularly recommended for the preparation of transparencies:—

SOLUTION I.

Pyrocatechine	11 grammes.
Sodium, sulphite, anhydrous	25 grammes.
Water	500 grammes.

SOLUTION II.

Potassium carbonate	60 grammes.
Water	500 grammes.

For use, 50 c.c. of Solution I, 50 c.c. of Solution II, and 50 c.c. of water are mixed together.

For the preparation of large transparencies of uniform degree of enlargement, the cheap daylight enlargers, which usually only admit of one enlargement and stand very firm, are specially suitable.

The transparencies should be vigorous and full of detail, having the character of good lantern slides, rather too soft than too hard.

The Preparation of Copies.

Sensitising Bath.

Chrome salt, 2 grammes (equals two tablets).

Water, 110 c.c.

The chrome salt is either dissolved in a little hot water and then diluted with cold water to 110 c.c. or the entire quantity of cold water is poured over the chrome salt and frequently stirred until all has been dissolved.

The "printing plates for Pinatype" (insensitive to light) are steeped with the film side uppermost for three or four minutes in the above sensitising solution in shaded daylight or lamplight. The solution must not be warmer than 70 deg. F. Any bubbles of air should be removed with the finger or a brush. A great number of plates may be sensitised one after another in one bath, but it is not advisable to reserve the solution employed for future use. After the plates have been sensitised they are well drained and dried in a dark and not too warm place free from dust.

The sensitised plates keep much longer than sensitised pigment paper; they preserve their qualities completely for two or three weeks' printing.

Printing.

The transparencies to be printed are laid in a frame, with the film side in contact with the film side of a sensitised printing plate. The frame is then closed with a good spring and exposed, the exposure being preferably regulated by means of a photometer. Strips of "transfer paper" which have been sensitised in the above bichromate solution exactly in the same way as the printing plates serve usefully as photometer-paper.

If transparencies which are to be printed are always prepared as nearly as possible of the same density (which naturally is much more easy to accomplish with transparencies than with negatives), the times necessary for exposure do not vary very much, being for normal clear transparencies about 16 deg. Vogel's scale photometer. In order to give those who do not employ a Vogel's photometer an approximate idea of the time of exposure, we would mention that the exposure for a printing plate is about the same as for a piece of collodion paper.

Electric arc light is just as good as direct sunlight for printing.

After printing the picture should be distinctly seen in brown colour on a yellow background. The printing plate is now washed in running water, or the water frequently changed, until all undecomposed bichromate has been removed. The finish is easiest to recognise if the plate is taken out of the water and allowed to drip upon white paper; the drips should no longer be yellowish. Usually washing is complete in ten minutes. The plates, which, of course, are no longer sensitive to light, may now be dried or placed direct in the dye solution.

As the picture at this stage scarcely remains visible, it is advisable to adopt some means of identifying the printing plates in three-colour photography, in order to avoid mistakes in the after operations.

Preparation of the Blue Picture.

Dye Bath.²

Pinatype blue, 5 grammes (equals ten tablets).

Water, 250 c.cs.

The bath is prepared some time before use, solution being effected by frequent stirring.

The well-washed printing plate, either dry or moist, which corresponds to the red filter negative is steeped in the blue dye solution and the dish rocked from time to time. The first dyeing occupies about fifteen minutes. The plate is then washed and rinsed until the water running off from it is no longer coloured. It should have the appearance of a transparency full of detail, with almost transparent whites and intense shades. If the whites are too strongly coloured the gelatine on those parts cannot have been sufficiently hardened—that is to say, the plate received insufficient exposure. On the other hand, if the transparency appears hard and without details in the whites, over-exposure has taken place.

If the printed plate is successful, a piece of "transfer paper" of the size of the printed plate is now softened in cold water, any air bubbles being removed,³ until the paper has become completely pliable and fully distended. The paper is now attached to the plate, preferably under water, with the film side against the film side of the printed plate, and both removed from the bath, at the same time draining off the principal excess of water by a gentle motion of the hand. By so doing the operator may convince himself that no air bubbles are enclosed between the plate and the paper.

This having been done, the plate is laid upon a table (paper uppermost) and protected with a piece of oiled silk or the like, and the paper firmly smoothed over with a rubber squeegee,⁴ from the middle outwards, using moderate pressure. This operation is similar to that in the pigment process. If the paper shows creases on the plate after a short time, it has not been soaked sufficiently long; if it is smooth and slips upon the plate, it has been soaked too long. A little experience soon teaches the operator to select the correct mean.

When the paper adheres satisfactorily it is covered with a damp sheet and a glass plate, in order to prevent evaporation, and the whole allowed to stand for ten to fifteen minutes, if desired, under a light weight. By carefully raising the corner of the paper the operator may inform himself of the progress of the printing. If the picture does not appear sufficiently strong the raised corner must be again pressed down. After the lapse of the above period the picture will be found transferred to the paper with sufficient strength. The paper is now removed and hung up to dry.

The printing plate is now again placed for about five minutes in the dye bath, rinsed, and the picture again transferred to paper as above directed. These operations may be repeated as often as desired. Besides time, the temperature is often an influential factor in the transfer of the picture. At higher temperatures the transfer to paper is more quickly made. If the temperature is kept fairly constant (60 to 70 deg. F.), and notice is taken of the time required for "printing" from a certain plate, it is quite easy to prepare a large number of copies exactly alike by simply keeping to the same times.

(²) The dye baths all keep for any length of time, and can be used over and over again.

(³) White spots in the finished picture show that either bubbles have been present or the rubber squeegee has not been applied with sufficient firmness.

(⁴) The squeegee, consisting of strips of rubber set in a wooden frame, as usually employed by photographic reproducers, are most suitable. Rollers are not so well suited for our purposes.

By repeated immersion in the dye-bath the printing plate becomes darker. Even the original high lights colour more and more become the dye solution gradually penetrates below the hardened surface to the unhardened gelatine. Nevertheless, the prints from the plate are quite uniform, as only the exterior surface of the dyed plate has an action on the paper.

The dye plates may be kept for any length of time after use, and can at any time be again employed for the preparation of prints after a fresh immersion in the dye bath.

Preparation of the Red Picture.

Dye bath, 5 grammes (equals ten tablets) Pinatype red are stirred with a little water to a paste, and then 3 to 5 c.c. concentrated ammonia solution added. If the ordinary commercial ammonia be employed, about 8 to 10 c.c. are necessary. But, at this rate, sufficient must be used to completely dissolve the dye to a deep red liquid. A slight excess of ammonia is not deleterious. After about five minutes the ammoniacal solution is diluted with water to 250 c.c. Should the dye-bath become somewhat turbid after long use, it may be immediately cleared and made efficient again by the addition of some ammonia.

The dyeing of the printing plate corresponding to the green-filter negative is carried out in the same manner as with the blue film. The exposure for the red print plate may be given a little longer time than for the blue plate.

After the red plate has been washed with particular care free from the excess of dyestuff, the blue picture, which has been previously dried,⁵ is softened in water and laid under water upon the red-print plate. The operation is carried out in the same way as described for the blue-picture, the blue picture being easily shifted under water so as to completely correspond to the red-print plate. The adjustment must, however, be carried out as quickly as possible so that the red dyestuff shall have no opportunity of being transferred to the blue picture until the adjustment is complete. The exact correspondence of parts, especially in small pictures, may be controlled by means of a magnifying glass. In order to isolate the film of the printing plate and of the blue picture from each other during adjustment, a thin celluloid film may be laid between, about 5 mm. from the edge of the plate. When the adjustment is complete, the paper is held firmly against the plate with suitable clamps, leaving the film free, the film then withdrawn, water again run over the plate, and then the paper pressed firmly down with the squeegee. As directed for the blue picture, the whole is allowed to stand for ten to fifteen minutes, and the paper then removed from the plate.

For each subsequent immersion of the red-print plate in the dye bath about three to five minutes are required.

Preparation of the Yellow Picture.

Dye-bath, 5 grammes (equals ten tablets) Pinatype yellow are placed in 200 c.c. hot water. The solution is assisted by frequent shaking or stirring. The dye-bath keeps well, but has the property of becoming somewhat slimy after long standing. About thirty minutes should be allowed for the first immersion in the dye-bath of the print plate corresponding to the blue-filter negative; for subsequent immersions five to ten minutes. The yellow transfer upon the blue and red picture occupies about thirty minutes. It is therefore, not necessary in this case to make use of an intermediate celluloid film during adjustment, but it is advisable to well moisten the superimposed damp sheet in order to prevent the films adhering to each other.

Assembling the Monochrome.

To increase the picture's fastness to light, which is already con-

(⁵) It is not absolutely necessary that the blue picture should be previously dried.

siderable, and to harden the gelatine layer, the paper is now immersed for about one to two minutes in the following fixing bath:

Fixature, 2 grammes (equals one spoonful).
Water, 100 c.cs.

After fixing, the picture is washed for about five minutes in clean water and hung up to dry.

Sequence of Prints.

Instead of commencing with the blue print, as we have done, and then following with the red and yellow prints, three-colour pictures may also be produced by the following sequence of prints:—

Blue, yellow, red, or
Red, blue, yellow.

It is advisable, however, not to adopt any other order, as the adjustment is thereby rendered much more difficult, even if special aids are made use of for ensuring coincidence of the prints.

Reducing Too Vigorous Copies.

Copies which have been printed too strongly in one or more colours but have not been fixed may be reduced by moistening them and pressing them down on a moist gelatine plate or gelatine paper just as if making a Pinatype print. For this purpose old rejected dry plates may be used; old negatives are not suitable. The longer the paper picture is allowed to remain in contact with the gelatine plate, the stronger is the impression transferred to the plate and consequently the greater the reduction.

Intensification of Weak Copies.

Copies which are too feeble and have not yet been fixed may be most easily intensified by relaying on the requisite printing plate.

Retouching.

Individual parts of the complete picture which do not exactly correspond to the natural colours may be very easily improved before fixing if the operator goes over the picture with a brush dipped in an extremely diluted dye solution. In retouching the picture should always be moist.

Pinatypes, just like pictures prepared on gelatine-silver chloride paper, can, by squeegeeing on a matt or polished surface, be given a matt or enamelled appearance.

The Principal Advantages of Pinatype.

1. The printing plates, which are prepared in a simple manner with the aid of light, allow the preparation of a large number of paper copies therefrom by a purely mechanical process without further resource to light. The print plates can be kept, and at any time used again without the aid of light for the preparation of paper copies.

2. In consequence of the intensity of the Pinatype dyestuffs and the small number of spoilt pictures, Pinatypes are very cheap.

3. Pinatypes are extremely fast to light.

4. A three-coloured Pinatype is not composed of different films. A single thin film carries the whole of the colours, which therefore blend together in an excellent manner.

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

FIRST NOTICE.

THE Fiftieth Annual Exhibition of the Royal Photographic Society was inaugurated at the New Gallery, Regent Street, London, on Wednesday last, with a private view and soiree. The attendance at both the afternoon and evening functions was large, and included a great number of notabilities in the photographic world. The president of the Society, Major-General J. Waterhouse, I.A., received the guests in the evening, and amongst those present were:—Messrs. J. C. S. Mummery, H. Snowden Ward, A. W. W. Bartlett, Frederick Hollyer, H. Wilmes, W. E. Downey, W. P. Downey, W. T. Greatbatch, Mr. and Mrs. E. J. Humphery, John J. Veizey, Alfred Ellis, Oliver Pike, B. Gay Wilkinson, J. C. Warburg, Frank Turner, C. Welborne Piper, Richard Kerr, F.R.A.S., T. E. Freshwater, Arthur Marshall, A. A. K. Tallent, Bernard Alfieri, S. Herbert Fry, F. A. Bridge and Mrs. Bridge, F. J. Mortimer, C. B. Howdill, A. J. Newton and Mrs. Newton, George E. Brown, Miss Connell, Ernest Marriage, G. W. Norton and Mrs. and Miss Norton, P. R. Salmon, R. F. Carnegie, E. W. Houghton, Dr. E. König, Jules Fuerst, J. H. Baldock, Lady Ebury, J. S. Teape, G. Lindsay, Johnson, M.D., W. Rawlings, Thomas K. Grant, C. E. Kenneth Mees, Edmund A. Robins, C. H. Hewitt, J. W. Marchant, James A. Sinclair, Thomas Bedding, W. H. Harrison, Leslie Selby, C. G. Zander, H. Lenier, W. F. Butcher, H. Armytage Sanders, A. Brooker, P. Bale Rider, R. R. Beard, Miss K. Smith, Rev. F. C. Lambert, A. Haddon, R. Thiele, J. Hay Taylor, Miss Isabel Taylor, W. H. Rogers, W. J. Croall, J. W. Eadie, A. Horsley Hinton, J. Grubb, J. H. Agar Baugh, Cavendish Morton, Otto Fulton, J. Brown, Harold Hood, S. G. Kimber, S. J. Beckett, M. Arbuthnot, H. Creighton Beckett, C. H. Oakden, A. W. Goodman, F. L. Sargent, W. H. Wilshire, G. C. Whitfield, R. C. Murray, P. E. Marshall, Dr. Sutherland, Joseph Chamberlain, Dr. A. Richmond, W. H. Prestwich, Dr. A. R. F. Evershed, J. O. Grant, W. R. Stretton, W. Calder Marshall, H. C. Rapson, S. A. Pitcher, and J. H. Avery.

The exhibition was opened to the public yesterday (Thursday, September 21), and will remain open until October 28.

There can be no doubt that this year's show is a noteworthy one for many reasons. First; the abolition of the competitive element has, to a certain extent, altered the character of the exhibits in the Pictorial Section, inasmuch as the selection has been conducted on lines that have made the standard of work much higher in average quality. Secondly; the number of accepted exhibits being less than in any previous exhibition, more scope for effective arrangement has been possible with the hanging. Thirdly; the profession and the trade are represented on a more extensive scale than has been the case for many years; and, fourthly, the groups in which the Pictorial Section has been arranged have been panelled off by indescribable comet-like bunches of cream-coloured drapery that claim attention before anything else on the walls, and will probably live in the memory of visitors long after the last impression of the pictures has faded and been forgotten.

Apart from this, however, the scheme of hanging in the Pictorial Section has been carried out excellently, and every picture is seen to advantage.

The arrangement in panels is an improvement on the hanging of some previous exhibitions of the R.P.S., and no fault can be found with the disposition of the pictures. It will be noticed that the "tail," which seemed to inevitably arise when the first three unbroken walls of the gallery had absorbed all the best and biggest work, is conspicuous by its absence this year, and the variety and character of the pictures are noticeable from first to last.

Various shades of brown seem to be the prevailing tone of the majority of the pictures, the rest being mostly blacks and greys. With the exception of a couple of red gum prints, and one in bright green, no decisive note of colour is visible on the walls.

The frames are mostly dark, and there is a great tendency observ-

able to desert heavy solid frames for thin black or brown beads and wide mounts, either white or of a colour harmonising with the tone of the print. The effect in either case is much lighter, and the appearance of the prints is considerably enhanced, especially where two or more tints are used as subsidiary mounts.

It is difficult, now that technical data is not supplied in the catalogue, to say with any certainty what measure of popularity any one printing process enjoys among the photographs on the walls, but it appears that toned bromides and carbons run each other very close as first favourites. Gum prints do not seem to be very numerous. Platinotypes are fairly so, and P.O.P. is almost entirely absent. Much work, however, is on view that has been previously exhibited in the provinces, and many of the prints appear as quite old friends.

The general trend of the exhibition is towards landscape work. Portraiture and architecture are not strongly represented, although some excellent examples of both are shown. Among the portraits, William Crooke shows a striking portrait in the Pictorial Section, in addition to a very fine collective exhibit in the Professional Section. It is a standing figure study, "Jacques Thibaud, Violinist" (41), and is in the strong yet reticent style Mr. Crooke has made his own. A plain dark background and the figure half in shadow, with the lighting so arranged as to concentrate on the features. The effect is satisfying by its very simplicity and directness, and as an example of good studio technique this would be hard to beat. F. Hollier's "Holman Hunt" (1) is less vigorous than most of this worker's productions, but nevertheless is a good specimen of clean "big" portraiture. His "Camille Pissaro" (165) is likewise convincing, but the tones appear to be wrong, and the picture is lacking in contrast. The texture of the sitter's beard is lost, and the colour is somewhat dirty. "The Fur Cloak" (174), by Fredk. T. Hollier, is also rather dirty in tone, but as a portrait it has a fine painter-like touch that calls for commendation. "Portrait of an Indian Civil Servant" (17) is the title of a large head study by Dr. Chas. F. Grindrod. This is a good example of a somewhat heavy style of portraiture. It would be improved with a little more detail on the shadow side of the face, which is now entirely lost in the background. The insistence of the bolting cloth texture introduced into this print is not so displeasing as it would have been in a portrait with less breadth of treatment.

Two portraits by John Smith are notable as portraying two notabilities in the photographic world, "C. F. Inston, Esq., F.R.P.S." (26) and "Dr. C. Thurston Holland, F.R.P.S." (32). Both prints are vigorous little platinotypes; but surely Mr. Inston is not such a fierce, dour individual as he is here represented?

R. Dührkoop's three portrait studies are specimens of sound professional work, but one of them, "Studienkopf" (55) is somewhat spoilt by the scratchy handwork on the background. Dan Dunlop's "Portrait Study" (34) depends more on a fortuitous model for its success than any special merit in the production of the photograph. Nevertheless it is a good character study, and is well placed in relation to the space occupied by the sitter. J. C. Strauss exhibits two specimens of his work, of which "Mrs. Brooks" (58) is the better. The other, "Miss Ringen" (52), is not very convincing, either as a portrait or a figure study, but as a composition is pleasing. Mrs. G. A. Barton, needless to say, again displays her talents as a portrait photographer, and continues, in three of her contributions, to rely upon familiar models and formulæ for lighting, pose, etc. "The Mother's Kiss" (33) is, however, rather less hackneyed than usual, and contains some beautiful lines and tones. "A Churchwarden" (169) is very strong, and is one of the best character studies Mrs. Barton has yet given us. "A Parting Glance" (74) is a very typical "Barton," but not nearly so good as many previous photographs

of this same little girl. Pirie Macdonald's "Portrait Study" (135) is disappointing, and cannot, we imagine, be regarded as a specimen of the normal studio work turned out by this celebrated photographer. It is presumably a gum print, but is very dirty in tone and texture, and uncertain in shade and line.

"A. C. C. Jahn, Esq." (149), by D. Murray, is a good portrait, but rather too low in tone, and not high enough in the frame. The sitting figure is thus rendered rather squat and awkward. Pierre Dubreuil's exhibits are always interesting, and the examples he shows here are no exception. "The Fish Bowl" (25) is a variation of a similar subject treated by this worker several years ago. "Portrait of Mr. Debaene" (161) embodies an extraordinary concentration of light behind the sitter's head. This would be more effective if the handwork by which this effect was obtained were a trifle less obvious. The same remark applies to "Portrait of Mr. Giffard" (220), which is practically a silhouette. "Miss S. D." (182), on the contrary, is dainty in the extreme, and resembles a delicate little pencil sketch. "Whitworth Wallis, Esq.," by Miss Marian Silverston is a strongly lit portrait, and is evidently "a good likeness." One feels that the character of the man is portrayed very clearly here. H. H. Pierce's fine portrait study, "The Painter" (212), is one of the best of its kind in the exhibition, but is unfortunately rather marred by the white mount, which tends to kill the heavy tones of the print. "The Rt. Revd. John Dowden" (246), by John Moffat, has the charm of spontaneity, and is also a very pleasing composition.

The foregoing practically exhausts the portraiture in the Pictorial Section. The landscapes, with one or two exceptions, are not large in size this year, but make up in quality what they lack in quantity. J. C. S. Mummery's landscape work in gum is good, as affording examples not only of the application of the process, but also, as usual, very perfect specimens of composition. "The Mimram" (85) is perhaps the least pleasing. It is somewhat hard, and the sky appears rather blank. "January" (95) is very fine, and will probably be considered the best landscape in the show. It depicts a roadway in winter, with bare trees and snowy cart-ruts. The distance is beautifully rendered, and the whole tone of the picture is admirable. "Portsmouth Harbour" (4), by Bertram C. Wickison, is a fine composition, and a good idea of space is conveyed by the sails and reflections of some fishing boats in the near foreground, contrasting with battleships and docks in the distance. The effect of light upon the water is well rendered. J. C. Warburg's "Surf" (56) is a good arrangement of lines. A beach-wave running back over the sands and gathering volume for the return. A high sky-line and suggestion of "the front" assists the composition of the picture, and helps to accentuate the delicate tones of the surf and sand. W. T. Greatbach's "Evening—Caen" (122) conveys a wonderful rendering of limpidity in the water of the old harbour depicted. The tone and general effect of this picture is restful, and carries out the title admirably. Arthur Marshall's "Shade" (45) is another example of this clever worker's versatility and ability to see a composition in the most simple and ordinary materials. A courtyard paved with broken, uneven stones and an effect of light and shade, that is all, but a most delightful study in tones and lines is the result. Percy Lewis's "Fish Hawkens—Venice" (217) is not so successful as some of his Venetian street scenes. The pose of the principal figure is awkward, and although the technique is perfect, the somewhat unsuitable frame detracts from its value. Three very heavy gum prints by M. Arbuthnot will attract attention by their murkiness. "Eventide" (101) and "Before the Storm" (111) are fairly plain, and if not quite so dark and dirty, would be very strong indeed. "The Bridge" (141) is altogether too submerged in gloom for anything beyond the outlines of the subject to be deciphered. "Water Buttercups" (206), by Ernest Marriage, is a beautiful little study, very delicate in tone and decorative in treat-

B. Gay Wilkinson's "Early Spring" (109) is a little gem. As a landscape study it is the most perfect of its type in the collection. "A Spring Tide and a Flowing Sea" (92), by F. J. Mortimer, is one of the best of this worker's exhibits. It depicts a foaming breaking over rocks, and the composition is considerably assisted

by a fine bank of clouds leading down to the principal point of the breaking waves.

Further notes on the Pictorial Section will be given in our next issue. The Technical, Professional, and Trade Sections will also be dealt with later.

THE PHOTOGRAPHIC SALON.

SECOND NOTICE.

Our second visit to 5a, Pall Mall East, strengthens our belief that the Photographic Salon this year is far in advance of any previous show mounted by the members of the "Linked Ring." The "photogenic" element, which has on more than one occasion been somewhat conspicuous by its absence, much to the amazement of the sophisticated visitor, is very strongly in evidence in the present edition. Our professional friends, too, will find much that is interesting and striking in the way of portraiture.

As we mentioned in our preliminary notice last week, there is a proportion of the pictures on view which can only claim attention as examples of handwork, but in most instances these are to be found among the American and Continental exhibits.

Prominent among the English portrait work are the examples by Craig Annan, Frederick H. Evans, and Frederick Hollyer. The portrait of Miss Jessie M. King by the first-named we referred to last week, and a close inspection of this delightful work will repay any photographer interested in the correct portrayal of textures. It is a three-quarter-length figure study, and not only the pose, but the qualities of the photography, both technically and pictorially, are as good as one can wish for. The lighting is simple and effective, and the texture of the background gives a grainy effect the whole that is very pleasing. "E. A. Hornel, Esq.," is another excellent portrait, as also is "J. Cleland, Esq., M.D., F.R.S." Mr. Annan's two other exhibits, "Portrait of Mrs. C." and "R. B. Ingham-Graham, Esq.," should likewise be studied carefully, the latter in particular showing how the Velasquez-like type of face has been turned to the greatest advantage.

Frederick H. Evans's contributions include only two architectural studies, and although we may be gainers by Mr. Evans's portrait work, we confess to being disappointed at not seeing more of his specimens of architectural photography. "A Watchful Prior—" and "Afternoon Sun in Wells Cathedral" are, however, very representative. Of his portraits, "George Bernard Shaw" is the best. "A. Horsley Hinton" is the least pleasing. "Churcher Smileth" is straightforward, and those who are familiar with that versatile humorist, Mr. Walter Churcher, will appreciate this picture to the full. Frederick Hollyer and Frederick T. Hollyer, his son, are responsible for four portrait studies. The finest of these is of Frederick H. Evans, by Hollyer, sen., and is a striking likeness of the secretary of the Linked Ring. The poise of the figure, the position it occupies in the frame and the frame itself are all in keeping and can be regarded as one of the best things Mr. Hollyer has done. "S. Solomon" we do not care about. Both pose and expression are strained, and as a portrait study does not appear to be good, although as a composition it may be a success.

Frederick T. Hollyer's two portraits are curiously tinted. Whether this is due to three-colour work or other means is not quite clear, but the results are not pleasing, and the tinting is weak and unconvincing.

J. Cruwys-Richards has one or two portrait studies that are interesting examples of composition and lighting. The best of these is "Portrait of Mrs. C. Richards"—a strong profile study. All Mr. Richards's work is, we presume, in the gum bichromate process.

Of the American portrait work, that of A. L. Coburn is the most noteworthy, not altogether on account of its quality so much as its

quantity. Five specimens of this photographer's efforts are placed in a row and other examples of his work, not portraiture, are hung near by. The placing of five large portraits thus adjacent to each other, and all alike in character and mounting, is a very good test of the value of this type of photography would have in the average professional's show case. We do not think that in England they would fetch, in the ordinary way of business, five guineas each, which is the price Mr. Coburn has fixed for them. We cannot, however, deny that these portraits are very fine in many ways. The subjects are treated broadly and the photography is sound. The characteristics of each sitter, too, appear to have been caught effectively, which redounds to the credit of Mr. Coburn. The portraits of Solomon J. Solomon, R.A., and Mark Twain are the best of the series.

Portraits by Edward J. Steichen, Mrs. Gertrude Käsebier, and J. T. Keiley are of the most advanced type of impressionism, but are unquestionably strong and pictorial, as also is the portrait study by Miss Landon Rives—"Mrs. H." We miss, however, the clean, strong work one is accustomed to associate with the leading portrait photographers of America, and expect, if it was submitted at all, it received the same treatment at the hands of the American Links that the work of many leading British professionals would receive from their English confrères. The French portrait work is somewhat emotional, but is frequently strong. Most of it, needless to say, is in gum, and the work of Demachy and Puyo is easily identified. Two contributions by R. Le Bégue are exhibited, we presume, as evidences of misplaced energy and ability. They represent pages from an artist's sketch book. One contains three unfinished nudes and the other three heads. When it is considered the amount of trouble, labour, and material that has been expended in producing what, at the best, resembles but an unfinished note or two jotted down for reference and economy in a sketch-book, any beauty that these productions may possess is entirely lost sight of in the absurdity of the method of producing them.

We are glad to note several examples of the work of R. Dührkoop on the walls. This photographer is in the front rank in Germany, and the specimens here shown are very fine indeed. "Gruppe," a delightful composition of mother and child, is worthy of very close study. The pose of both figures and the spontaneity of the little one's expression are perfect. "Bildnis des Dichters Gustav Freussen" is also a fine study, and can be regarded as a good model for the portrait photographer to copy.

Dr. F. V. Spitzer has also a couple of fine portraits. These are large heads, and are quite strong and vigorous in their lights and shades. Among the other foreign work, red gum prints and portraits in four or more colours are very noticeable. To the ardent "gummist" the productions of G. Grimpel, Mlle. C. Laguarde, A. Hachette, P. Dubreuil, Th. Mahéo, and A. Hachette will undoubtedly appeal, as also will some other examples of Steichen's work. The Americans also have several specimens of coloured gums, but their effects are generally more weird than the French productions. Alfred Stieglitz, however, shows one or two excellent photographs, of which "Going to the Post" is the most striking. Clarence White, C. Yarnall Abbott, William B. Post, Harry C. Rubincam, and R. Eickemeyer, jun., are among those representing American pictorial photography. The pictures by Heinrich Kühn are noteworthy, if only on account of

their undoubted strength and breadth of treatment. "Tuder Düne" is a fine composition, and its fuzziness is not altogether unpleasant if the idea that it is a photographic production can be dispelled.

The landscapes at this year's Salon are—on the whole—very strong and run the portraits close in point of interest.

Charles Job, Alexander Keighley, and A. Horsley Hinton have each got several representative pictures on view, but in each case these exhibitors have not reached the standard set by some of their previous work. Charles Job, for instance, has nothing here to touch his "Evening Calm," "Sheep and Lambs," or "On the Arun." The best of his series is "Low Water—Evening," but this does not appear to have the finish of the pictures mentioned. The sky is too theatrical and the general effect is hard. Alexander Keighley's four pictures are, as usual, strikingly complete in the matter of composition, but they do not show to advantage in the strong light of the present gallery. There appears to be no depth in the shadows, and the appearance of each print is flat and lacking in contrast. This is particularly observable in "The Al-fresco Bath," which has for its subject an Italian wayside fountain, in which a small boy is being bathed by his mother. Here the beauty of the composition and the whole appearance of the print would be enhanced if the stone arch above the fountain was several tones lighter in colour.

The landscapes by A. Horsley Hinton are large, as usual, but do not seem up to his usual standard. "Hill Top" is, perhaps, the most striking, and we fancy we have seen this subject before. If we mistake not this picture, or another remarkably like it, was hung in the same position at the last exhibition held by the Royal Photographic Society in these rooms. The keynote of this composition is simplicity, and for that reason is more effective to us than the rather over-elaborated "In Airedale." "Rylstone" is, however, more in Mr. Hinton's usual style, but none of his works this year are quite so satisfying as many of his previous efforts. Charles Moss has only one print at this exhibition. It is, of course, a large and somewhat heavy gum print, and shows, as usual, a great amount of handwork on the print. It is called "Chaldron Bay." F. J. Mortimer's "Peace," although a seascape, is somewhat out of his usual groove, as it includes a sailing vessel. It is a very effective study of sunlight, calm sea, and mist. His two other seascapes, "Abandon" and "Strife," are as good as anything he has yet done. The former is a horizontal composition with a huge roller sweeping right across the picture and dashing on the rocks to the right, and the latter reminds us of "The Reef" of last year, but is stronger in light and shade and has more action.

Will Cadby shows several of the dainty little child studies we have been led to expect from him, and Mrs. Cadby's sole contribution, an extraordinary cat study, is unworthy of the producer of the beautiful photographs of flowers and grasses we have been accustomed to from her. George Davison has three typical landscapes this year, of which we like "Molesley Lock" most. "A Wet Sun" is also very pictorial. Ward Muir again gives us three examples of his powers to make one small piece of printing paper serve for three exhibition pictures. They do not altogether demonstrate that quality is better than quantity, but "In Roquebrune" calls for most attention, apart from the fact that it is the largest of the three. Reginald Craigie has only one picture this year, "Bernadette," a straightforward photograph of a little girl, which is pleasing on account of its simplicity.

Mrs. G. A. Barton's work is very unmistakable, and, with one exception, her child models are again in evidence. The exception is a fine study of an old man, "For the night cometh when no man can work." Apart from its rather unconventional shape, this is one of the best examples of figure work we have seen from Mrs. Barton. E. T. Holding has several strong figure subjects, of which "Music" is a very pleasing arrangement of two models. The lighting in this

composition is rather hard, and suggests flashlight. Arthur Marsh has three very good pictures: "A Dusty Day," being not only remarkably fine composition, apparently a snapshot, but giving a splendid idea of action and perspective. "The Frontier" is an uncommon arrangement of lines, and its very unconventional makes it attractive. It represents an unbroken line of tall, gaunt trees by a river's bank. David Blount's pictures are, as usual, rather low in tone and scratchy in execution. "The Columbine" is perhaps the best. Archibald Cochrane has four interesting pictures, of which "The Barrel" and "Mont St. Michel" are most striking. The latter has a remarkably fine cloud effect. Eustace Calland's pictures are, as usual, clever, but, with the exception of "The Village Inn," do not quite reach the standard of his "Hanover Square" of last year. Dr. E. G. Boon shows a couple of fine little genre studies and a landscape. Walter Benington's work is disappointing, "A Rosebud" being about the best of his series. A fine study of light and shadow is shown by A. J. Anderson in "Curbed," which depicts a locomotive in a smother of smoke and steam. A. H. Blake and J. H. Anders both have several good prints, and Edward Seymour has one of the technically perfect fruit studies. We miss, however, the beautiful fruit and flower studies that Mr. J. M. Whitehead used to treat us to. We have instead a couple of quiet but very perfect little landscapes. J. C. Warburg's two efforts are seascapes. They are quite meek and demure, and one of them, "Backwash," has a break in the wave that appears to be nicely combed and curled. The secret of J. M. C. Grove's "Winter Gloom" is locked up in the author's bosom, and we have our doubts whether G. E. H. Rawlins's "Woodland Pool" is hung the right way up. Miss Constance Ellis has a dainty little picture, "Casablanca, Morocco," which, although good, is not so welcome as this clever lady photographer's figure studies. Mr. Warburg, Miss Marian Silverton, Cavendish Morton, W. Thorne, Fred. Judge, Charles F. Grindrod, W. A. Stewart, A. W. Hill, Chas. H. L. Emanuel, and J. Page Croft have also examples of their work on view, but space does not permit of more than a reference to them. The exhibition remains open until October 21, from 10 a.m. to 6 p.m. on Monday and Wednesday and Saturday evenings from 7 p.m. to 9.30 p.m. As in former years the general committee invite their visitors between 4.30 and 5.30 to a cup of tea.

R.P.S. EXHIBITION.—A good programme of lantern lectures has been arranged to be given in the North Room at the New Gallery on Monday, Thursday, and Saturday evenings at eight o'clock. Tomorrow (September 23), Mr. A. Brooker will give a lecture on "Winchelsea and Rye"; on Monday next (September 25), Mr. S. Beckett will show a series of "Alpine Pictures," and on the following Thursday "A Journey to Fanatical Fez" will be the subject of a lecture by Mr. J. H. Avery—by request.

INTERNATIONAL SOLAR RESEARCH.—A conference of the International Union for Co-operation in Solar Research will be held on the 27th inst. at New College, Oxford, by invitation of the Warden and Fellows of the College. The subjects of discussion will include the fixing of standards of wave length in spectroscopic research, co-operation in the measurement of the intensity of solar radiation, co-operation in recording solar phenomena by means of photographs of the sun, disc, spectro-heliograph records and observations at the limb of the sun.

ST. MATTHEW'S (BOOTLE) CAMERA CLUB announce their second annual exhibition will be held in St. Matthew's Parochial Hall, Thornton Road, Bootle, on November 16. There are three open classes. H. Tempest, 78, Thornton Road, Bootle, Liverpool, is the hon. sec.

Photo-Mechanical Notes.

Film Lantern-slides by Lithography.

Attention is called in the "Zeitschrift für Reproduktions-technik" to the advantages of a light, flexible lantern-slide or one on glass in point of price and handling in the trade, and to the drawbacks of the transfer process by which the slides are usually made. An excellent substitute for the transfer process, and one productive of a slide which can be cheaply produced and cheaply transmitted through the post, is based on the use of hardened gelatine, on which the pictures are printed direct from stone without difficulty, and the results of which are satisfactory, provided a proper selection of colours is made. For stone-printing on gelatine, the gelatine sheets should be uniform, and as thin as possible without risk of breakage. Uniform transparency is naturally a *sine qua non*, and suitable gelatines can be obtained from a number of manufacturers. The sheets are dusted over on the sides to be printed with a soft brush, and then, immediately before laying on, with a soft brush. The machine must be worked very slowly; the inking must be good, and liberally applied, and what is most important, the ink must be very slightly dampened. In regard to the inks, it must be borne in mind that all body colours will appear absolutely black in the projected picture, and are only to be used for outlines, for which purpose pigments of intense covering power should be chosen. For all other purposes, the transparent, "lasur," colours should be exclusively employed. Mineral colours, such as chrome yellow, etc., cannot be used, and the "Krafft" reds have also far too great covering power. In exposing colours, the picture must be judged by transmitted, reflected, light, and a colour must be chosen flatter—i.e., more faded—than for an impression on paper. The ink is mixed with sufficient fixative for the quickest drying practicable, as the prints have all to be laid out to dry by free exposure to the air, the gelatine, unlike paper, absorbing none of the ink. After an interval for drying of from six to eight hours, the second printing can be done, and so the process is continued. It is advisable to apply the colours in order the reverse of that for paper—viz., blue, red, and, lastly, yellow—the key plate being printed first. The printed transparencies are completed by cutting up the sheets and binding up each picture with a somewhat outer piece of gelatine.

Increasing the Sensitiveness of Bichromated Fish-glue and Albumen.

In the current issue of "Photographische Korrespondenz" Herr Tschörner, of the Vienna School of Graphic Arts, describes the results of the process for imparting greater sensitiveness to fish-glue and albumen printing solutions by addition of dyes. The formulæ examined by Herr Tschörner are those of MM. Calmels and Clerc, published some months ago, and reported in "Photo-Mechanical Notes" for June 16, 1905. Two plates were printed side by side, one dyed and the other undyed. The dye used was the purest erythrosine (tetraiodo fluorescein), of Grote, Basle, and it was added to the sensitiser in the proportions of .05, .1, .15, and .2 per cent. but in no case could any shortening of the necessary time of exposure be noticed. On exposing both plates for half the time required for the undyed plate, both floated off on washing in water, the dyed as well as the undyed. Further than this, when the undyed film was correctly exposed, and a film containing .05 and .1 per cent. of dye exposed for the same period, the strongly stained film was insufficiently printed: the dye had lowered, instead of raised, its sensitiveness. Similar results were obtainable with albumen, and convinced Herr Tschörner that the dye in his experiments acted strongly as a screen, and thus lowered the sensitiveness of the plates.

Patent News.

Process patents—applications and specifications—are treated in *Photo-Mechanical Notes*.

The following applications for patents were made between September 4 and September 9:—

PRINTING MACHINES.—No. 17,896. Improvements in photographic printing machines. George Hana, 22, Bedford Street, Strand, London.

PRINTING FRAME.—No. 17,908. An improved photographic printing frame. John Batty, 124, Willis Street, Lozells, Birmingham.

No. 18,195. An improved photographic printing frame. William Gale, 4, Smarts Lane, Loughton, Essex.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

DAYLIGHT DEVELOPMENT.—No. 19,164, 1904. The claim is for a camera into which is built a vertical tank to which the plate is transferred from the dark slide, and in which it is developed and fixed. The apparatus resembles others in which this plan has been advocated. Hans and Hugo Tirmann, Pielach, near Melk, Austria.

STEREOSCOPES.—No. 21,637, 1904. The claim is for a portable stereoscope, consisting of two portions hinged together, the one of which carries the lens, and the other the view carrier, as shown in the

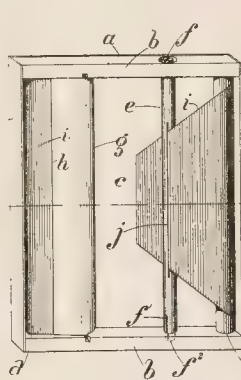


Fig. 1.—The film package.

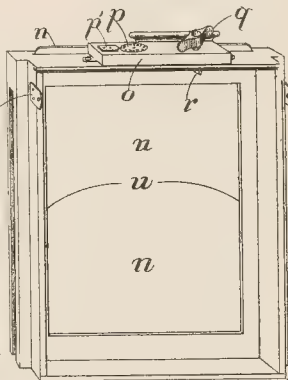
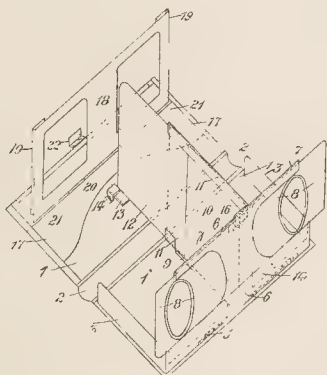


Fig. 2.—The exposing chamber or adapter.

figure. The case may conveniently be formed as a book cover having a hinged back, 2, whereby it may be opened out flat. On one side (or both sides) of the hinged back, 2, the sides, 3, of the case or cover may be turned up at right angles as shown to represent the side edges of a book when closed, and to form a support for the opposite half of the case, 1. On the front edge, 4, may be fitted, by a joint or hinge, 5, a shaped piece to form a lens carrier, 6, with folded-over edges, 7, at top and bottom to permit of the lens-holders or frames, 8, sliding therein, whereby they may be laterally adjusted to the eyes of the user. In or about the centre of this same half, and extending inwardly at a right angle to the lens carrier, may be fitted by a joint or hinge, 9, a piece forming a screen, 10, with folded-over edges, 11, at

top and bottom, which form guides within which a slide, 12, is movable to form an extension of the screen. On the upper edge of the screen, and adjacent to the lens carrier, is formed a lip or bent piece, 15, adapted to fit into a catch piece, 16, attached to or formed on the upper and inner folded edge of the lens carrier, so that the screen and lens carrier are held firm when in an upright or open position. On the opposite half of the cover are grooves for a sliding view carrier, 18, the side edges, 19, of which are bent over to retain the stereoscope views in the carrier 18, the latter being preferably made as shown as a double



frame, hinged at 20 to a flat slide, 21, whereby it may be folded flat when out of use. Sidney Herbert Bath, 97, Grove Lane, Camberwell, London, S.E., and the Rotary Photographic Co., Ltd., 12, New Union Street, Moorfields, London, E.C.

NON-INFLAMMABLE CELLULOID.—No. 22,381. The admixture of boric acid with nitro-cellulose and camphor is claimed as a method of producing a non-flammable celluloid. W. C. Parkin and Alfred Williams, Damstead Works, Bronfield, Sheffield.

ROLL HOLDER.—No. 190, 1905.—The invention relates to a system of daylight-loading roll film, in which the protecting wrapping of black paper is dispensed with. The packet of sensitive film to be exposed in a chamber or adapter which can be adapted to any camera, consists of a shallow box of wood, or other suitable material, of sufficient width to allow the film in use to run freely, but without too much play. The length and width of the box are sufficient to allow of the usual exposure aperture, and the depth to accommodate the roll of sensitive film. Immediately behind the exposure aperture in the front of the box is fixed an opaque partition, which is fitted in a light-tight manner to the sides. This partition may be of thin sheet metal, cardboard, etc., and is of such a length that it extends nearly the whole length of the interior of box, the ends being rounded to allow of the smooth running of the film in the process of changing, and a narrow slit being left at each end through which the film passes. The slits may be lined with plush or velvet for the purpose of making the package perfectly light-tight. At a convenient position behind the partition is provided a small pivoted roller, *e*, extending from side to side of box, and is intended to receive the exposed film. The ends of roller are pivoted into the sides of box, and one end projecting through is provided with a slot or key-way to engage with the lower part of winding handle contained in the adapter. The charge of film is provided with a tab of paper, which is threaded through the aforesaid slits on to the roller, which may be furnished with a threading slit in the manner of ordinary film spools. The tab is of sufficient

length to extend completely round the partition, across the exposure aperture, and thence to the receiving roller, around which it should take several turns to ensure a certain grip. The roll of film is simply a hollow roll, of the necessary length and width, which is kept in place by means of a wire or rod extending from side to side of box through the centre of roll, or the wire or rod can be dispensed with and the roll allowed to run from one end to the other, it is fed off. After the charge of film is threaded as described, the cover of the box is fitted on and the joint covered with a pasted strip so as to form a light-proof package, and this package will form an article of commerce, it being of so little value that it can be discarded after once using. The adapter is made in the following manner:—To one side of a rectangular frame—of suitable dimensions to receive the film package in use—is hinged a back cover. On the opposite side a flat frame is fixed, containing an exposure aperture similar to the frame of a dark slide, and, like the slide, is furnished with a sliding opaque shutter for the purpose of exposing the sensitive film when the adapter is removed from camera. During the process of focussing or for other purposes. At one end, and on one side opposite to the end of the aforementioned shutter, is provided a winding handle, which is extended downwards to form a key which engages in the recessed end of the roller, and allows of the film being wound up as many exposures are made. The key is adjusted to enter the key-way when placing the package in the adapter. In connection with the winding handle, a device can be provided for the purpose of recording the number of exposures. The claim is confined to the construction of a roll holder in such a manner as to make it commercially practicable to adapt it to the system of daylight loading (other than the well-known plan of daylight loading of spools or cartridges in which the sensitive film is wrapped round a core of wood and is protected with a strip of black backing paper considerably longer than the film itself) and to detail a mechanism for correctly spacing and automatically locking the winding handle when sufficient film is wound off for the necessary exposures. Although a plain roll of films appears to be most suitable to the new system described herein, it would be quite possible to use it in connection with paper-backed film. The package in this case would necessarily be more bulky than a given length of film. William Albert Edwards, 51, Vant Road, Tooting, London, S.W.

A MODIFIED GUM PROCESS.—No. 11,077, 1905. The invention relates to pigment bichromate processes, and lays stress on the method of manufacture, in which the paper is first coated with a solution of colour and then with a layer of bichromated albumen, or albumen to be bichromated. It is claimed for this method that it has the advantage that the layer of colour will not become dissolved and intimately mixed with the layer which is used as a carrier for the sensitising medium when it is quickly applied. Beautiful brilliant shadows with dull lights and properly graduated half-tones will thereby be obtained. Another important advantage is that the time of exposure indicated by the photometer need not be altered in accordance with the different colour of the pigment paper, as the light always passes through a uniform uncoloured upper sensitive layer, whereas, if the layer of colour is at the top, as in ordinary carbon or pigment paper, it acts as a light-filter or screen. Properly sized paper is coated with a soluble layer of colouring matter in a uniform manner and dried. Then a solution of bichromated albumen (say 10 parts by weight of albumen, dissolved in 100 parts by weight of bichromate of potash 1:10) is applied over the layer of colour, or, instead of this solution, a colloid substance, such, for instance, bichromated dextrine (1:2), may be used, and the whole

is left to dry again. The paper is now ready for use, and the printing is accomplished with the aid of a photometer, whereupon it is soaked in cold water and developed, say, with a brush. Owing to the action of light, the colloid surface, and the colour under it, will become more or less insoluble, according to the exposure and owing to the thin layer of colour and colloid, the finest half-tones are produced. Karl Pflanz, 30, Graben, Linz a/D.

News and Notes.

From the Northampton Institute, Clerkenwell, E.C., we have received the programme of lectures and laboratory courses contained in almost every branch of technology. The official department, under the direction of Mr. S. D. Chalmers, B.A., M.A., represents the branch of instruction for which students of photography are most likely to visit the Institute, inasmuch as photographic optics receives a notable place in the curriculum. The following extracts from the syllabus of Mr. Chalmers' lectures on optical instruments and "Design of Optical Instruments" will explain the aims of the teaching executive:—Photographic apparatus (eight lectures, October 31, 1905–December 19, 1905).—Construction of cameras. Details of adjustments; simple landscape lenses; importance of stop as regards illumination and correction of defects. Nature of defects, their influence on image; symmetrical objectives, modern forms. Effect of light on photographic plates—orthochromatic plates and screens; requirements of colour photography, the testing of photographic lenses. Stops, shutters, construction, and testing. Telephotography. Stereoscopic apparatus. Photographic Lenses.—Design of simple achromatic and rationally compensated landscape lenses, use and position of stop; distortion, double objectives principle of spherical correction of aberrance and exit pupils; curvature of field condition for flattening, achromats; anastigmats, Rudolph's principle, illustrations of lens lenses; convertible anastigmats and their design.

The sixth annual exhibition of the Burnley Camera Club will be held in the Assembly Hall, Mechanics' Institute, Burnley, from November 16 to 18. There are four open classes, and four for local photographers. Entries close November 8, and exhibits must be delivered at the Mechanics' Institute by November 14. Mr. F. Under is the hon. sec., and applications for entry forms must be made to him at above address.

A PHOTOGRAPHIC exhibition will be held on February 20 and 21, 1906, at the Royal Albert Institute, Windsor, under the patronage of their Majesties the King and Queen. There are twelve classes, of which four are open. J. W. Gooch, Royal Albert Institute, Windsor, is the hon. sec.

MANY photographers, both amateur and professional, will hear with regret of the death of Mr. Samuel Blatchford Webber, which took place at his residence, Bromley, Kent, on Sunday last, the 18th inst., at the advanced age of eighty-six. Mr. Webber was a skilled goldsmith, and as recently as the Newcastle meeting of the Photographic Convention gave a practical demonstration as to what could be done with residues, by making a gold ring out of them and presenting it to the president. He was an excellent and painstaking amateur photographer, his labours dating back for a considerable period. He was vice-president of the Bromley Camera Club, and for many years was one of the trustees of the Photographic Convention, a position which he resigned only a few months since owing to ill health. The deceased was a very interesting and pleasing personality, and a courteous and kindly gentleman.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
22	Cardiff Photographic Society	"Selection of Subject and Exposure." Mr. A. E. Harris.
23	Glasgow Southern Photo. Assn.	Castle Semple. Mr. R. Lindsay.
23	R.P.S. Exhibition	"Winchelsea and Bye." Mr. A. Brooker.
23	Luton Camera Club	"Ozotype" (Gum). Mr. Thomas Manley.
25	R.P.S. Exhibition	"Alpine Pictures." Mr. S. J. Beckett.
25	Southampton Camera Club	F.R.P.S.
26	Manchester Amat. Photo. Soc.	Illustrated Lecture. "A Founder of Empire." Mr. F. G. Ryder.
26	Southampton Camera Club	"Lantern Slide Making." Mr. F. W. Parrott.
28	London and Prov. Photo. Assn.	"Art by Photography." Rev. H. W. Dick.
28	Handsworth Photographic Soc.	"Portrait Photography." Mr. C. H. Hewitt.
28	R.P.S. Exhibition	Demonstration—Lantern Slide making, by contact. Mr. R. J. Funnell.
28	R.P.S. Exhibition	"A Journey to Fanatical Fes." Mr. John H. Avery.

BRISTOL PHOTOGRAPHIC CLUB. This club has decided to remove to more convenient premises. A good suite of rooms (including a dark-room) has been secured from the Committee of the Y.M.C.A., St. James's Square. The opening of the winter session will take place there on Tuesday evening, October 3, when Mr. Morris B. Fowler will give a practical demonstration and paper on "Exposure and Development."

ATTERCLIFFE PHOTOGRAPHIC SOCIETY.—A meeting of this society was held in the Friends' Meeting Room, Leeds Road, on Monday night, when Mr. A. Birtles gave a lecture on the photographing of clouds.

The opening meeting of the Blairgowrie Photographic Association for the winter session was held on Tuesday night last, when a paper on Turner's "Liber Studiorum" was read by Mr. H. D. Ross, vice-president.

The annual meeting of the Keighley Photographic Association was held last week. The report of the secretaries (Messrs. H. E. Haggas and W. H. Hainsworth) showed that the membership had decreased from eighty to seventy-six, and the treasurer (Mr. E. P. Heaton) announced that the balance of £18 13s. 7d. at the beginning of the session had been reduced to £3 0s. 5d. There were several sums still to come in. The following officers were appointed:—President, Mr. W. Robershaw; vice-presidents, Messrs. F. Mahony, C. H. Smith, J. G. Dickinson, W. H. Hainsworth, and T. Heaps; treasurer, Mr. H. E. Haggas; librarian, Mr. F. Gill; lanternist, Mr. A. Stell.

DEVONPORT CAMERA CLUB.—The annual meeting of this club was held on Tuesday last. The Committee reported that the progress of the club continued in every way to be satisfactory. The membership showed an increase, and the attendance had been exceedingly good at the twelve meetings. Mr. W. Treglohan was elected president, Messrs. A. J. Catford and J. F. Coombes were re-elected hon. secretaries, Mr. F. B. Langdon was re-elected hon. treasurer; Messrs. W. H. Mayne, R. Maw, J. T. Trend, and J. Cock were elected vice-presidents; and Messrs. J. Batten, G. D. Graver, E. A. Earl, and R. E. J. Lamb the committee. Rev. H. O. Fenton, and the president were appointed delegates to the Royal Photographic Society. Mr. W. H. Lamb, auditor, and Mr. S. J. Heal, lanternist, were re-elected.

PLYMOUTH PHOTOGRAPHIC SOCIETY.—At the annual meeting of this society, held on Friday last, the hon. secretary reported a most satisfactory year's work and increase of membership. Mr. J. T. Johnson was re-elected president, and Messrs. Blanchard and A. E. Coleman vice-presidents, Messrs. W. Clayden, C. H. Dymond, W.

Grist, H. S. Hill, A. B. Fellowes-Prynn, R. A. Shapcott, and F. A. Wiblin, committee; Mr. A. W. Hicks, hon. secretary; and Mr. J. T. Trend, hon. treasurer. Messrs. E. G. Turney and H. S. Hill were elected delegates to the R.P.S.

WARRINGTON PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held at the Old Academy on September 5. Mr. Smithson, the secretary, read the report for the past year, and recorded a very satisfactory year's work. The membership stood at about eighty. The committee, however, desired to point out that unless every member of the society was prepared to do his or her best to add to the number by introducing good working members, it would not be possible to provide such a profitable series of lectures, etc., as they desired. The following officers for the ensuing year were elected:—President, Mr. F. V. L. Mathias; vice-presidents, Alderman Bennett, Messrs. J. Fairhurst, James Harding, William Winstanley, F. G. Taylor, Peter Dalton, and Mrs. Mathias; committee, Messrs. D. S. Birrell, George Nicholls, K. F. Bishop, F. W. Purse, H. Smith, G. Smith, Mrs. A. C. Smithson, and J. Dolan; curator, Mr. F. J. Eardley; auditor, Mr. Peter Dalton; secretary, Mr. A. C. Smithson; treasurer, Mr. F. Garside; lanternist, J. V. Moore, assistant lanternist, W. S. Birrell.

WINTER PROGRAMMES.—We are pleased to note, by a batch of winter fixture-cards just to hand, that there is still a considerable amount of activity to be found among the British photographic societies. From the EDINBURGH PHOTOGRAPHIC SOCIETY's syllabus we learn that some lectures of considerable practical interest will be delivered by various members. On October 4 James Burns will give "a plain talk" on "Some Essentials to Picture Making"; Archibald Cochrane will lecture on "Pictorial Aim in Photography" on December 6; and T. Cuthbert Day demonstrates "Colour Photography in Theory and Practice for Amateurs" on January 3; and "Composition and Chiaro-oscuro" will be illustrated by W. Grant Stevenson, R.S.A., on April 4. Many other good lectures are also fixed. The GLASGOW EASTERN AMATEUR PHOTOGRAPHIC ASSOCIATION has, among other attractions, a demonstration on gum-bichromate on October 12 by Dr. Andrew Richmond, "Carbon Printing" by Dan Dunlop on Oct. 26, and "Artistic Mounting of Photographs" on October 19 by J. S. Melville, "Transparencies and Enlarged Negatives" by M. Crosbie on December 14, and "Reduction and Intensification" by David Horn on December 21. The MANCHESTER AMATEUR PHOTOGRAPHIC SOCIETY also has a promising fixture list, and the CARDIFF PHOTOGRAPHIC SOCIETY and the NORTHCOTE CAMERA CLUB show all the necessary evidences of vitality. The LUTON CAMERA CLUB promises its members *inter alia* a lecture on three-colour photography on November 6 by Murray Barford, and a practical evening on "Auto-Pastel" by Messrs. Staddon and Baker on November 13. "Visual v. Factorial Development" will be dealt with by Messrs. Warren and Cox on November 20, and Dr. F. Seymour Lloyd will give a practical demonstration of X-ray work on November 27. The HANDSWORTH PHOTOGRAPHIC SOCIETY, the DARLINGTON CAMERA CLUB, and the KINNING PARK CAMERA CLUB have interesting sessions before them; whilst from the AUCKLAND CAMERA CLUB and the SOUTH AUSTRALIAN PHOTOGRAPHIC SOCIETY come programmes that prove our cousins at the Antipodes are quite as active as the photographers of the Old Country.

RODLEY, FARSLEY, AND CALVERLEY DISTRICT PHOTOGRAPHIC SOCIETY.—The annual meeting was held on the 14th inst. Mr. W. Whittaker, of Rodley, was elected president. The treasurer, Mr. Albert Matthews; the Yorkshire Union delegate, Mr. Ashby; and the secretary, Mr. Crossley. The retiring president (Mr. Gaunt) offered a prize of one guinea, and the society one of half a guinea for the two best pictures by the members at the society's annual exhibition in February next.

New Materials.

Christmas Mounts. Published by Messrs. Marion and Co., Ltd. 22 and 23, Soho Square, London, W.

The slip-in or paste-down mount for the reception of a photograph, and the final purpose of Christmas souvenirs, has been such a fixture in the photographic stationery trade, that we anticipate the arrival of new styles for the season before the sun is hardly gone. Messrs. Marion and Co. are first in the field with a list of motto mounts, all of a festive character, which run to eight pages, and includes an immense number of designs of various sizes. Amongst these there is surely enough choice in colour, style, and price to suit the most fastidious. We see Messrs. Marion include mounts for photographs of postcard size, an innovation. Christmas mounts which is interesting in view of the fear sometimes expressed that the picture postcard would seriously compete with the Christmas card as a medium of greeting. A mount postcard is, therefore, opportune, and provides a means of proving how much better the postcard looks when neatly framed and enclosed.

CATALOGUES AND TRADE NOTICES.

A SERIES of monochromatic flash-candles has been introduced by Dr. G. Krebs, and is placed on the market by Messrs. A. E. Staley and Co., 19, Thavies Inn, London, E.C. The candles are prepared to give monochromatic lights to answer the purpose of blue, green, or red filters in the exposure of plates for three-colour photography. Other forms of monochromatic flashlight are also supplied, and attention is drawn to the advantages of the new introductions for monochromatic photography under various difficult circumstances. Messrs. Staley's circular gives the prices of the candles.

Correspondence.

* * * *Correspondents should never write on both sides of the paper. Notice is taken of communications unless the names and addresses of the writers are given.*

* * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE ACTION OF METOL AND ORTOL ON THE SKIN.

To the Editors.

Gentlemen, For many years I have suffered with my hands when using amidol and metol. The symptoms used to extend to my wrists which would be a complete mass of sores, and my hands and arms itched exceedingly. I have tried almost every kind of ointment without success, but I have at last found a successful remedy as follows:—Before developing I grease my hands well with lard, then wipe them so that the grease will not affect the print. After developing I wash my hands with very hot water—as hot as I can bear my hands. When the grease is removed, I make a solution of alum, 1 oz. a pint of water, place my hands in this, and allow them to remain for a few minutes. I then wipe them, without further washing them for at least an hour. Since doing this I have had no trouble with my hands, whereas previously they were almost raw. If others who have suffered from the effects of developing as I have will try this I do not think they will suffer again.—Yours truly, F. HUGHES
Leicester, September 13, 1905.

THREE-COLOUR PORTRAITURE.

To the Editors.

Gentlemen,—In your very interesting article on three-colour portraiture you say: "Comparing three-exposure with one-exposure cameras for three-colour work, the balance of practical advantage would seem to lie with the former, for the latter are costly, more difficult adjustment, and introduce extra filters." Practical advantage is, in your mind, that if your sitter moves during one exposure all three negatives have to be thrown away, because, if he moved in the sitting, say, for the red-sensitive, that is, the panchromatic, plate, you would have a negative to be printed in blue, in which you would give in proportion to the movement involuntary predominance to the yellow and the red printing plate. I should think this is a decided disadvantage of the three-exposure camera. Now, if you had a one-exposure camera, with one lens, then if your sitter moved slightly during exposure all negatives would show the same movement, and no predominance would be given to one colour. In fact, a slight movement would not mean a bad picture; ergo, there is a decided advantage for the one-exposure camera. In the three-exposure camera three filters are required, and I am sure that in the one-exposure camera this number will not be exceeded, and if you adopt Bennetto's system (not minding certain inherent defects), only one filter is required.

Now for the costliness of the one-exposure camera. How many are in use? Are there two persons that have one, and who are also able to show some prints, say cabinet size (not chromoscope positives) taken with a one-exposure camera? Does that look as being of commercial value to manufacturers? If you can warrant an order of 100 half-plate one-exposure cameras I will do them at £6 each (without fuss), and also patent my idea (which is in practical use since September 1, 1905). Surely not very costly. Kindly remember, also, that the photographic lens is not the same to-day as sixty years ago, and apply that to the one-exposure camera of to-day and sixty years hence.

I am inclined to think that you edited last week's colour columns with the intention to challenge somebody to a reply. Complying with this, your implied desire, I hope you grant me pardon for not accepting three exposures in portraiture in three colours as best.—Yours faithfully,
OTTO PFENNINGER.

September 19, 1905.

[Speaking on the basis of what has actually been done in three-colour work, we can only adhere to our belief that the three-exposure methods have hitherto yielded the best results. We cannot dispute the theoretical superiority of the one-exposure camera, and we are convinced that eventually it must supplant the system of successive exposures. But we were writing of the methods of successful colour workers as we have known them.—EDS., B.J.P.]

RETOUCHING BY NIGHT.

To the Editors.

Gentlemen,—I do not know what the Bruce apparatus is like, or what it costs, but I know that with a white opal globe, 9 in., costing about 1s. 3d., and an ordinary double-wick petroleum lamp, I can do my retouching as comfortably as by daylight, and in winter I seldom use anything else.

The lamp and globe are placed in the retouching desk in such a position that the light from the globe strikes through the negative.—Yours truly,
OTHELLO.

MESSRS. W. H. HUDSON and W. T. D. MAKEPEACE, trading as Hudson and Makepeace, Birmingham, photographers and dealers in photographic materials, have dissolved partnership.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

E. T. Connold, 7, Magdalen Terrace, St. Leonards-on-Sea. Photograph of the Rev. E. N. Bloomfield, Guesting, Hastings.

A. J. Sanders, 18, Mill Street, Bideford, Devonshire. Photograph, Hoggs Corner and Totten Hall, Bideford.

J. Seckington, Willoughby, Rugby. Photograph, Postcard, showing a man riding a pig.

J. H. Willman, 6, Cromwell Terrace, Eastney, Portsmouth. Photograph of Lunch at R.M.A. Sergeants' Outing, Rookesbury Park, August 24th, 1905.

Criticism of Retouching.—Readers desiring criticisms of their retouching should send two prints from three negatives, in each case, one before and one after retouching. The prints should be on glossy paper, and the subjects, an aged person, a young man or woman, and a child. It is impossible to give useful criticism upon the evidence of a single print.

E. R. (Lewes).—There is no demand among makers. Occasionally a small advertisement will find a buyer for them.

A MIDGET QUERY.—I will hask you a kvestin, of you dont mind to anser me. I hav by a camera for midgest, she was whit 9 lenses of a plat cabinet. The midgest was very small and I mandet from a cabinet plate of a plate 5 x 7. the midgest shal caver oll the plate. The lenses cavert all the plates, but the midgest very good, but det is not the right proportion in the midgest. Some midgest is bigger, and some—is smaler. Will you kindle do me the faver and anser me in the fast number of your jurnal wot shel I do, the shtamps sell be right.—ISAACK.

We are not quite clear as to our correspondent's inquiry, which we print literatim and verbatim, but apparently the lenses of his camera are not all of the same focal length.

F. JOHNSON.—Our letter in reference to the copyright is returned to us "not known." We cannot say whether the copyright is registered in England. Your only course is to inspect the register at Stationers' Hall, London E.C.

THERMOMETERS.—I should esteem it a great favour if you could let me know the kind of thermometers they use for testing the temperature of solutions, and where I could procure one. Also how much do you think I ought to pay for an ordinary wall one to tell the temperature of the dark room to be correct.—L. SERGEANT.

About 2s. from any chemist, or from Baird and Tatlock, Cross Street, Hatton Garden, E.C. You can get a house thermometer for about a shilling.

VARIOUS.—1. In your opinion, is self-toning paper as permanent as that toned and fixed in separate baths? 2. Do you consider gaslight papers, Velox and the like, as permanent as the

ordinary bromide papers? I do not like the acid fixing required. 3. Why will not my silver washings precipitate, although both salt and hydrochloric acid have been added? It seems to me they used to go down all right, but lately have been very troublesome.—OTHELLO.

1. Yes, provided they are thoroughly fixed. Fifteen minutes in a bath of 3 oz. hypo to the pint of water is not too long.

2. Yes. The acid fixing-bath is not absolutely necessary, but it cannot be regarded as a source of impermanence if fixation and washing are thorough. 3. We cannot say, in the absence of information as to papers, etc. If salt will not precipitate the silver, certainly "liver of sulphur" will, but you should first add to the washings enough sodium carbonate to cause the bulk to turn red litmus paper blue, otherwise the addition of the sulphide will produce sulphuretted hydrogen gas.

PHOTOGRAPHS OF SWALLOWS.—I require a photograph of a swallow in flight. Can you tell me from whom I am likely to obtain one?—G. H. STRINGFELLOW.

Probably from R. B. Lodge, Enfield, Middlesex, or Chas. Reid, Wishaw, N.B.

VIGNETTING.—I have read with interest two articles in your journal on "Vignetting," and in both cases vignetting with a brush is referred to. I must plead complete ignorance of this method, and should be much obliged if you would enlighten me as to the way in which to go to work.—M. D.

You will find the method described in the first article in our issue of August 25.

INTENSIFICATION, ETC.—1. I intensified some negatives with an old bath of mercuric chloride and ammonia. The bath was somewhat exhausted, and did not effectually bleach them, and there are stains on the negatives. Please say how I can get them cleared; some look like silver stains. 2. I have a number of prints which are too dark. Can I reduce them safely in any way?—P. O. P.

1. It is more probable that the stains are due to traces of hypo left in the film, and there is no remedy. 2. Presuming that the prints are P.O.P., the following is a good reducer:—A: 10 per cent. solution of ammonium sulphocyanide. B: 10 per cent. solution of potass ferricyanide. Add 100 minims of A and 10 minims of B to 1 oz. of water.

RETOUCHING (Reply to R. H. C.).—The evening-dress study is very fairly retouched, being soft and well modelled—but still open to further improvement with finer working and gradation. The girl is not up to the same level, and is flat and ineffective. You should have sent us prints of both of these before retouching as well as after; otherwise how is the preservation of the likeness to be judged? The man is too weak and effeminate in appearance, and should have received stronger treatment. You can greatly improve your finish by leaving the shadows in more; and, when working the larger heads, draw further back from them, and cultivate either the bold, running-line method, or an easy and soft cross-hatch. Do not leave severe or sharp edges of lighting. With a little more thought and care you should turn out good work.

TITLES ON POSTCARDS, ETC.—1. Could you tell me how I can stamp the names on negatives, so as to print white lettering on the postcards? I want a quick and inexpensive way. Are there any rubber stamping outfits sold, and, if so, do you think them suitable? What do you advise? 2. Could you also tell me what would cause the whites in photographs, printed on postcards, to turn a pinky colour, between the toning solution and the fixing while they are washing? The last batch I did, about forty to seventy, I did not wash until complete, but placed them in a bath with common salt; then, after com-

pleting toning, I washed well and fixed; they did not discolour. What do you think the reason of their discolouring, and how can I prevent them? Have I done the best thing? PHOTO.

1. The "Nameit" lettering outfit, obtainable from your dealer, is as simple and quick a method as any. 2. Traces of hypo in the water between toning and fixing. The prints are very sensitive to hypo at this stage. There is no objection to the salt bath, though we think it is not an infallible preventive of the defect.

TITLES ON POSTCARDS.—Can you tell me how to name a postcard in black letters on a white ground as on the enclosed specimen?—O. W. S.

The titles are set up in type by a printer, and a negative made to the scale required on a photo-mechanical plate. A portion of the negative to be named is scraped away, and the wording transferred to it by the usual stripping process.

A READER FOR FORTY YEARS.—If the stain is pyro the best remover is Eau de Javelle, made as follows: Shake up 2 oz. of bleaching powder with 1½ oz. of cryst. soda carbonate dissolved in a little cold water. Filter, and shake up the undissolved residue with plain water and again filter. The solution acts strongly on yellow stain. A preparation of this kind which we can recommend is the "Anti-stain" of the Vanguard Co.

FIREPROOFING, ETC.—Kindly answer the following:—(1) How to make thin calico or gauze fireproof; (2) also how to stain oak camera stand to imitate black ebony.—C. H. F.

(1) Soak in alum 8 oz., ammonium carbonate 2½ oz., boric acid 1½ oz., borax 1½ oz., water 2½ quarts; (2) give several applications of logwood chips digested in water. Add to the decoction one or two nutgalls and some sulphate of iron, and apply two further coats.

W. K. MASSEY.—"The Half-tone Process," by Verfassor (Hiffe and Sons, Ltd.).

CHARLES MARSHALL.—1. We should try Carl Hentschel, Ltd., Fleet Street, London, E.C. 2. Stopping down, unless to a point which would enormously prolong exposure, will not help you. The lens is not achromatic, and after the enlargement has been focussed the easel must be moved in a little, the exact distance being ascertained by trial. Why not get a cheap portrait lens which is not chromatic?

RETOUCHING (PAT.).—Your retouching is second-class only. The shadows under the eyes are not well balanced, and the wrinkles in brow are too much like paint-brush marks—even wrinkles have gradation. Be bolder and better blended in your work, and break the edges of tone into softness. Cultivate the cross-hatch method for a face this size and age. A few strong lessons would do you good and increase your commercial value 100 per cent.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may occur to our readers as susceptible of improvement.

THE ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable new features of an informative nature will be added.

IMPORTANT NOTICE.—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1st, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

EX CATHEDRA.

A "Shop" Convention.

From the report of the proceedings of the twenty-first annual meeting of the Convention of the Photographers' Association of America, given in our last, and previous, issues, it will be seen that the American gathering is a very different affair from that of our own Photographic Convention. In America the annual meeting is for solid business purposes, where the main object of the members is, if we may use the term, to "talk shop." In the States there seems to be more fraternity amongst professional photographers than in this country, and at the Convention much of the time is spent in considering trade questions to the mutual benefit of all assembled. The photographer American freely gives his methods of conducting his business to his *confrères*. Evidently several of the photographers of America attach far more importance to the reception room and the lady who presides over it than do their brethren in this country. Mr. Rockwood of New York, in his paper, says: "The reception room is, after all, allowing that the standard of the work is correct, the keynote of any photographic business. Here all the honour (and profit) lies. . . . The next matter of importance, without which all fails, is a bright, tactful woman at the desk, unless the owner assumes this rôle himself, and, in my view, no man can take the place of a woman if she is fitted." Other speakers dwelt upon the importance of a competent receptionist in aiding the business. Here in England we fear this point is very much neglected. The office is not infrequently filled by a young person taken as an apprentice, or improver, at a small wage, instead of by a tactful business lady of good address. It may be argued that the business could not afford such a person, but it should be kept in mind that an experienced receptionist can often very materially increase a business by her tact in managing the customers, as well as by increasing the sales, and obtaining orders for enlargements, coloured pictures, or miniatures. We have ourselves been in many reception rooms and noticed how unsuitable was the one in charge of them for the duties to be fulfilled. Some of our professional friends, perhaps, may derive suggestions and information from the candid avowal of their business methods expressed by members of the American Convention.

* * *

Exposing in the Studio.

On the first visit we paid to a photographer's studio we remember the operator exposed with a cap, having it in his hand during exposure, presumably to mark the seconds. We may assume that this method of exposure is now obsolete, unless on the sands at Blackpool or Margate

The pneumatic shutter of the flap type has been in everyday use for something like twenty years, and is a convenience for which the photographer has to thank Mr. James Cadett. Many varieties of this shutter are now in the market, the circular bellows shutter, and two or three roller-blind studio shutters. The great advantage of these exposing devices is that they are silent, or practically so, and that the sitter is consequently unaware of the exact moment of exposure. A few years ago we met a professional worker who used a flap shutter for adult sitters, but preferred the cap for children, claiming that he could replace the cap more quickly than the shutter would close. It is possible that this was the case, and may have been due to the position of the shutter, the flap opening downwards on pressure of the bulb, and closing upwards, when the spring, perhaps weakened by age and use, would not close the flap quickly enough. One point requiring frequent attention in these studio shutters, as indeed in all shutters employing rubber in any way, is the perishing of the teats or bladders. So soon, too, do minute leakages occur in the bulb, tubing or teat, or in the connections and tap used for keeping the shutters open during focussing that if more than a minute or two be devoted to focussing and arranging the subject the flap will slowly close. One well-known flap shutter is provided with a catch which can be turned by the hand, and the shutter is then held open indefinitely. The delay in releasing this catch, however, when ready to expose the plate is a serious one, and we think shutter manufacturers might arrange a rod to pass out of the camera either at the top or side, so that it would be unnecessary to insert the hand in the camera.

* * *

Rapid Working in Child Portraiture.

Most particularly is this a serious matter in child and animal photography. With portrait lenses working at $f/4$, or even $f/3$, the depth of focus is so slight that very little movement backwards or forwards gives an out-of-focus picture. Where children are photographed at their natural occupation—playing with toys—as they should be, it often happens that after the image has been sharply focussed, the time occupied in closing the shutter and moving the slide into the place the screen occupied, and then drawing the shutter of the slide, is sufficient to allow the child sitter to get quite out of the field of view. Probably the extreme conservatism of photographers is responsible for the fact that no form of reflex camera specially adapted for studio lenses and studio work has been placed on the market. Such a camera, with a simple form of focal-plane shutter, giving exposures of, say, $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ second, might readily be constructed and used on a stand sufficiently low to allow the operator to easily inspect the image on the top. In addition to the advantage of being able to expose as soon as position and arrangement were satisfactory there would be the non-inverted image characteristic of the reflex camera. The camera could be so constructed that the mirror might be fixed out of the way if focussing in the ordinary way was required, but probably better results would be obtained if the ordinary studio camera were retained for much of the adult portraiture.

* * *

Some Record Prices.

We referred in our last issue to some of the prices fixed for pictures at the Salon, and alluded to the work of Mr. Alvin Langdon Coburn, for whose platinotype portraits of celebrities five guineas each is asked. It will, no doubt, be news to those workers who are in the habit of submitting portraits to the editors of illustrated journals, and it may also interest the

editors to whom such works are submitted, to know that Mr. Coburn frequently secures the sum of ten guineas as a reproduction fee for some of his pictures. This sum is paid for reproduction in one issue only, and is not for full rights. Many of Mr. Coburn's portraits have appeared in the "Century Magazine."

* * *

Another Celluloid Accident.

Although celluloid has been in use for many years for different domestic purposes, it is not until the last two or three that it has become noticeable for its dangerous properties. Last week another disaster was added to the list of accidents recently chronicled. A telegram from Vienna says that for the third time this year a great explosion of celluloid has taken place there. Two workmen were killed and twenty others seriously injured, and the entire buildings were destroyed by fire. It will be remembered that two or three cases of ladies having been badly burned through the ignition of celluloid combs have been mentioned lately, and it is curious that, according to the report, the explosion in Vienna occurred during the operation of polishing combs. Hitherto celluloid has not been looked upon as an explosive, though it is highly inflammable, and until fuller information is received many will doubt whether the disaster was really brought about by an actual explosion and not by the violent combustion of the celluloid. Celluloid dishes are in very general use in photography, and we have never yet heard of any accident arising from them. Some kinds of celluloid are more inflammable than others, and some scarcely at all by reason of the large amount of other material mixed with them. Still, it is well to be careful when dealing with celluloid in any form.

* * *

Portraits at the R.P.S.

In our first notice of the R.P.S. Exhibition last week we referred to many of the portraits hung in the pictorial section, and we propose dealing at length in an early issue with the professional section, which is this year unusually interesting and instructive. As this more detailed review will not appear until the period during which the gallery is open has half elapsed, we would take the present opportunity to urge upon professional workers, both in the metropolis and within easy reach of it, the desirability of paying a visit, if only for the sake of seeing the section most closely connected with the bread and butter side of photography. By way of incentive we may say that the display shows almost all kinds of professional work, and that the old-fashioned style of portraiture is as well exemplified in the show by the well-known and honoured firm of W. and D. Downey, as is the most modern work by the exhibit of William Crooke.

* * *

Cloud Effects and Cloud Negatives.

The end of September is here, and many photographers have had their annual holiday with the camera, and will do but little more outdoor work this season. It may be well to remind some of our readers that the present time is an excellent one for obtaining photographs of clouds, either as cloud studies or to use in combination printing with landscapes taken earlier in the year. There is one thing about the photographing of clouds that does not apply to landscapes and similar subjects, namely, that they may be obtained almost anywhere. From an upper window or housetop of the suburban dwelling excellent cloud negatives can frequently be secured, provided the outlook is free from telegraph or telephone wires, hence

we have the opportunity of securing a great variety of effects without even leaving home. Plates or films left over from the holiday outing, instead of being, as they sometimes are, left unused and allowed to spoil, may be profitably utilised for the purposes indicated. The mistake is often made, when developing cloud negatives that are intended for printing in to landscape subjects, of making them too thin and phantom-like, with the result that they, when printed, do not tone to exactly the same tint as the other portions of the picture. When negatives as cloud studies only are required, the camera may be pointed much more toward the zenith than when the clouds are wanted for printing-in purposes. This is also an excellent reason for securing fine sunset effects. For this work trichromatic and backed plates are an acquisition, especially those sensitised with dyes of the eosine series, and more particularly sensitive to the yellow rays. With such, the yellow screen may usually be dispensed with, as the light itself is generally of a very yellow character at sunset.

* * *

Another Red Book" Light.

As announced in these pages a few weeks ago, the meeting arranged by the R.P.S. for members of the affiliated societies takes place to-night (Friday). If the meeting is as well attended as it was last year the Chairman of the Affiliation, Mr. C. H. Oakden, who will address the delegates and members, will have reason to congratulate the organisation on its continued vitality, and the interest taken in its work. It may be argued in certain quarters that this annual gathering of the clans is of no particular benefit to anybody in particular, but with this we cannot agree. The meeting not only gives the members of societies situated in all parts of the kingdom an excellent excuse for coming to town to see the exhibitions, but by bringing the delegates of the societies together the discussion of the affairs of the affiliation which inevitably ensues, is not only good for that body as a whole, but new ideas become circulated among the societies individually through their delegates. Friendly relations are likewise fostered between the parent society and the affiliated ones. The fact that only members of the Royal and affiliated societies are admitted to-night (on production of the Red Book) is a step towards assisting the friendly feeling among the visitors, as everyone will know that everybody else present is a duly authenticated member of the organisation. The doors will be open at seven o'clock, and during the evening, in addition to Mr. Oakden's address, the 1905 Affiliation prize slides will be shown.

* * *

Certificates for Industrial Chemistry.

The Institute of Chemistry, which for nearly thirty years past has laboured, and not in vain, to exalt the status of the professional chemist, has taken a new step in the granting of diplomas for proficiency. Hitherto the Institute's examinations have been framed as a test of candidates' abilities in analytical chemistry in one or other of its branches and its diplomas of A.I.C. and F.I.C. have become recognised by municipal, Government, and other bodies as proof of qualification. The Institute now extends its examinations to include industrial applications of chemistry, and will test candidates in regard to the control of plant, the application of power and heat, and in other branches of knowledge which a chemical works manager in his varied capacities of engineer, clerk of works, and architect, as well as chemist, must know something about. In thus recognising the technics of chemical manufacture the Institute helps to cement the

bond between the chemistry of the laboratory and that of the works, and we applaud the inauguration of their scheme for the reason that the photographic manufactory, no less than any other, is destined to benefit by the services of men who can add the qualifications of technical managers to their acquaintance with photo-chemistry and the practice of emulsion making. Under the Institute's scheme the new examinations are open to Fellows and Associates of one year's standing.

PRINTING PROCESSES.

XIII.—BROMIDE PAPER.

THE development of a bromide print calls for as much attention as the development of a negative, and, probably, a little more care in manipulation. With a correctly exposed plate, the action of a normal developer carried as far as it will go will give a good negative, but with a bromide print it must not be forgotten that a somewhat different result is aimed at. The quality of a negative is judged by transmitted light, the bromide print has to be seen by reflected light, and although the development may be apparently carried as far as possible, the density of the deposit has to be entirely different. The difference between the thickness of the emulsion on a dry plate and that on bromide paper allows this to be accomplished with the least amount of trouble, and, although development can be pushed sufficiently far with a bromide paper negative to secure considerable density by transmitted light, the deposit is still extremely weak compared with that of a fully developed plate.

In the development of bromide paper for the purpose of obtaining good black and white prints, the chief qualifications to be desired are:—Purity of the whites, absence of stains, and a deposit of good colour. The purity of the whites is assured—assuming freedom from light-fog, by not forcing development, and by the judicious use of a small quantity of bromide of potassium in the developer, correct exposure being in every case a *sine qua non* if good black and white prints are desired. Stains are avoided by the observance of extreme cleanliness as regards the developing dishes, measures, etc., and in avoiding contamination with hypo.

Bromide paper permits of enormous latitude in the length of exposure, the difference being compensated for by adjusting the developer to suit; but, and this point is not always grasped by bromide workers, the colour of the image will alter immediately the correct exposure is departed from. Correct exposure and normal developer make the only possible combination for giving the best black and white prints. As soon as the exposure is increased, necessitating the addition of bromide of potassium in varying quantities to restrain development, and to steepen the scale of gradation, the colour of the deposit assumes an appearance distinctly different from that given with the normal developer and correct exposure. Instead of a good black, unpleasant, rusty greens are produced. In negative work this is of no moment, but when the developed image is to be seen by reflected light, backed up with white paper, the bad colour is most undesirable. For certain effects, however, this property of bromide paper to give tones varying from the rusty green mentioned, to a pinky red or brown, by alterations in the length of exposure and character of the developer, can be

taken advantage of. There is no doubt that the image, being metallic silver, is as permanent as the black tones, and, probably, more permanent than many colours produced by various toning processes. We will deal with these variations of development later.

For the production of black tones, therefore, the exposure should always be made to suit the developer, and not the developer to suit the exposure. As the exposure that suits the normal developer for producing the best print is the correct one, this should be ascertained for each negative by trial slips of paper with progressive exposures before attempting to make any number of prints. If this correct exposure is noted, and the light, distance from light, and developer remain constant, the best print that the negative will give can always be repeated at a future time. The time taken to fully develop can also be used as a constant factor. Modifications of development can, however, be occasionally employed to obtain certain desirable results. In the case of an extremely hard negative, for instance, that is, one containing much contrast due to under-exposure and over-development, the rule for correct exposure still holds good for black tones; but the most pleasing bromide print is to be obtained by increasing the exposure—doubling it if necessary, and developing in a normal developer considerably diluted with water. The result of this procedure is the production of a print that is much softer in character than would have been produced by correct exposure and developer of full strength; but, be it noted, no extra bromide of potassium is to be added to compensate for the increased exposure, or no advantage in the rendering of the scale of gradation is given, only an alteration in the colour. With the dilute developer and increased exposure, the colour obtained is a pleasing grey instead of black, but the print has to be removed from the developer at an earlier stage. To get these soft, silvery greys instead of blacks, with a normal negative, it must always be borne in mind to increase the dilution of the developer in proportion to the increase of exposure, and to remove the print before it has acquired full strength in the shadows.

It is often asked: "What is the correct exposure for bromide paper?" The correct exposure is that which permits of the development in the print of the faintest details contained in the densest parts of the negative, and no more.

If an exposure sufficient to allow the light to penetrate the densest part is given to a correctly exposed and developed negative, which is the type we assume is most frequently dealt with, the remaining portions of the negative will receive an exposure that will allow, with normal development, the correct amount of density to be secured in the print. If the gradations in the negative are imperfect, as in the case given above, increased exposure to allow the light to penetrate the dense parts of the negative is necessary, followed by short development in a slow acting (dilute) developer, so as not to clog the parts of the print that have been over-exposed. In a dilute developer used under these conditions, the entire image will appear at about the same time, very thin and weak. The action of the developer is then to build up the deposit in the shadows which have received the full exposure, but not to increase greatly the density of the high lights which have received only just sufficient. The print is, therefore, withdrawn as soon as it is seen that the shadows are commencing to clog, and the resultant image will be of a grey colour.

The dilution of the developer without the addition of extra bromide of potassium can, of course, always be resorted to for correct exposure with a normal negative,

and there are certain advantages in sometimes following this course; but in this case the action is allowed to continue until the image has gained full strength. One advantage of employing this mode of developing is that the image does not lose in intensity in the fixing-bath, as frequently the case after quick development in a strong developer; but gains a trifle in depth and richness in the shadows. More time is also allowed to estimate the progress of development, which is not always easy in the yellow light of the dark-room.

In the case of over-exposed negatives that have been fully developed and are not only dense, but lacking in contrast, the addition of bromide of potassium to the normal developer is permissible without apparently affecting the final colour of the print. The time of printing, however, should, if anything, err on the side of under-exposure, and, as recommended in a previous article (see our issue of September 8), this type of negative, and also one that is flat and not very dense, *i.e.*, over-exposed and under-developed, should be printed at a considerable distance from the source of light, and slow bromide paper should be used.

Whether wetting the print before development is always desirable depends to a great extent upon the worker's methods. With large prints or enlargements it is decidedly an advantage to soak the paper in water before pouring on the developer, as it assists the flow of the latter, and obviates the risk of marks and air bubbles caused by the developer not covering the paper quickly and completely.

With smaller work, provided plenty of developer is used, the prints can be slipped into the developer direct. In any case, the prints, after being in the developer or water for a brief period, should always be passed, face down, over the edge of the developing dish, to remove small air bubbles which are likely to collect on the face of the gelatine. The removal of these before development starts is a point in favour of soaking the prints in water first. The soaking should occupy at least a minute to allow the gelatine to get uniformly soaked, otherwise the development will proceed unevenly, and broad bands of varying depth of tone may appear, especially visible in large prints.

Ferrous-oxalate was at one time the only developer advocated for bromide paper, and, indeed, was the only one really possible. Its claims for recognition in the production of prints of a fine colour have always been very much in its favour; but, latterly, it has been almost entirely displaced by the alkaline developers, and it is of these we propose to treat.

Ferrous-oxalate is still used by some workers, and more than one commercial firm employs it in the wholesale preparation of picture postcards. A ferrous citro-oxalate developer is also in favour with at least one big firm of bromide postcard printers; but the lack of control and the necessary acid bath have practically ousted it from the consideration of most photographers, professional or amateur. Added to this, there is always the tendency to discolouration of the whites following the use of this developer, due to the last traces of the iron salt remaining in the paper. No great advantage appears, therefore, to be gained by recommending its adoption. Of the modern developers, amidol, hydroquinone and metol, used separately or combined, and rodinal can be counted amongst those most in favour; and, indeed, these seem to meet all possible requirements for the ready production of bromide prints of good colour from almost any type of negative. A consideration of their use and tested formulae will be given in a future article.

THE WASTED HOURS.

was recently discussing things with a young photographer who has discovered how hard is the world. Here is his case. Three years ago he gave up his situation—35s. a week—in order to marry. He had saved a little money, and he thought the time had come to buy a business and launch out in life. He bought a business, and found that the prices were fair—when he had a sitter. But for ten solid days his wife was in the little reception-room, and he in his studio, before the first customer appeared—no, brightened! their door. Three years have passed, and they have just hung on. The studio rent has been paid, and they have existed. But he is now studying the literature of free farms in Canada, and next spring he will take his wife and the little two-year-old and try a steerage passage to the north-west.

I once heard a clergyman say (he had a lean living, and eight growing lads) that he would turn all his sons into bakers. Wise idea; he had discovered that people must have bread on 365 days in every year, and that bread-selling was usually a cash transaction. He had had any foolish notion of the superiority of a profession knocked out of him by the logic of hard fact. If genteel occupation meant starvation, then he, for one, preferred "trade."

Waiting.

One of the most hopeless features in the life of a struggling photographer is his helplessness. A day of anxious "loafing" is longer than a week of hard work, and as day succeeds day the situation becomes a nightmare. If only he could dig in the garden, or smash something; anything to work off the accumulated nervousness! But he must be spruce and ready, for at any moment the watched-for sitter may appear.

What is the remedy? Well, if he is a single man, and young, and sees no prospects, there are worse things than Canada. It is better to accept a beating now than after fifteen years more of struggling. If he is determined to fight it through and achieve success, then he must find relief for his nerves in some occupation during these waiting hours. He simply cannot afford to wait for business to turn up—he must set out and make it. There is no one way to push business; different places, different methods. But when a new man enters an overstocked town (where is there a town which is not overstocked with photographers?) and in a couple of years is doing a lot of business at fair prices, there is something in it more than luck. One man may be hail-fellow-well-met with everyone and soon know every man worth knowing in the place. He will annex a certain class of business. Another may be exclusive, and at the same time able to turn out an exceptional class of work, appealing to dis-

cerning people. But there is one thing common to all unsuccessful photographers—they all feel the necessity of getting hold of the people.

Letting the People Know.

Suppose the young people had anticipated the ten blank days, and prepared for them. The first result would have been that they would have felt cheerful, perhaps enthusiastic, instead of despairing. The odds are that the man who sold them the business did so because he could not make it pay. And they, poor children, sat there in blissful anticipation of "something turning up." Probably not one in a hundred of the local residents knew that a new man had moved into the place. Why were they not told?

There are many ways of letting people know. The quickest way to get the names of the people is to use an up-to-date directory. If this cannot be obtained at a free library it will be found in the commercial rooms of the hotels. It is easy to select the desirable names. In many directories street lists are included, and, where not, the addresses are given with the names, and so the wealthier residents can be identified. A letter should have been carefully thought out, and then written to each "desirable." The writing would have filled those blank hours, and the sealed letter, personally directed, could be delivered—dropped in the letter-boxes—by hand. The letters would do their work—if not soon, then later. The cost would have been the cost of stationery only.

And Keep Them Posted.

There are many ways of filling in dead hours, and a man who works brainily will manage to get his name known, and to keep it known. Advertisement always pays, but it need not always be paid for, at any rate with cash. Photography is essentially a luxury, and in choosing among many possible luxuries people generally select that one which is brought under their notice. Every guinea taken may be one which but for this asking for might have gone in quite a different direction, and never benefited the photographer at all.

There are still misguided people who essay photography under the fond delusion that it is an easy and respectable means of livelihood. Such people pay a hard price for their experience, and when they drop out find few sympathisers. But there are others who have been trained to photography, and who understand their craft, but who find that venturing in business is heartbreaking work. To succeed they must realise that work must be got, and not waited for; and that for the getting of it the dreary hours of waiting may be profitably used.

ALEXANDER BRADFORD.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

IV.

Reporting.

In the last article a comparison was made between the type of reports submitted to the Press by hon. secretaries and reporters of photographic societies. The kind of report that usually finds its way into the waste-paper basket, or suffers severely from the onslaughts of the editorial blue pencil, occurs unfortunately only too often. The kind that makes interesting reading for the general body of readers, and so attracts attention to the society from whence it emanates, is not so common. It is difficult to explain or understand why good, readable society reports are so seldom produced. Material for making them is

not scarce, and it is assumed that the individuals responsible for their production are gifted with normal intelligence, and fully appreciate the value of publicity in the Press for the well-being of the society. Yet the quite uninteresting type of communication previously illustrated is sent out week after week. The readable, instructive type of report, by its usefulness, not only pleases the editor, but helps to ensure careful consideration of all requests in future. In other words, if the editor and the paper are considered, both will prove of undoubted use in "booming" the society in the future, and their support should be cultivated.

Note-taking and Abbreviations.

The right sort of report, therefore, of which an example was given last week, should be borne in mind by the secretary or reporter when making his notes during the evening meetings. As previously mentioned, a knowledge of shorthand is unnecessary when reporting a lecture or demonstration, but it is nevertheless necessary to follow the lecturer closely and grasp the general drift of his remarks. The salient points of his discourse should be jotted down, and, if the reporter is unfamiliar with the subject, the most satisfactory course would be to look the matter up beforehand in the text-books or journals. An hour or two spent in this manner is far from being wasted. Extra knowledge is gained and a greater interest taken in the lecture. The really useful points are more readily noted, and a part can be taken in the after discussion with more prospect of having something interesting to say. Notes of formulæ should be, if possible, always verified after the lecture by the lecturer himself. Names of chemicals can always be conveniently abbreviated if the ordinary chemical symbols are not familiar. The reporter should make out a list of these abbreviations and employ them whenever necessary. For instance, S.S. can be used as indicating sulphite of soda, P.B. potassium bromide, C.S. carbonate of soda, A.Cit. citric acid; Amm., Py., and Hy. can stand for liquor ammonia, pyrogallie acid, and hyposulphite of soda respectively. Hyd. can be used for hydroquinone and M. for metol. G. will signify chloride of gold, and W. water, and so on. "Equal parts of" can be rendered by a sign such as ||, and other abbreviations will readily occur.

In any case the report should take the form of a précis of the practical points described or demonstrated by the lecturer, even if not new. The lecturer himself will usually draw attention to anything he has to say that is really new, and this should be made the most of. All other information concerning the formal business of the evening should be omitted, although it may be useful for the minutes of the society. Whether these particulars are noted by the reporter or the secretary will be a matter for arrangement.

Exhibition Reports.

While on the subject of reports for the Press, notices of exhibitions may be considered. A great number of British photographic societies now hold an open exhibition as an annual fixture, and there are very few of the 400 or so societies in existence in the United Kingdom that do not have an exhibition of members' work occasionally. This latter type of exhibition is, of course, necessarily limited in interest, and a full report concerning it is usually only acceptable to the local Press. If a notice is sent to the photographic papers the particulars should be general in character, and briefly indicative of the strength of the society, thus:—"Blank Photographic Society.—An exhibition of members' work was opened in this society's rooms on the 4th inst. by the Mayor of Blankshire. The entries number 200, and 40 members contributed. The work is of a high standard, and a selection from it will be made for entry in the R.P.S. affiliation competition." Descriptions and criticisms of the pictures are useless unless very good, and the importance of the exhibition is usually not sufficient to merit the additional space being devoted to the purpose.

Open exhibitions, that is, exhibitions in which there are classes open to photographers in all parts of the country, afford much more scope for reporting, in addition to which the interest in such shows is of greater general extent.

When reporting an "open" exhibition, therefore, the date, place, names of judges, by whom opened, number of entries, and award list can usually be given with every prospect of these particulars being published. If, in addition, the exhibition is a well advertised annual fixture, and includes new work by some of the leading photographers, a certain amount of critical notes on the exhibits may be also included. In any case, these notices are likely to interest a far smaller circle of readers than good reports of demonstrations, so unless some arrangement for specially reporting the show has been come to previously with the editor, a bare record of the facts will be all that is necessary.

A Letter to the Editor.

A point that is frequently overlooked by hon. secretaries and reporters who are anxious for the publication of notices of lectures and exhibitions, especially in the local Press, is that editors of papers usually expect a little courteous treatment in the shape of a letter accompanying the report. Much can be done in securing the attention and good offices of a paper by taking the trouble to write a brief note occasionally to the editor telling him how photographic matters are progressing in the district, and the part the society is playing in local affairs.

The necessity for appointing a reporter to undertake the work that would otherwise fall on the shoulders of the secretary will therefore be manifest, and, as mentioned in a previous article, a great deal of the success of the society will depend on the work undertaken by this official, who ought to find a place in the list of officers of every society with any pretensions to success.

A final hint to both reporter and secretary, and that is, when communicating to the papers or writing notices for home use, always write plainly and legibly.

The Council.

It will have been noticed that no special mention has yet been made of those members of every photographic society who constitute the committee or council. This necessary part of the constitution of every association should be of extreme use in backing up the efforts of the secretary. Unfortunately, in many societies the council includes members somewhat inflated with a mistaken sense of the responsibilities of their position, and they are apt to cause discord if they are in any way reminded of the fact. Although they may advise a certain measure, and meet often to discuss affairs of state, it rests with the secretary to test the practicability of the motions, and as he is, therefore, the executive element in the success or failure of any progress, he should have a fairly free hand. "Many heads are better than one," may be the motto of the committee-man, who may also be a busybody, but "too many cooks spoil the broth" will probably be the thought of the secretary who finds himself hindered at every turn by the meddling interference of a too conscientious council. Either trust the secretary to use his own discretion in a great number of matters connected with the welfare and progress of the society, and to a certain extent give him a free hand, or else elect a new secretary. The council's function is that of a court of inquiry and appeal in matters vital to the interests of the society, and in any alterations in its con-

stitution, membership, or financial affairs. To expect the secretary to submit every little incident, such as alterations in the programme, or the form of heading of the society's notepaper to a full council meeting would be absurd; and yet this is frequently done, and the secretary is consequently afraid to make any move without first consulting the council, the members of which promptly take advantage of the opportunity to wrangle over the matter, and much valuable time is wasted. Fortunate is the society possessing a president with a strong personality and great tact. Still more fortunate is the society that in addition has an energetic and reliable secretary; but the more fortunate is the society that has a council which is disposed to let well alone and not interfere with work of the secretary and reporter. The number constituting the council, also, has a certain reference to its utility, and it will be found that a small council of about six or eight, with a sub-committee or two for special purposes will do far more work of practical value than a large, unmanageable council of twelve or fifteen members. The entire list of officers ought not to exceed this number

Vice-Presidents and Treasurer.

The vice-presidents and treasurer are also officers to be considered, but as the former consist of either members who have passed the chair, the office being in the form of a compliment; members who are in the running for the chair, or individuals who may be useful to the well-being of the society, and are honorary members only. In any case a vice-president is always useful to deputise for the president in his absence, and should be endowed with some of the qualifications necessary for that office. The functions of the treasurer may be briefly summed up in that he is responsible for all moneys passing in or out of the society. He writes the polite requests for arrears of subscriptions and subscriptions due, and when he gets them sends out receipts. At exhibition time he should have complete control of the expenditure and receipts, and be in close contact with the secretary for this purpose. Otherwise the treasurer has little to do beyond looking forward to presenting a favourable balance-sheet at the annual general meeting.

Next week the question of the weekly meetings and demonstrations will be discussed. "HON. SEC."

THE WEEK IN HISTORY.

The Second Step in Gelatine Emulsions.

On September 7, 1871, as I pointed out in the "Week in History" of September 8, Dr. Maddox's note on gelatine emulsion was published, but little result came from it for some time. In July, 1873, Mr. Burgess advertised emulsion for sale, and the next step forward was the publication of a formula—the first, except Dr. Maddox's—in THE BRITISH JOURNAL OF PHOTOGRAPHY for October 3, 1873. The communication appears over the *nom de plume* of "Ostendo non Ostento," and very complete directions are given for the preparation of an emulsion at once quite certain, and, as the writer describes it, "giving collodio-albumen definition with collodio-bromide rapidity." Twenty grains of sheet gelatine are placed in a two-ounce bottle with an ounce and a half of water, and, after swelling, the gelatine is dissolved by heat and twenty grains of bromide of cadmium added. In another (three-ounce) bottle thirty grains of nitrate of silver are dissolved in one drachm of distilled water and three drachms of absolute alcohol are added, after which, in the dark room, the bromised gelatine is gradually added to the silver solution, showing vigorously after each addition. The formula thus stands, for two ounces:—

Gelatine	...	...	...	...	...	20 gr.
Distilled water	...	...	...	...	...	1½ oz.
Cadmium bromide	...	...	...	...	...	20 gr.
Silver nitrate	...	...	...	...	...	30 gr.
Distilled water	...	...	...	...	...	1 dr.
Absolute alcohol	...	...	...	...	...	3 dr.

If prolonged emulsification were applied to a formula like this in which is a large excess of silver, its uselessness would at once be apparent, but with the short emulsification practised by the earliest experimenters the formula would probably be practicable, although nothing is implied as to the removal of the superfluous salts by washing.

Beechey Collodion Emulsion.

Old workers with collodion emulsions know that one formula—that of the late Canon Beechey—long remained a standard.

The formula first appeared in THE BRITISH JOURNAL OF PHOTOGRAPHY thirty years ago, i.e., on October 1, 1873. Canon Beechey was a student of Colonel Stuart Wortley, whose activity in collodion emulsion I have already chronicled. The Beechey process was Wortley's with modifications, the chief being a preservative of pyro dissolved in beer. The plate, as soon as coated, was washed for a little while in water, and then given its bath of preservative, which was composed of 30 gr. of pyro dissolved in a pint and a half of clear flat (not acid) table beer.

The Later Work of Niepce.

The history of the relations between Niepce and Daguerre has been the subject of several notes in this column, and I have shown that meagre as is the correspondence between the two men it is sufficient to show in what proportion the credit must be divided. But, in other letters of Niepce, we get a light upon what he was doing, and in none more so than in those to his friend Lemaitre, the engraver. Thus, on October 4, 1829, seventy-nine years ago next Wednesday, he was writing of the advances of Daguerre: "When I was in Paris, and even since my return, M. Daguerre has expressed the desire to know more of my heliographic researches. I am, therefore, sending him an attempt, on a silver plate, of a landscape taken in the camera. As I anticipate that it will interest you if only for its novelty, and whatever its defects, I beg you to give me your opinion. You will notice that the landscape is very unsuitable for the process, as the objects are lighted from behind, or, at any rate, very obliquely, during a part of the time, producing naturally a harsh appearance. But you will see from the fidelity with which some details are rendered what the results would be under any other circumstances." In these experiments Niepce was being influenced by the suggestion of Daguerre that it was better to get one perfect result than a number of inferior ones, such as those which were produced by the photo-engraving method devised by Niepce in the early stage of his researches. HISTORICUS.

COLOUR PHOTOGRAPHY WITH PIGMENT FILMS.

THE majority of practical photographers look upon the evolutions of three-colour photography as something outside their sphere of activity, as an interesting struggle to solve the problem of photography in natural colours. Processes of such high excellence as trichromatic letterpress printing, the Lumière transparency methods, the less commercial but highly scientific and valuable colour processes of Ives, Lippmann, Joly, Neuhauss, all those form stepping stones to one ultimate end—photography in colours from nature. Whether the professional photographer may permit himself to look upon a photograph in colour as something more than an interesting curio, that is a question for the immediate future.

Direct colour photography still remains a problem, but indirect and, I may add, commercial colour photography are accomplished facts, for which, to a great extent, the introduction of trichromatic carbon tissues is responsible.

As Hübl says in his excellent work on colour photography:—"The problem of colour decomposition by photographic means can be considered as solved, as, by employing different sensitisers and light-filters, the conditions of sensitiveness can easily be regulated, but the re-composition of the three-colour pictures by means of printing leaves much to be desired. Especially, the production of photo-mechanical printing surfaces is uncertain, if a very accurate reproduction of all the delicate gradations of a negative is wanted, and also the printing process itself lacks that uniformity which three-colour printing requires."

Stripping Pigment Films.

In search of a purely photographic printing method, which allows for a reasonable amount of retouching, and is not subject to the disturbing influences of theoretically incorrect printing colours, I came across the new "Stripping Pigment Films" for three-colour photography, which gave me such successful results that I gladly take the opportunity to offer a few suggestions, which may assist in making this process more popular in professional circles.

Sensitising the Plate.

The *modus operandi* is as follows:—Get a lens which works at a large aperture, and light-filters which are not too deep in colour, but accurately complement the sensitiveness of a very rapid pan-chromatic plate. I prepare my own plates by sensitising a clear working, but not too rapid, dry plate with pinachrom, as follows:—

Sensitising Bath

Pinachrom (solution, 1: 500 alcohol)	2 ccs.
Ammonia	2 ccs.
Distilled water	200 ccs.

After immersing for two minutes, wash the plates under the tap for about five minutes and dry in a drying cupboard. It is essential that the plates are dried quickly. They will keep for several weeks. The lens I use is a Zeiss "Protar" working at $f/8$, the camera an ordinary tripod pattern, to which a Sanger-Shepherd repeating-back has been added.

Formulae for Filters.

The filters are of my own making, and can be prepared by coating very best patent plate glass with—

Gelatine	1 part
Water	40 parts.

which is dissolved by heating.

This gelatine solution must be filtered before use. Now get a large glass plate, level by means of levelling screws and a spirit level, lay on it the well-polished pieces of glass which are selected for the filters, and pour on each of them a given quantity of the gelatine solution, about 10 ccs. per quarter plate. Cover with

another large piece of glass about 2 in. from the coated surface, to prevent dust from falling on the plates, and let dry.

Now make up the following solutions:—

Blue Filter Bath.

Methylene blue ($\frac{1}{2}$ per cent. solution)	20 ccs.
Water	20 ccs.

Green Filter Bath.

Methylene blue N. ($\frac{1}{2}$ per cent. solution) ...	5 ccs.
Auramine G. ($\frac{1}{2}$ per cent. solution)	30 ccs.

Red Filter Bath.

Erythrosine ($\frac{1}{2}$ per cent. solution)	18 ccs.
Metanile yellow (saturated sol.)	20 ccs.

The above dyes are obtainable from Messrs. Fuerst Brothers, London, E.C.

Adjusting the Filters.

The gelatine-coated glass plates are now stained in the above solutions, and, when dry, form the light-filters which should be used in front of the plate. How long the immersion of the plates is to last only the spectroscopic can tell, but it will be approximately five minutes. However, filters adjusted for such plates are now commercially obtainable, and at such a low figure that it would hardly pay the practical man to waste much time with their adjustment, especially if the subject is a new one to him.

As guide to those who are not conversant with the principles of trichromatic photography, I may mention that the negative taken behind the violet filter represents the yellow-printing plate; that taken behind the green light-filter, the red-printing plate; and that taken behind the red filter, the blue-printing plate.

Before, however, colour photography is attempted, the operator will do well to ascertain the relative exposure ratio of his filters. This can be done in the following way. Photograph a piece of white paper, or, better, a grey scale, through the colour-filters. You will find that the plate behind the violet filter will be totally over-exposed before the plate exposed behind the red filter shows any visible action of the light.

The operator will have to correct and alter his exposures so as to get the grey scale of equal density and gradation in all three negatives.

He may find that the yellow printer or blue filter exposure is represented by 1, whereas, the other two require $2\frac{1}{2}$ and $2\frac{1}{2}$ respectively. $1:2\frac{1}{2}:2\frac{1}{2}$: will then be his relative exposure ratio, and if the first exposure is ascertained he will easily calculate the other two.

Having determined his ratio, the work becomes more or less mechanical. The intensity of light can be found by means of an exposure meter, and past experience will tell the photographer what exposures are required. If the light in the studio is powerful, there is no reason why perfect portraits in colour could not be obtained. In the open landscape there is no difficulty whatever. The three exposures made, they are all developed in the same developer, and always treated exactly alike. No doctoring of the one or the other plate is permissible. As the negatives form the foundation upon which the complicated structure of a three-colour print is based, absolutely perfect negatives are a *sine qua non*. The negatives are to be of good density without showing excessive brilliancy. Metol-developed negatives, rich in shadow detail, have given me the best results.

The negatives can be retouched now, although whenever possible, retouching should be avoided. The question of retouching has always come up whenever portraiture in colour has been under discussion. However, the necessity of retouching, provided the negatives are correct, is never so imperative as in monochrome portraiture.

Colour values are accurately rendered, and pigment spots, although not made invisible, are not reproduced with such objectionable inaccuracy as regards tone value as in monochrome. The crowfoot, the pigment spot, the deep lines, all will be there, but they will be reproduced in colour. The negatives are now marked as yellow, red, and blue printers, so as to prevent a negative being printed on the wrong coloured tissue.

Printing from the Negatives.

The Stripping Pigment Films are sensitised in:—

Potass. bichromate	1 ounce
Water	30 ounces
Ammonia (.880)	1 drachm

This bath must be filtered for use, and the films are immersed in it for one minute.

If the negatives are of a contrasty nature the bichromate can be increased so as to make a 4 per cent. solution; in case of flat negatives reduced to a 1 per cent. solution.

It is essential to add sufficient ammonia to the bath to turn red litmus paper faintly blue.

The sensitising is done in artificial light, a pad of cotton wool being lightly passed over the film in order to prevent air-bubbles. They are now laid flat, film up, on a pad of thick blotting paper, and the excess of bichromate bath which adheres to the film removed by blotting.

The films are best dried in a dark-room which is well ventilated, and the drying is not to exceed three hours. If the gelatine should peel off the celluloid when drying, a small quantity of glycerine may be added. It is well to pin the films on all four corners so as to keep them flat and prevent curling up, which makes contact with the negative very difficult.

Whenever the films are dry, they are laid on a piece of glass, film downwards, and the glossy celluloid surface is freed from any traces of bichromate by gentle polishing with cotton wool.

This is necessary, because the negatives are printed through the celluloid, and dust or dried bichromate solution would show in the finished print. As mentioned before, the tissue and the negative are not laid film to film in the printing frame, but on the negative film rests the celluloid film, which is considerably glossier than the coloured gelatine and is easily distinguishable.

The yellow printing negative is printed on yellow tissue, the red on red, the blue on blue.

Daylight or electric arc light can be used for printing, which is done in the same way as ordinary carbon printing, by means of an actinometer. If the three negatives are correctly exposed, the printing exposures will be about the same, although the red print may require a trifle more exposure.

The best way to ascertain whether the exposures are correct is to print trial strips, and, after developing, see that all details are visible in the highest light, but the pure white of the picture must be clear celluloid without any pigment whatever.

Development

After printing, the films are laid for a few minutes in a dish with cold water, and can now be developed with warm water in strong daylight. The best way to develop the films is to place them on pieces of glass and those in a flat dish containing water of a not higher temperature than 85 deg. F.

Rocking the dish will accelerate the developing, but pouring hot water on the film itself must on no account be indulged in. If the water is too hot the celluloid will distort, and registration of the three prints will be made impossible. The yellow print is best laid on a piece of ferrotype plate, as the colour is opaque and the picture cannot be judged by transmitted light.

When the highest lights show no trace of colour and the shadows

are full of detail, the print is again rinsed with clean warm water, fixed in cold water, and pinned up to dry. The prints may now be superimposed on a piece of opal and the effect judged. However, the practical photographer will make half-a-dozen of each, and select the most suitable from which he may get about four good prints. The waste is generally due to careless manipulation and not to defects in the films, which are of high excellence, although the yellow—the makers will pardon me for making the suggestion—still requires their chief attention, as far as improvements are concerned.

Building the Trichrome.

The transfer of the films is also familiar to the practical photographer, being similar to carbon. The white paper support receives the yellow image first. The yellow film is laid in a dish with cold water for about fifteen minutes, then the white three-colour mounting paper is immersed for about one minute, the film floated on to it, squeezed, and left under pressure between filter paper for fifteen minutes, then pinned up to dry.

When dry, the celluloid is stripped off the yellow print and the latter freed from the coat of india-rubber by rubbing the image with a pad of cotton wool charged with benzole. Next, the blue print is transferred on to the yellow, but it will be found necessary to coat the print with gelatine to make the blue adhere.

The following solution is made up:—

Gelatine.....	30 grains.
Warm water.....	30 ounces.

To the solution add

Chrome alum 10 per cent.....	½ ounce.
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The yellow print is immersed in cold water, and as soon as it presents a flat appearance, put on a glass plate covered with gelatine solution and registered by gentle movement of the blue print. Now squeeze, leave under pressure for fifteen minutes, hang up to dry. Strip the celluloid, clean again with benzole, immerse in water, coat with gelatine, transfer the red print, etc. Last of all, the finished colour print is rubbed over with benzole, trimmed, and mounted like an ordinary photograph. The prints can now be printed and retouched with colour obtained by dissolving the coloured gelatine of the tissue.

Is the Process Commercial?

My description of the process may, perhaps, indicate a very complicated and expensive procedure, but this is certainly not what I wish to convey. The process, if worked systematically, is perfectly simple, provided the negatives are correct. I repeat, if worked systematically there is no reason why portraits in colour should not form a lucrative branch of our ordinary portrait photography.

These colour prints have been pronounced by prominent artists as little works of art. They present a depth of colour only equalled by oil painting; they present a purity of colour unknown to the trichromatic photo-mechanical worker, and—here I speak from experience as a practical portrait-photographer—the public are charmed with them. A West End studio, equipped with competent men, working with the latest appliances, high prices and an art-loving clientèle—and photography in colour will be established.

I wish to acknowledge the kind assistance given me by the Rotary Photographic Company, who are the makers of the films, a help which, extended to other experimenters, will materially assist in bringing about a welcome change in professional portrait photography; and last, but not least, will introduce into our studios a class of workers who will compel the old hands to “wake up.” It would mean a general revival of portrait and landscape photography, perhaps better times, until competition will cut the high prices which would have to be demanded for this class of work. However, for a long time to come, photography in colours would form a monopoly of our very best workers, best in an artistic as well as in a technical sense.

HENRY O. KLEIN.

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

SECOND NOTICE.

CONTINUING our observations on the work in the pictorial section at this year's R.P.S. show, one of the pictures that will immediately attract attention on entering the West Room will be C. B. Howdill's large print "Finishing the Plaque" (106), the plaque in question being that recently awarded at the Northern Exhibition at Leeds. This print is the largest in the room, is of a very rich colour, and appears to be a toned bromide. The fact that it is large adds no great merit to it, and probably the representation of the modeller at work would have been made a more striking picture if on a smaller scale. At present it appears to the visitor as being much the same print that Mr. Howdill showed last year.

Three other large prints that will also call for attention are contributed by W. Thomas. These also appear to be toned bromides, but the colour is rather too "foxy" to be entirely satisfying. "Nature's Slumber" (171) is the best of the trio, and is a strong, well-composed woodland scene, the grouping of the tree trunks and the lighting making a notable composition. "On the Evening Tide" (242) is a vigorous, almost theatrical, effect of light and shade. The sails of the fishing boats, however, strike us as being too black and solid. "A Sea Banquet" (216) is a fine rendering of gulls pouncing on to some morsel in the sea. The unpleasant colour referred to is very pronounced in this print. Near by is another rendering of gulls in flight, by F. J. Mortimer. "The Shoal" (214) is a portrayal of tumbling, seething rollers breaking over an almost hidden shoal; gulls are flying overhead, and the composition is materially aided by their presence. In addition to the large seascape by Mr. Mortimer, mentioned last week, "The Brooding Terrors of the Storm" (119) and "A Twin Roller" (205) are both good examples of this worker's powers for picturing the sea in its angry moods. Three delightful little figure subjects are shown this year by T. Lee Syms, "Robinson Crusoe" (191), depicting a small urchin stretched in comfort on a wooden settle and intently devouring the contents of a large book, presumably "Robinson Crusoe." Both the motif and execution of this picture are of the best. "Too much study is a weariness of the flesh" (100) is on similar lines, and tells its story well.

E. T. Holding's work is usually sound, and "The Student" (113) is very characteristic of this worker's method. A little girl with a book huddled on the floor in the corner of a room. The effect secured by pointing the camera down is not unpleasant. "Study of a Head" (209) is a successful attempt in red gum. The extremely brilliant hue of the pigment employed combined with the curious colour of the paper on which the print is made produce a somewhat novel result. Near by is one of the other brilliantly-coloured prints in the exhibition. This is a bright-green effort by J. C. Warburg. "Fairy Clocks" (189) is the title, and its colour probably compels more attention than the subject. It is, nevertheless, a clever little study of vegetable life, and should have been more centrally hung. Mr. Warburg's "Brunnsparken, Gothenburg," is another instance of his versatility. Strong, sunny, and of good composition, this approaches more the realms of the conventional than is usual. "Rocks and Wrack" (235) is another delicate seashore study, containing pleasing lines, but is not so good as "Surf," already referred to. Notice should have been drawn last week to Dr. Otto Rosenheim's "Portrait of a Collector" (27). This is one of the best gum prints in the show. Apart from this, it is good both as a portrait study and as a composition. We have already mentioned Arthur Marshall's "Shade." His "Student" (22) is a capably managed interior, with a seated figure—a little Dutch girl. The lighting is very fine, and the composition very complete, although inclined to be a trifle scattered. "In one day it opens its blossoms and in one

day it decays" (9) refers to the flower held by the young woman depicted in this picture. We do not care for this arrangement quite so much as Mr. Marshall's "Devotion" of last year, to which it may be said to form a companion picture. "The Tombs of the Bathers" (62) has a familiar appearance. It is because of its similarity to a previous much-exhibited picture by this worker, "The Last Sleep," but is not so good. Rudolf Eickemeyer, jun., has in "Costume Portrait" (43) a print of splendid quality, in spite of its somewhat dirty texture. This is the best of his three contributions. "In the Berkshire Country" (156) and "The Toadstool" (213) are, however, worthy productions of this clever worker.

J. M. Whitehead's exhibits vary somewhat in quality this year, although they all evidence masterly technique. In "The History of Many a Winter Storm" (67) the composition strikes us as being weak. This appears to be due to the central object, an old and weather-beaten tree, being placed too low. "Until the Daybreak" (90) has an unpleasant appearance reminiscent of the old-fashioned mourning card. "Solitude" (114) and "The Sleeping Fields" (194) are the two best of his contributions. W. T. Greatbatch has several of his successful experiments in dealing with problems of sunlight and shade. "In Old Lisieux" (116), "An Old Alley, Lisieux" (82), and "Courtyard, Lisieux" (201) are clever examples of his work. "Dieppe Market" (117) is also noteworthy, but is rather of the "snapshot" type, and is more indicative of fortuitous arrangement than deliberate composition. The fine quality of "Evening, Caen," we have already referred to. J. Page Croft's "Indifference" (103) is one of the best things this apostle of "gum" has yet produced, and he has found an apt title for his second print in "Inscrutability" (204). The pictures by J. Cruwys Richards are always interesting, and in "Beatrice" (44) and "The Grace Cup" (97) we have two excellent examples of the work of this "Link." He has had the wisdom, however, to enter his third print, "A Woman of Connamara" (356), a portrait study in multiple gum in the scientific and technical section. John Hepburn's two genre studies are extremely good, "The Wee Invalid" (63) being a worthy follower of "The Doctor" of last year. James Gale's prints are not so striking as some we have had from him. "A Dutch Interior" (7) is rather complicated, and the figure is not sufficiently detached from the remainder of the picture. "Sunshine and Smoke" (69) is inclined to be dirty in tone, but is a good composition. Dr. T. G. Crump's "Passing Clouds" (70) is almost overdone so far as the clouds are concerned. They are very massive and solid-looking, and the effect is rather top-heavy.

A. H. Blake's "Sunlight on Whitewash" (37) is also at the Salon, but this appears to be the better print. It is an excellent picture, made out of very ordinary materials, and should serve as an object-lesson to would-be picture-makers who complain of having nothing to photograph.

Wm. Rawlings and G. J. T. Walford have each some typical work on view, the former's "The Lonely Moor" (78) being a notable composition, and, as a good arrangement of lines, worth careful inspection.

One of the finest snow scenes we remember having seen is "Approach of a Winter's Evening" (84). This is by Clarence G. Dudley, an American worker, and it may be taken as a model for those who wish to render the tone values of a "snowscape" correctly. As an example of unnecessary handwork, John H. Hodge's "Bringing in the Pilchards" (243) is noticeable. The high lights have been obviously scratched away, and what would otherwise have been a remarkably good little picture is spoilt. "A Study in Straight

"Lines" (229), by G. L'Epine Smith, bears out its title admirably—trees, a church tower, and reflections—but the lack of detail is rather too pronounced. Douglas English's "Study of a Swan" (237) is a clever specimen of instantaneous photography, but would probably receive more appreciation in the technical section. Carle E. Semon's "In Costume" (31) is not so good as "The Gown" (118), although both are good examples of this American worker's figure studies. The latter is a very satisfying composition, but it is not clear whether the title refers to the gown worn by the lady or to the gown we suppose is hidden in the chest of drawers.

Joseph Appleby's "Through the Pine Trees" (71) is a large and luminous woodland study, the cast shadows being cleverly managed. His other picture is also big, and the lighting is not so unreal as has appeared in Mr. Appleby's previous pictures of sand-dunes. The title "Breezy, Bright, and Bracing" suggests Blackpool. H. P. C. Harpur's "The Bridge" (230) is an effective result obtained with simple materials, and Cavendish Morton's figure studies are straightforward examples of good photography combined with clever posing. Wm. A. Clark's architectural study, "A Norman Processional Path" (127) is in this photographer's well-known style, and is as good as anything he has yet done. Among other pictures that may be singled out for special mention are:—"In Robin Hood's Town" (15), by Rev. H. W. Dick—a fine effect of sunlight; "Off Duty" (58), by James Shaw—a most convincing "costume" group. "The Madonna of the Blackthorne" (49), by Sidney Vacher—somewhat incomprehensive at first, but very good; "The Burden of the Sea" (54), by E. B. Vignoles and Lieut. P. S. Greig, R.E.—two nudes, one of which is apparently intended to be a corpse. Not at all well done or in good taste. "A Water By-way" (77), by Mrs. H. Wootton, is a delightful Venetian scene, very suggestive of one of Percy Lewis's studies. "In Lisieux" (107), by P. Bale Rider—a very sunny little picture, and good composition. "Moribundus" (120), by J. Fielder Haden, a striking study of an old wreck. The light effect in this picture is very strong. "Tugging Home" (125),

by W. Clayden, is a very atmospheric shipping study, and dainty in tone. "Bereaved" (129), by E. H. Hazell, is somewhat too dramatic and the strained look upon the model's face rather repels after a time. "While London Sleeps" (133), by G. L. A. Blair, is a good lamplight study in the manner of Paul Martin. "Shrimpers" (136), by Louis J. Steele, is a clever group of fishermen on the wet sands. The reflections are good in this picture. "Iris" (79), by E. Seymour, is a good example of this worker's flower studies. "Dolores" (87), by P. R. Salmon, is a portrait study rich in tone, but rather ragged in texture. "A Dutch Canal" (137), by James C. Batkin, has a beautiful effect of distance and atmosphere, and Oscar Hardee's portrait study (139) is good, straightforward photography. Harold W. Lane's "Shoeing" (143) gives a good representation of steam and smoke, and in "Fragility and Strength" (151) W. A. I. Hensler has a composition of heavy trees and light woodland flowering grasses that lacks unity, and is somewhat top-heavy. His "Golden Gorse" (218) is, however, very fine in every way, and is as good a specimen of clear landscape photography as anything in the gallery. "On the Frozen River" (158), by John Chislett, contains some dainty silvery tones, and Francis J. Phillips's "Groote Kerk" is a clever interior, but he has rather spoil the tone of the latter by darkening the body of one of the figures. "A Cherry Orchard in Spring," by Miss Agnes B. Warburg, is a nice rendering of spring foliage, but the cold tone of the print suggests snow rather than blossoms. "The Night Express" (173), by R. R. Enfield, is worthy of attention by reason of its impossibility. We will not inquire into its method of production. "In the North Aisle, Norwich" (179), by S. C. Stean, is a good architectural study, of which there are too few in the exhibition.

Space will not permit of further reference to other exhibits in the pictorial section, which, as stated last week, contains as fine a collection of good work as the most captious can desire. The professional work in the South Room will be dealt with in our next issue.

ON MAKING NEGATIVE ENLARGEMENTS.

Large v. Small Pictures.

Now that the exhibition season has fairly started, and photographers are devoting time and consideration to the production of large prints from their small negatives taken during the summer, the following practical notes, abridged from a series of articles by Walter Zimmerman appearing in "Camera Craft," will be of value to many of our readers. Mr. Zimmerman is one of the leading pictorial workers in America, and his methods may be followed with advantage. He says:—"In pictorial photography, if a small picture be perfect, a large one, properly executed, must be pluperfect. There are many circumstances which might appear to give reason for modifying this statement; that the technical quality of the large picture is rarely equal to that of the small one; and that many defects, trifling in the original, become magnified in the large reproduction. Nevertheless, the statement remains exact, for the perfect technical work must be taken for granted in the making of a perfect rendering, and if there are defects in the original it cannot be a perfect picture. The presentation of the work in large size has the great advantage of enabling the artist to remedy defects better than in the small, and the operation calls for all of the artistic as well as technical skill of the photographer. Certain it is that where real merit exists, the attention of the public is given principally to the large work, whether on canvas or on photographic paper.

Methods of Making Enlarged Negatives.

"The rule which we shall adopt here is to explain the process of making large negatives for exhibition photographs in such a way

that there shall be no double printing, on the one hand, and that there need be no modifications by manipulations of prints, on the other. The thing that is desired, of course, with large plates and paper, is to get everything in the negative, so that there need be no masking, shading, or other work upon the print, during or after exposure.

"I will also explain, as fully as possible, a special method of making exhibition negatives by a process which has never before been published, so far as I know, but which, nevertheless, has the advantage of accuracy and extreme simplicity.

There are four ways of making negative enlargements on glass, namely:—1. A contact positive and a negative enlargement from it. 2. A positive partial enlargement, and a secondary negative enlargement. 3. A positive enlargement and a contact negative. 4. A negative made by printing through an enlargement on paper. The third and fourth methods are those which produce the most perfect results, and special attention will be paid to them in this article.

"The most perfect large negatives are those which are made by contact with a positive of the same size, rather than through an enlarging process to produce the negative itself. The third method mentioned in the list is glass contact from glass, and for perfection of technical results nothing can be equal to it. It is, of course, the most expensive way, as two large plates are required, barring failures.

Making the Enlarged Transparency.

Place the small negative, glass or film (the latter between two pieces of glass), in the kit or frame for negatives in the enlarging window.

The daylight passes through the negative, and the lens projects a magnified image on the sliding board or easel. Cut a piece of heavy white cardboard the exact size of the plate to be used, and obtain the size by an approximate focus. If a selected portion of the negative is to be used, that portion only will, of course, be contained on the image projected on the card. If diffusion is wanted from a sharp negative, the precise effect desired can be easily obtained. If an exact reproduction of a diffused negative is wanted, use another negative with sharp lines and focus, then substituting the negative to be used, as previously suggested.

"Pin on the enlarging board a smooth piece of black paper larger than the whole image projected, in order to prevent possibility of reflection or halation. Replace the white card, holding it in place by means of at least four glass-headed pins well driven in, the corners being better, to hold the card firmly, but allowing it to slide up from its position. Take out the card, cap the lens with orange for slow plates and red for fast plates, cut off all light but the developing light at the tank, take out the plate used and place it in position indicated by the pins. In this way the negative will have been focussed, the right portion selected, and the plate is safe and ready for the exposure. The glass side of the plate will, of course, be next to the black paper, and if, for any reason, a reversed negative is desired, such as for single process carbon work, the negative would have been reversed, film side out, in the kit.

Exposures.

"If you have been successful in making bromide enlargements, and have learned the exposure to be given, especially with the negative to be used, the relative exposure for plates will be as follows:—

"For a fast plate, single coated, one-eighth the exposure of bromide paper.

"For a medium fast plate, one-third the exposure.

"For a process plate, the same exposure as bromide paper.

Consideration of Plate Speeds.

"The quality of the negative to be enlarged from will determine to some extent the kind of plate to be used for producing the large transparency, in addition to the density or colour of the negative determining the exposure. The slow plate transparency, normally exposed and developed, will have considerably increased the density and contrast as compared with the original. The operator will be guided by his own preferences in making the selection. On the other hand, with a heavy original, a fast plate, properly handled, will give a transparency in which much of the harshness will have been lost.

"The making of the final negative must also be remembered. A slow plate transparency from a contrasting positive will, under normal treatment, have very heavy blacks and whites in printing from it. A thin, fast plate transparency, and a fast plate negative, will print flat, but full of detail. The photographer who wishes to be supplied for all effects in negatives should have a supply of both fast and slow plates, or else he may prefer to use the medium speed for both positive and negative. It is a prevalent error among professional photographers who make negative enlargements, to have them too dense, and with so much contrast as to give a very hard effect in the prints from them.

Modifications of Exposure and Development.

"A knowledge of exposure and development will render it unnecessary to keep two kinds of plates on hand. It is a well-known rule that over-exposure and weak development tend to flatness and detail, and under-exposure and strong development tend to contrast and harshness. With some expertness in exposure and development, the photographer may obtain in each process the effect that he desires. In making transparencies it is a good rule to give full exposure and full development, as, with a rapid printing medium (the second plate for the negative), there is little difficulty in having the light penetrate

all parts of the transparency. The full exposure and development give the best large reproduction of the original with the least possible loss through the enlarging process. This remark is quite pertinent, for the reason that the transparency is taken out from the developer too soon five times, to where it is once left in too long by the average photographer. It is also a good rule to expose the positive for the high lights, which is equivalent to over-exposing, in order to avoid loss of printing quality.

Developers.

There is also considerable opportunity for individual taste in the choice of the developer. A good metol-hydroquinone formula, diluted with ten times the quantity of water will, with prolonged development, give a positive which is full of detail, and with fresh chemicals, a negative without the yellow stain which is difficult to estimate in exposing for the negative. Pyro will give a very rich and beautiful transparency to look through, but it may not produce such a good negative, on account of the difficulty of exposure just mentioned. In developing the final negative, it is best to use metol-hydro with slow plates, to obtain detail, and pyro with fast plates, to obtain brilliancy. All of this is, however, to be modified by the effect, whether sharp or diffused, low-toned or brilliant, desired in the prints to be made from the negative. Even these effects are again modified by the printing method and paper to be employed.

After Treatment.

After the transparency has been washed and dried it should be examined critically to determine what modifications, if any, should be made to it either to remedy errors or to improve the pictorial effect. If the transparency is backed with a piece of tissue paper or ground glass, it may be seen to better advantage. The modifications decided upon may be made by a competent retoucher, or by the operator, if he understands or will take the pains to learn this kind of work. Intensifications and reductions in part or whole, should be made prior to retouching on account of the coating of varnish used for the pencil work. For a small spot touch the cork with varnish to the place, and with a piece of soft cotton spread it quickly and uniformly as thin as possible. If the whole surface of the negative is to be prepared for pencil work, let a few drops of the varnish fall on the film, and work it out very rapidly and evenly. The coating so prepared will have no effect whatever in printing, which would be the case if the varnish were to be allowed to dry on thick or in patches. The surface is ready for the pencil almost immediately. Retouching on transparencies requires less skill than on negatives, in which the work has to be done in reverse as to light and dark parts. To remove any part of the retouching, rub in a drop of varnish as at first. For darkening more of the surface at one time than could be readily worked over with the pencil, an extremely weak solution of red aniline dye in alcohol may be rubbed on evenly with a wad of soft cotton. For broad effects there is another medium, ground glass varnish, which is to be flowed, not rubbed, over the glass side of the plate. The surface so prepared will take pencil like paper or ground glass. This method is used by some well-known portraitists, who insert backgrounds and other decorations.

A simpler method than any of the above for making modifications on transparencies or negatives is to fasten a piece of smooth, thin paper, such as bond paper, to the glass side of the plate, either by gumming the edges or by fastening the paper to the plate with lantern-slide binding. The paper will, of course, take all of the lead pencil, lampblack, or crayon work that may be needed, and will not change the resulting negative except by slightly lengthening the exposure. Necessarily, any such broad medium is not applicable to the original negative for the obvious reason that any grain or imperfection in the paper would be magnified and intensified.

[The concluding portion of this article will be given next week.—
Ems., B.J.P.]

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between September 11 and September 16:—

TRIPODS.—No. 18,332. Improvements in tripod stands for cameras and such like articles. Alexander McLeod, 322, High Holborn, London.

DAYLIGHT CHANGING.—No. 18,413. Improvements relating to daylight changing devices for photographic plates, films, and the like. Neue Photographische Gesellschaft, 7, Southampton Buildings, Chancery Lane, London.

FLASHLIGHT.—No. 18,422. Improvements in flashlight devices for use in photography. Takenari Azuma, 53, Chancery Lane, London.

MOUNTS.—No. 18,522. Improvements in and connected with photographic mounts and the like. John Bower Binns, 18, Southampton Buildings, Chancery Lane, London.

DEVELOPING FILMS.—No. 18,551. Improvements in apparatus for use in developing photographic films. Frank Sugg, 9, Tempest Hay, Liverpool.

MACHINE BROMIDE-PRINTING.—No. 18,629. A machine for the rapid printing of bromide photographs on separate sheets of paper. Leonard Constantine Coward, 66, Brundretts Road, Choriton-cum-Hardy, Manchester.

ENLARGING CAMERAS.—No. 18,700. An improved attachment for use with photographic cameras for purposes of enlarging. Henry Rex Cook, Fort Fareham, Fareham, Hants.

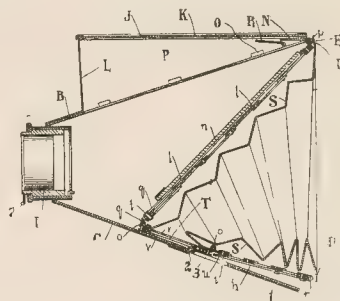
COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d each, post free, from the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.

DAYLIGHT CHANGING.—No. 19,010, 1904. The invention consists of light-tight flexible sheaths or envelopes, one plate in each, fitted with tabs or other means by which the cover is withdrawn for exposure of the plate. These sheaths are inserted one at a time into the exposure frame, whence they pass to a slide in which the envelope is removed and the plate exposed. It then passes to a chamber in which a certain number accumulate for development. Arthur Augustus Brooks and George Andrew Watson, 23, Tower Buildings, Liverpool.

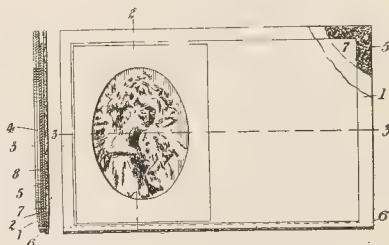
FOLDING REFLEX CAMERA.—No. 20,384. A folding camera in which a full-size image is obtained by a mirror, which moves into the focal plane on the camera being folded up. The arrangement of mirror *n* is as follows:—The mirror rests upon, and is supported by, the upper of two sets of lazy tongs *l, l*, which are pivoted at their rear ends to the film box, as shown at *p, p*; and, in order that the proper relation may be maintained between the mirror and the exposure opening, through the shutter, the two are connected by attaching a plate of thin metal *q* to the under side of the mirror frame, which has a narrow slot *s* cut in its lengthwise, in which slides the pin or screw-head *t*, which connects the front end of the upper lazy tongs to the pivoted plate connected with the shutter casing *T*, thus guiding and controlling the upper edge of the shutter casing. In order that the bellows may be properly held when retracted in to the position shown in the illustration, which position it assumes during the operation of focussing, a catch *2* is arranged at about the central part of the folding frame *C* adjacent to an opening *3* therein, in such position that when the shutter casing *T* is drawn rear-

wardly into the position shown in the figure, one edge or side of the exposure opening in it will engage with this catch *2*, so that the parts will be held in their then position, but by the insertion of the finger of the operator through the opening *3*,



the parts may be disengaged, and then all will move rapidly upward into the position for exposure. George Washington, of Tompkinsville, Staten Island, Richmond County, New York State, U.S.A.

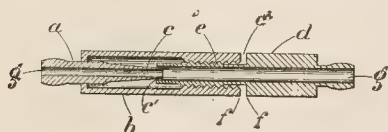
PRINTING FRAMES.—No. 24,246, 1904. The design of the frame will be understood from the figure and the instructions, the frame being specially adapted to making prints having a border or ornamentation round the photograph. The sensitised paper or card *7* is inserted behind the screen *2*, and the negative *8* is inserted in position behind the cut out portions *3* and *4* and in front of the sensitised card, and, with the parts in the position described, the device may be placed in a suitable frame or holder and exposed. The sensitised card is then removed from behind the screen, and placed in front of it and behind the



tablet *1*, and the negative is removed and an opaque shield *9* of any desired shape is placed in position to protect the print upon the card which was produced from the negative from further exposure. The previous printing operation exposed only those portions of the sensitised paper opposite to the cut-away portion *4* of the screen *2*, the remainder being protected from light by the screen. But the subsequent printing will cause those portions of the sensitised paper not protected by the shield to be exposed to light, and, consequently, a message or inscription, which may be written or otherwise marked upon the tablet *1* will be reproduced and printed in the well-known manner upon the desired portion of the sensitised surface. Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

TIME VALUE FOR SHUTTERS.—No. 433, 1905. The claim is for a construction of shutter valve such that any ordinary exposure can be readily and accurately obtained. When the shoulders *f, f*, on the various parts are in contact, the tapered nozzle is also in contact with the sides of the air passage, forming an air-

tight connection therewith. When so adjusted the air passage *g, g*, which runs the whole length of the valve, is unbroken, but when the sleeve is unscrewed, as shown at *c*², more or less air escapes around the tapered nozzle (when the ball is compressed)



according to the degree of its withdrawal from the air passage in the stem *d*, thus allowing a very wide variation in the duration of the exposure. Hugh Alexander Crabb, 114, Gleneagle Road, Streatham, Surrey.

STEREO PRINTING FRAME.—No. 24,247, 1904. A frame to provide for properly positioned prints without special attention. The negative is first clamped in position between a clamping plate and the body of a movable carrier, and the paper secured to the lower face of a holder. A system of covers then provides for the positives of negative and printing paper to be reversed, and when the frame is set to work for a given degree of separation the positions can be printed off as rapidly as possible. Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

DAYLIGHT DEVELOPMENT.—No. 5,022, 1905. The claim is for a development dish with a light-tight cover containing non-actinic-windows, set at an angle to the plate, and a viewing aperture. There are means at one end of the dish for inserting and withdrawing a plate, and an inlet and outlet for developer and other solutions. William Edward Caldbeck Crofton, 1, Lakelands Park, Terenure, Dublin.

New Books.

"Instruction in Photography." By Sir William de W. Abney. Eleventh edition. London: Iliffe and Sons, Ltd. 7s. 6d.

It is very nearly twenty years ago that we purchased our first copy of Abney's "Instruction in Photography." We still recall the sensation of youthful disappointment at its acquisition—the feeling was prompted by the discovery of how much the volume said on topics which in no wise interested us in those days—but the identical work is now the most bethumbed of our library. In contrast with it the eleventh edition is a corpulent volume, and the contents of the later issue shows with what diligence its distinguished author has continuously made it representative of the current photographic science and practice. Yet the present volume is not big. Six hundred and seventy-six pages are not overmuch for a treatise on the whole field of practical photography. The implied compression is one of the book's virtues: it is not a compilation brought together from all sources more or less "edited," but it represents the current knowledge of the craft sifted and winnowed by a man who can claim to have worked practically in every photographic process, and to have left pretty nearly every one of them all the better for his labours. That is the view we have always taken of the previous editions of "Abney's Instruction," and we shall be sorry to see reason to alter it. The present volume is like its predecessors in this respect, though the task of replacing the old by the new must have been a more formidable one than in the case of precedent editions. For the work of identifying the volume with modern methods the author acknowledges the aid of Mr. J. McIntosh, who is thus fortunate in sharing congratulations on the reappearance of this standard English text-book of photography.

THE "Annuaire Général et International de la Photographie," published by Plon-Nourrit and Co., 8, Rue Garancière, Paris (6 fr.), is brought out with the accustomed features of ample illustration, selected articles, and a review of current progress. The most noteworthy of the articles is that on photography by magnesium light, by M. E. A. Martel. The "Annuaire" has the most complete directory of membership in the French photographic societies, but the list of British photographic periodicals stands in lamentable need of revision.

CAMERA WORK.—A copy of the twelfth number of this beautifully printed quarterly has been sent to us, and it amply sustains the high reputation Editor Stieglitz has made for it. The number contains ten gravure reproductions of Mr. Stieglitz's photographs, printed on Japan tissue, and three specimens of the pictorial work of F. Benedict Herzog. These illustrations are probably the finest reproductions yet given in any photographic periodical, and the literary matter is of an equally high standard. The productions of the leading pictorial photographers of America and Europe have been or will be dealt with in "Camera Work." Information respecting subscription and future arrangements will be mailed on application to Alfred Stieglitz, 1,111 Madison Avenue, New York, U.S.A.

New Materials.

"Haystack" Gaslight Paper. Made by the E. F. Stack Manufacturing Co., Sidmouth Road, Leyton, Essex.

A sample of the paper submitted to us by the makers we find to be a gaslight paper of good quality, producing readily prints of good colour and vigour. Any developing formula suitable for emulsions of this class is stated by the makers to be suitable, and certainly we have no fault to find with the way in which it responds to a standard metol-hydroquinone preparation.

Agfa Chromo-Plates. Sold by Messrs. Charles Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C.

In offering an isochromatic variety of the "Agfa" plates, the makers are fortunate in approaching photographers with the reputation of producing a very clean-working and excellent plate of the ordinary brand. Hence there may be reasonable anticipation that with the added quality of colour-sensitiveness the general properties of the plate will not be impaired. We may not be correct in our surmise that the fine grain and freedom from fog of the Chromo plate identifies it with the ordinary brand of Agfa emulsion, but the fact remains that the isochromatic brand is excellent in these respects. On other grounds it may be signalled out as noteworthy, since, for its speed—it is a very rapid plate—it possesses pronounced colour-sensitiveness. The association of these two qualities in one plate to the degree found in the "Chromo-Agfa" should mark out the latter as fulfilling the wants of those who cry for a rapid iso plate. The plate is extremely rapid, and its chromatic qualities are such that less screening is necessary to secure a given effect. In development, it shows little or no tendency to fog, and it yields negatives of as great vigour as need be made in ordinary work. The following tests, obtained for us, according to our usual custom, by Mr. C. E. Kenneth Mees, B.Sc., will explain better than words can do to the scientific worker the general character of the plate:—

Inertia (H. and D., pyro-soda) .135.

$\gamma \infty$ (density-giving power of the plate), 1.94.

K (velocity constant of development with standard ferrous oxalate developer), .081.

ty (time necessary to obtain the standard gradation of the with the standard developer = the time the plate should be developed), $9\frac{1}{2}$ minutes.

*Opacity (to blue light and an index to the latitude of the plate), 6.

Ratio of $\frac{\text{blue sensitiveness,}}{\text{yellow sensitiveness,}}$ 3.1.

The practical worker can assume from these figures that the general character of the plate is, as we have stated. As we have said, the plate is highly isochromatic for its speed, and among other obvious applications of such a plate we may name portrait work in the studio. The "Chromo-Agfa" plate, we hope, will encourage the practice of orthochromatic photography in the studio.

CATALOGUES AND TRADE NOTICES.

WHEN, why, and how to use orthochromatic plates are oft-put questions at present. There is no better way of answering them than by studying a pamphlet just issued by Messrs. Elliott and Sons, Barnet, in which the practical reasons for the orthochromatic plate are very clearly and succinctly stated. The little book contains a number of convincing illustrations of colour-sensitive plates. It is supplied to dealers for distribution, or sent on receipt of stamp to postal applicants. Every photographer interested in obtaining the best results with colour sensitive plates should write for a copy to Messrs. Elliott and Sons, Barnet, for though the booklet is avowedly produced in reference to the Barnet Iso plate it is none the less a commendable exposition of its subject.

SAMPLES of very tasteful designs in fancy folding slip-in Christmas mounts have been sent us by the Crown Photographic Manufactory, Rotherham. These cards are excellent in every way, and they are, moreover, not expensive. Sample packets of 50 cartes de visite or 25 cabinets assorted with mottoes, blocked in gold, silver, or white will be sent, post free, for 2s. A full price list will be forwarded free on application.

MESSRS. F. HELMRICH AND CO. (late 37, Walbrook) inform us that they have removed to new premises at 158, Aldersgate Street, E.C., where they have extensive showrooms for photo pendants, lockets, prints and frames, etc.

A VERY complete and well illustrated catalogue is to hand from Riley Bros., Limited, of 55 and 57, Godwin Street, Bradford. It contains particulars of everything necessary for the user of optical lanterns. The Riley-Prestwich Projector is also illustrated, and a long list of lecture and general sets of slides is included.

No. 17 of "Fallowfield's Courier" is to hand, and contains particulars of new patterns in Christmas cards. A special offer is made to customers of a new sample set, made up to order, of assorted designs to the list value of 7s. 6d., post free, for 5s.

"HINTS on Lenses for Professional Photographers." Messrs. R. and J. Beck, 68, Cornhill, London, E.C., are offering free a pamphlet, which we can say, from a knowledge of the queries addressed to us, contains much information required by those working in studios. The hints concern length of focus, rapidity, depth, and definition, and thus lead up to the important question of the choice of a lens for portrait use. A series of exceedingly useful tables is included, showing the distances from sitter to lens, and from lens to plate, in photographing busts or full lengths to a certain scale. The tables do this for some forty different lenses. Messrs. Beck also announce a new series of Petzval portrait lenses adjustable for brilliant definition or diffusion.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
29.....	Cardiff Photographic Society ..	"Development." Mr. R. C. Harris.
29.....	Southampton Camera Club	Visit to London Exhibitions and attend Special Meeting of Affiliated Members at the "Royal." (Particulars from Hon. Sec.)
29.....	Wimbledon and Dis. Cam. Clul	Reception at R.P.S. Exhibition, New Gallery, Regent Street, W.
29.....	Bowes Park and Dis. Ph. Soc...	Reception at the R.P.S. Exhibition, New Gallery, Regent Street, W.
30.....	R.P.S. Exhibition.....	"An Idyllic Cathedral." Mr. E. W. Harvey Piper.
30.....	Blackburn Camera Club	Special show of Members' Slides.
Oct.		
2.....	South London Photo. Society ..	"Morocco." Mr. J. H. Avery.
2.....	Southampton Camera Club.....	Demonstration by the Rotary Photographic Co.—Bromide and Gaslight Papers and Colour Photographs.
		Competition of Hampstead Heath Outing Prints. Competition of Annual Holiday Prints. Conversation and Reception of Members and Friends, by the President and Vice-Presidents.
2.....	Bowes Park and Dis. Ph. Soc...	"Five Days in the Walloon Country." Mr. J. Wadham Cook.
2.....	R.P.S. Exhibition	Lantern Night. Goetz Lecture.
2.....	Leek and District Photo. Soc...	"What Can be Done with a Hand Camera."
2.....	Cardiff Photographic Society ..	"Printing Processes." Mr. W. A. Meyrick.
2.....	Luton Camera Club	Enlarging by Artificial Light. Organised by Mr. A. Staddon.
3.....	Halifax Camera Club	"More Continent." Mr. J. I. Learoyd.
3.....	Bristol Photographic Club	"Exposure and Development." Mr. Morris B. Fowler.
3.....	Manchester Amat. Photo. Soc	Lantern Slide Testing Night.
4.....	Edinburgh Photo. Society	"Some Essentials to Picture-Making—A Plain Talk." Illustrated. Mr. James Burns.
5.....	London and Prov. Photo. Assn	Last Night for the Submission of Papers read or published July 1, 1904, to June 30, 1905, for the 1904-5 Award.
5.....	Glasgow Eastern Ama. Ph. Assn	Presidential Address and Members' Slides.
5.....	R.P.S. Exhibition	"A Visit to Gibraltar," with Three-Colour Slides, by the Sanger Shepherd Process and with Monochrome Slides, by Miss Acland, F.R.P.S.
5.....	Wimb'edon and Dis. Cam. Club	"Velox" and its New Applications. Demonstrated. J. J. Griffin & Sons, Ltd.

DEMONSTRATIONS WANTED.—Mr. P. H. Hutchinson writes us from 2, Langholm Terrace, Coatham, Redcar:—"May I appeal, through your columns, for offers of demonstrations or papers—trade—to be given to members of the Redcar and Coatham Literary Institute Photographic Society during this coming session—October to April? We have several dates early in the session open at present."

THORNTON HEATH PHOTOGRAPHIC SOCIETY.—The autumn session of this society opens on Tuesday, October 3, when the president, Mr. W. Wood, will deliver an address.

The opening demonstration of the Wandsworth Camera Club will take place on Monday, October 2, at 8.15 p.m., with a demonstration on carbon by the president, Charles Moss.

BELFAST Y.M.C.A. CAMERA CLUB.—The annual meeting of this club was held in the Minor Hall, Y.M.C.A., Wellington Place, on the evening of the 20th inst. The annual report and financial statement were presented. The membership now numbers over one hundred. Mr. Hugh Cochrane, jun., the popular hon. secretary, was presented with a roll-top desk by the members, on his giving up the secretaryship of the club. The election of officers for 1905-06 resulted as follows:—President, Mr. R. G. Moffet; vice-presidents, Dr. Allworthy, Messrs. W. M. Downing, T. H. McMurray, D. W. Elliott, Richard Hamilton, J. J. McAuley, A. R. Hogg, W. McLean, and H. Cochrane, jun.; hon. sec. and treasurer, Mr. D. J. Hogg; hon. assistant sec., Mr. J. Malcolmson; hon. lanternist, Mr. Alf. George; committee, Messrs. Hugh Hill, J. B. Anderson, Hugh Crawford, H. Rew, S. McLaughlin, P. Kilgour, and J. M. Busby.

THE annual meeting of the Hastings and St. Leonards Photographic Society was held last week, and the condition of the society was regarded as satisfactory, the members having been well to the front in exhibitions. Mr. White-Ford was re-elected president. As vice-presidents, the following were elected: Lord Brassey, Mr. F. Freeman-Thomas, M.P., Alderman Stubbs, J.P., Dr. Gray, J.P., Alderman Tuppenney, J.P., and Mr. Harvey Du Cros. Mr. Simpson, previous to the election of the hon. secretary, proposed that the offices of treasurer and secretary be amalgamated. This was agreed to. Mr. Judge then resigned the position as hon. secretary owing to stress of work, and proposed that Mr. Walters be asked to accept the post.

BRECHIN PHOTOGRAPHIC ASSOCIATION.—The annual meeting of this association was held in the clubrooms, St. Mary Street, on Wednesday of last week. The reports of the secretary and treasurer were considered highly satisfactory, the latter showing a good credit balance. Office-bearers for the next year were elected as follows:—President, Mr. W. S. Adamson, Careston Castle; senior vice-president, Mr. R. W. Duke, St. Ninian's; junior vice-president, Mr. D. B. Robertson, Montrose Street; secretary, Mr. J. M. Dunn, Bank Street; treasurer, Mr. D. M. Watt; curator and lanternist, Mr. R. C. Dalgety; portfolio editor, Mr. W. Lamont; council, Messrs. G. A. Moir, W. Lamont, A. Colville, and J. D. Ross.

EDMONTON PHOTOGRAPHIC SOCIETY.—On Wednesday of last week Mr. Ernest Hurman lectured before the members of this society on "Combination Printing."

WIMBLEDON AND DISTRICT CAMERA CLUB.—This club opened its sixth session on Thursday, September 21, at Mr. Johnstone's, 6, The Broadway. A large number of lantern slides from various societies and friends being shown, a collection from the photographic section of the York Philosophical Society having a new feature. The set was divided into sections, each section having an introductory slide. The title of each picture being projected on the screen at the same time as the slide, thereby obviating the difficulty of struggling with a badly written or other copy in a semi-darkened room.

FIXTURE LISTS, &c., RECEIVED.

THE SOUTHAMPTON CAMERA CLUB'S "Members' Year Book" for 1905-6 has been sent us, and again bears witness to the continued vitality of this southern society, and to the unflagging energy of its hon. secretary. The book is similar to last year's production, and again serves as a convenient vehicle for a good batch of local advertisements. The space devoted to exposure notes is confined to three pages, and the value of the book would be considerably enhanced, we think, if these pages were increased. The winter programme includes several notable fixtures, which shows that sound methods of attracting the members to meetings is a prime consideration of the executive.

THE LEEDS PHOTOGRAPHIC SOCIETY'S syllabus includes a list of interesting lectures, commencing October 10 and continuing fortnightly until April 24. We note the names of Messrs. Harold Baker, Harry Wade, Percy Lund, Godfrey Bingley, Page Croft, T. F. Brogden, and C. B. Howdill down for papers. The session should therefore be a successful one.

THE WIMBLEDON AND DISTRICT CAMERA CLUB'S fixture list is also a good one, and programmes for the coming season from the BLACKBURN CAMERA CLUB and the HUDDERSFIELD NATURALIST AND PHOTOGRAPHIC SOCIETY point to considerable activity in these societies.

TO MAKERS OF TELESCOPIC TRIPODS.—A correspondent, Mr. E. J. Lawler, 39, Lime Street, Fenchurch Street, London, E.C., asks to be placed in communication with makers of telescopic tubular camera stands.

Commercial & Legal Intelligence

At a sitting of the Tunbridge Wells Bankruptcy Court, held on Monday last, Frederick Saunders, photographer, of Southborough, attended for examination. The debtor said his liabilities were £130 16s. 11d., and his assets £30 17s. He began business a year ago, when he opened a shop. He borrowed £50, and spent it on the shop, and subsequently became indebted for about £50 more in connection with the business, so that he actually started his business £100 to the bad. He incurred a further liability of about £50 to fit up a studio. At the date of the receiving order his receipts amounted to between £70 and £80, and he had a further £10 from the Mutual Aid Society, in April, in order to meet his rent. The examination was closed.

THE Burglary at Houghtons.—Walter Sochon, of Albion Road, Dalston, was charged, on remand, at the North London Police Court, on Tuesday last, with being concerned in warehouse breaking, and stealing a number of photographic cameras, worth over £50, the property of Messrs. Houghton, Limited, of Tudor Road, Hackney. Evidence was given that the prisoner had pawned one of the cameras, and endeavoured to dispose of another. Mr. Grain, for the defence, pleaded that his client did not know the cameras were stolen when he dealt with them. The real thief was a young man who had been in the employ of the prosecutors, and with whom the prisoner was associated. That man had absconded. The prisoner's relatives having offered to reimburse the loss, he was bound over in his own recognisances of £60, and two sureties in £30 each, the costs being added to the sum of reimbursement.

THE Metotype Company, Limited.—Official notice is given in the daily papers that the creditors of this company are required on or before October 20, 1905, to send their names and addresses, and the particulars of their debts or claims, and the names and addresses of their solicitors (if any) to Charles Acton Dodds, of 5, Copthall Buildings, Copthall Avenue, London, E.C., the Liquidator of the Company.

ENGLISH CELLULOID COMPANY, LIMITED.—The accounts for the thirteen months to December 31 show a loss, after providing for mortgage and debenture interest, of £19,024. The working capital having been exhausted, three schemes have been formulated for providing additional funds. The first scheme suggested is reconstruction, making a further liability upon all Ordinary shares of 5s., and on all Preference shares of 2s. 6d. per share. The second plan is to reduce the capital to £50,000, and then increase it by the creation of pre-Preference shares to the amount of £60,000, paying off the Debentures, and leaving £28,000 available for working capital. The third proposal is to issue £25,000 Seven per Cent. Second Debentures, which have already been created but not issued. The company was established in 1900 with a capital of £150,000.

At the Yarmouth County Court Mr. A. Margand, Seven Sisters Road, London, sued Madame Angless, the conductress of the Ladies' Orchestra on the Britannia Pier, Yarmouth, for £8, the price of a photographic enlargement and frame. The plaintiff executes portraits in crayon, and he alleged that Mr. Gray, the acting manager at the pier, introduced him to Madame Angless, who asked him to make a crayon enlargement of a group of the ladies' band. He told her the price would be £10. In due course he sent the enlargement, which was 40 in. by 60 in., or, in the frame 52 in. by 70 in. She demurred at the frame, and he said she was not compelled to take that. She promised to write him about it, but had not done so. The defendant emphatically denied that she gave plaintiff the order for the work. Such a photograph would be absolutely useless as an advertisement. The judge allowed plaintiff £2 2s. for his work if defendant did not retain the picture. If she retained it without the frame, judgment would be for £5 5s.

CLAIM for Photo Mounts.—At the City of London Police Court, on Thursday of last week, Mr. Francis Kotch, trading as Kotch and Friedlander, 10, Coleman Street, E.C., claimed £6 10s. for photo mounts supplied to the defendant, Mrs. A. J. Daniels, 38, Tachbrook Street, Westminster. The defence was that the 5,000 cards sued for were inferior to the sample, being a six-sheet card instead of an eight-sheet card; and that the defendant could not use them. Plaintiff said that the cards were printed specially for the defendant with her name and address upon them. They were reasonably fit to fulfil the order. The sample was a six-sheet card. The judge suggested that the parties should compromise the matter, but the proposal was rejected. Then it was decided to accept the opinion of an independent photographer, nominated by the Court, both the plaintiff and the defendant having independent witnesses to support their respective cases. The report from the London Stereoscopic Company, Limited, was in favour of the plaintiff, for whom judgment was entered, with costs.

News and Notes.

MYSTERIOUS PHOTOGRAPHS.—A mild sensation, which has travelled as far as Accrington and Manchester, has been caused in the Radcliffe Hall district by the discovery of a woman's figure on a photograph of the interior of the Close Wesleyan Chapel, taken by Mr. Street, Cross Lane. Mr. Street went into the chapel one afternoon with the intention of taking views of the interior. He had a box containing several unexposed plates, and he took two views. The plates were the ordinary "backed" plates, and were given an exposure of five minutes at *f*/22. When he came to develop them, Mr. Street found that on the first one—a view of the altar windows with the tablets underneath—there was the full-length figure of a well-dressed woman alongside the window. The woman, whose features are quite clear, stands as if waiting for someone, and she has her hands clasped in front of her, just as though she were posing. She also wears a blouse, seemingly of some light material. On the second photograph, which includes the organ, the woman's figure is horizontal, about an inch from the top of the plate. The strange part about this, however, is that the lower part of her body is separate from the top, which, except her head, which is not shown, appears next to it. In every other detail the photographs are practically perfect, and excellent examples of interiors. The gold lettering on the woodwork behind the altar is remarkably clear. As showing that the plates had never been exposed, Mr. Street took, with a third plate at 5 o'clock the same afternoon, a photograph of the interior of the parish church, and this is a perfectly clear one and just as ordinary. The exposure was the same, and the plate of the same make. One of the remarkable things about the first photograph is that the decorations on the walls are seen to be above and not under the shadow, or whatever it is, of the woman, and a glass only serves to bring out this fact more acutely. Mr. Street was alone in the chapel, and, prior to taking the photographs, rambled about in order to find the best position. He is absolutely certain that no one was with him. The photographs have come under the minute observation of several experts in the district and in Manchester. They, however, failed to throw any light on the subject. One fantastic solution suggested is that a woman was standing at her house door about the time the photograph was being taken. The sun caught her reflection in a pool of water near, and threw it on the windows of the co-operative society's reading-room, which in their turn cast it through the ordinary windows of the chapel on to the wall inside. (We admire the ingenuity of this

theory.—Eps. B.J.P.) The photograph, it may be added, was taken from a gallery, so that Mr. Street could easily see if any person went in front of him. It may be remarked that Mr. Street has been inundated with orders for the photograph, which is the full-size plate. It is also on some picture postcards, which he had reproduced. He himself—a good man at the art—is totally at a loss to account for the occurrence.

A PHOTOGRAPHIC periodical which is perhaps unknown to the scientific class of our readers, to whom only it appeals, is published under the formidable title of "Zeitschrift für Wissenschaftliche Photographie." It is the successor of the "Archiv für Wissenschaftliche Photographie," and is devoted entirely to the scientific side of photography, and to the allied subjects. The avowed object of the editor, Prof. K. Schaum, of Marburg, is to develop the physico-chemical and mathematical methods of investigation as applied to photo-chemical questions. The "Zeitschrift" has but few subscribers, and we may commend it to those of our readers to whom German is readable. The publisher is J. A. Barth, 17, Roßplatz, Leipzig, but it is doubtless obtainable through the old foreign booksellers in this country.

PRACTICAL Instruction in Photography ("Oliver Goldsmith" Evening Commercial Centre, Peckham Road, S.E.).—The photographic classes are to be continued this year. The results of last year's examination in photography (senior division) of the London Chamber of Commerce show that the only students who gained medals and double distinction in both theory and practice were students of this centre. Mr. Fred. W. Bannister again has charge of the class, which meets on Tuesdays and Fridays at 7.30 to 10 p.m. Lectures are given from 7.30 to 8.45, and 8.45 to 10 is devoted to practical work in the dark-room, etc. The photographic side is completely equipped with all apparatus, and students are allowed free use of apparatus and chemicals. The fee for the whole course from September 29 to June 20, 1906, is 2s. 6d., and this fee also admits the student to any other class held at the centre. Full particulars may be obtained on application to the principal, Mr. A. W. Pinhorn.

THE firm of Gebr. Laiffe, of Regensburg, Germany, notifies us that it has taken into partnership Herr Oscar Wurfischmidt, and will trade in future as Gebr. Laiffe and Co.

A LANCASHIRE and Cheshire union of photographic societies is now in course of formation by W. Tarnsley, hon. secretary of the Everton Camera Club. His address is 22, Chapel Place, Liverpool.

PHOTOGRAPHY AND MURDER.—According to the "Daily Telegraph," a photograph has been published, and is in circulation in Finland, depicting the actual murder of General Bobrikoff, the late Governor of Finland. As the person who took it must have been an accomplice of the murderer, the authorities commissioned M. Kramarenko, the chief of the Viborg gendarmerie, to trace the author of the photograph. Whilst Kramarenko was busy with his investigations, however, he himself was shot.

CLASSES in photography are held as usual at the Goldsmiths' Institute, New Cross. The courses of lectures and demonstrations commenced September 25, and consist of a six-months' course in elementary photography on Friday evenings (fee, 7s. 6d.) and a six-months' course on Wednesday evenings (fee, 12s. 6d.). Reduced fees are charged in each case to students in the practical classes meeting every Monday and Tuesday evening. The teacher is Mr. W. T. Wilkinson, at whose disposal is a well-equipped studio and dark-room. (We say "dark-room," though the prospectus mentions only a "bath-room"). The department is provided with studio, landscape, lantern slide and copying cameras, enlarging lantern, and a powerful electric projection lantern; it also possesses complete outfits for photo-lithographic and collotype work, for platinotype

and carbon printing, and for retouching and other branches of modern photographic practice.

A READY-MADE gum paper, worked out by Mr. A. W. Hills, of Shotts, is to appear on the market in due course. One claim for the paper is uniformity; it is put forward as suitable for professional work. We know Mr. Raupp, of Dresden, employs gum in his business, but hitherto gum, among other distinctions, has enjoyed that of being the most uncommercial process.

ON and after November 1, 1905, the society known heretofore as the Oldham Field Naturalists' and Photographic Society will take the title of the Equitable Photographic Society, Oldham, and be a separate body from the field naturalists, conducting its own meetings and finances.

MESSRS. RAJAR, LTD., ask us to say that their London offices are closed, and that all communications should be addressed to the Rajar Works, Mobberly, Cheshire.

MR. FRED JUDGE writes us that pressure of business has compelled him to resign his post of secretary to the Hastings and St. Leonards Photographic Society. His successor is Mr. H. Walter, Llanstephan, Zeardon Road, Hastings.

COMMENTATORE BONI, the Director of the excavations in the Forum, Rome, has drawn up another appeal on behalf of the museum which he has been arranging for some time past in the old convent of Santa Francesca Romana. Among other matters, Signor Boni wishes the museum to contain a series of photographs and engravings of the chief works of art inspired by Roman history in general and by the events which took place in the Forum in particular. Previous appeals have produced satisfactory results, and many photographs have been sent from different parts of Europe.

THE London and North-Western Railway Company announce that they are prepared to lend lantern slides showing places of interest on their system for the purpose of illustrating lectures, evening entertainments, etc. The slides, which number close upon 400, can be obtained on application to Euston. They show practically every phase of past and present railway working.

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents

THE FELLOWSHIP OF THE ROYAL PHOTOGRAPHIC SOCIETY.

To the Editors.

Gentlemen,—Referring to your issue of 22nd inst., "Ex Cathedra" notes re F.R.P.S., in the interests of the younger members of the profession, and of such gentlemen who may be thinking of applying for the fellowship, I must ask you to be good enough to publish this letter. The total number of Fellows, according to list issued early this year, is 236, and the number elected in one year only, viz., 1895, was 144, leaving but 92 Fellows elected during all the other years. In the face of this fact, how did the writer of "Ex Cathedra" notes manage to concoct the fairy tale he did? I would ask him what great important contributions to photographic theory, practice, or invention, etc., have these 144 Fellows, who were elected in the one year, 1895, given to the public.

Further, I would ask him, was it possible the Council and committees performed their duties with considerable strictness, meeting only twice yearly (as per his paragraph), when they elected the 144 Fellows, in one year?

Whatever method the Council at present pursue when electing Fellows, the foregoing fact proves conclusively that the magic letters F.R.P.S. were awarded simply for scratching one another's backs. What makes this fact more noticeable is that the majority of these 144 Fellows only became members in 1894 and 1895.

The reason why such a large number of gentlemen became Members and Fellows in 1894 and 1895 is made apparent by another "Ex Cathedra" note in the same issue, and I much fear that, although the Photographic Society attained the dignity of Royal recognition in 1894, by its conduct in the year 1895, it sacrificed the dignity of its own Fellowship.

In conclusion, I fear the Council have not yet left off

"SCRATCHING."

[Apparently our correspondent ignores the present tense in which our reference to the recommendation of applicants for the Fellowship was couched. We will not bandy words with one who is evidently in complete ignorance of the circumstances under which the Fellowship of the Royal Photographic Society was created. We may point out to him that his "great majority" is actually 42 of the 144. The figures he quotes correctly will be seen to prove the correctness of our comment as to the surveillance exercised in the recommendation of candidates.—Eds., B.J.P.]

RETOUCHING BY NIGHT.

To the Editors.

Gentlemen,—I have noticed that in your last two issues of the JOURNAL my name has been mentioned in connection with an arrangement for retouching by night. Your first correspondent was evidently a customer of mine, and expressed his satisfaction with the method of lighting he purchased from me. Your second correspondent ("Othello") also referred to my name, and stated: "I do not know what the Bruce apparatus is like, but I know that with a white opal globe, 9 in., costing 1s. 3d., and an ordinary double-wick petroleum lamp, I do my retouching as comfortably as by daylight, and in winter seldom use anything else." I take it that "Othello" wishes to save money to the photographic public, for I certainly cannot supply my simple rig for 1s. 3d., but I write to inform those retouchers who use only the oil lamp and opal globe that it is decidedly not the best method known for dark days or for night work. When I commenced as a trade retoucher I used "Othello's" device for a few years, with a strong circular wick lamp and the opal; then the duplex lamp appealed to me for a time—but still my vision suffered. "Othello" smothered his Desdemona—the light of his eyes—and now the Moor of Venice is trying to smother the light of my eyes with your readers—bad luck to him!

I have experimented with and tried everything. Electric light too violent; incandescent gas ditto; and acetylene in the same category. In fact, I have found all these lights bad for the eyesight, even for reading purposes, and have felt their effects when retouching at night. I have found the lamp that I use and sell, soft, powerful, and non-injurious to the sight. The proof of this statement lies in the fact that for over fifteen years I have retouched by this arrangement, often working ten to sixteen hours a day with it in winter, and I can still paint the finest miniature drawings on ivory and without spectacles or magnifying glasses. The opal globe and lamp must be injurious to the vision, for nothing is done to kill the yellow glare of the oil lamp, and that does the damage. "Othello" may find it all-sufficient, but if continued for a lengthy period, and used extensively as I use it, then unless he possesses exceptional vision, his outlook of the world promises to become as dark as his skin.—Yours faithfully,

T. S. BRUCE.

4, Villas-on-the-Heath,

The Vale, Hampstead, N.W.

Answers to Correspondents.

- ***All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C. Inattention to this ensures delay.**
- ***Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**
- ***Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.**
- ***For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.**

PHOTOGRAPHS REGISTERED:—

- W. F. R. Mist, 97, Barden Road, Tonbridge, Kent. *Photograph of a Lily. "A Freak of Nature," with eighty-five Blooms. Photograph of a Child and Flowers, entitled "Among the Lilies."*
- W. G. Honey, 102, Patrick Street, Cork. *Three Photographs of Miss Lena Macnaughten.*
- F. W. Berry, 144, Lewisham High Road, New Cross, London, S.E. *Two Photographs of the Rev. C. H. Grundy, Vicar of St. Peter's, Brockley, London.*
- W. E. Welchman, The Studio, Exchange Street, Retford, Notts. *Photograph of the Royal Train Passing through Retford.*
- W. Dunning, Bridge Street, Usk, Mon. *Photograph of T. Rees Standing on Bank of River Usk with Coracle on his Back; and Photograph of the same Person Fishing from Coracle.*
- W. J. Leech, 134, Wellington Road, Dudley, Worcestershire. *Photograph of the Dudley Football Team, Season 1905-6.*
- F. Verrall, 239, London Road, St. Leonards-on-Sea. *Photograph of Basket containing 118 Children's Portraits, entitled "Our Darlings."*
- F. V. A. Lloyd, 15, Lord Street, Liverpool. *Two Photographs of the 8th (Scottish) Volunteer Battalion King's (Liverpool Regiment) in Edinburgh Academy Grounds. One with the Hon. Col. Lord Strathcona at the Head. September 18, 1905.*

DRAWINGS REGISTERED:—

- W. P. Haycroft, "Colgrove," Alumburst Road, Bournemouth. *Drawing (Water-Colour) of Bowling Green at Alum Chine, Bournemouth.*
- J. C. Hunter, 50, South Bridge, Edinburgh. *Drawing of the late General Wauchope.*

Criticism of Retouching.—Readers desiring criticisms of their retouching should send two prints from three negatives, in each case, one before and one after retouching. The prints should be on glossy paper, and the subjects, an aged person, a young man or woman, and a child. It is impossible to give useful criticism upon the evidence of a single print.

A LIQUIDATION QUERY.—I shall be very glad if you will kindly suggest the best course I can take to recover payment (one guinea) from the proprietors of —. On May 15 last they accepted a picture of the horse Ambition, winner of the Jubilee Stakes, and used it in front full-page picture. I have received no response to several applications for payment, and am now in receipt of letter, copy of which I enclose. Since this transaction the property has been amalgamated with another paper. The point is this: Are not the present proprietors responsible for the liabilities of the property they have taken over, and can I not recover from them now? If this is possible, will you kindly suggest the best course I can take?—F. MILLS.

It appears that you supplied the picture to the Company that is now in liquidation, and unless the new Company took over its liabilities you have no claim on that. You will have to stand in with the other creditors of the Company you did the work for.

A. PIKE.—You might get a berth as general hand in dark-room and printing-room. You should study the advertisements of "Situations Vacant."

MOTOR-CAR PHOTOGRAPHS.—1. Do you think the picture enclosed herewith, showing the dust raised by a motor-car driven at a

great speed, to be a genuine photograph? If not, in what way could it be faked. 2. An observer of a car going at, say, sixty miles per hour, could not distinguish one spoke from another in the wheels, whether they were wire or artillery; but could a photograph taken at right angles show the spokes as stationary, or nearly so? If so, what makes of lenses and focal-plane shutters will accomplish this?—DOUBTFUL.

1. We should say it may be genuine, but it would be an easy matter to exaggerate the dust effect by working on the negative. 2. Beyond the power of the focal-plane shutter, in our opinion. We cannot recall such freedom from blurr even in negatives taken half broadside on to the car, where the conditions are less stringent.

COPYRIGHT.—I should be greatly obliged if you would answer me the following. I have about 100 postcard negatives. I should like to copyright them. Should I have to copyright each separately, or could I copyright all together? Would it come cheaper?—POSTCARD.

Each must be registered separately.

OPERATING AND RETOUCHING (reply to A. H. Pain).—1. It is impossible for us to state the class certificate the P.P.A. will award you. You should have sent your inquiry direct to them for this information. 2. We have several times replied to correspondents that we prefer not to state the probable salary value of assistants, as it might lead to a fixed scale with employers; and, as we have often quoted very low wages to indifferent workers who have sent specimens to us, it would be unfair to those who deserve more. Correspondents must ascertain for themselves their commercial value through the usual channels—advertising and replying to the "Situations Vacant" columns of the JOURNAL.

OBERNETTER'S CHLORIDE-ETCHING PROCESS.—The above process is described in Story's "Photography" as follows:—"A positive is produced on a film of gelatino-bromide of silver very rich in the silver salt. The silver of the developed and fixed image is converted into chloride of silver by the action of a mixture of perchloride of iron and chromic acid. The film is then wetted and brought into contact with the surface of a copper-plate, which it etches, the chlorine leaving the chloride of silver to combine with the copper, forming chloride of copper, which is soluble in water." The above would seem to be an ideal process for amateurs. Is further information accessible in any manual or year book? A very fine specimen was exhibited at the Loan Exhibition at South Kensington, 1905: "Flucht vor dem Feind," lent by Major-General Waterhouse, engraved by J. B. Obernetter, Munich, 1889 (No. 36 in catalogue).—C. W. A.

About the best description is in "The Photographic News," 1884, p. 67.

A CAMERA QUERY.—Could you oblige me by giving the address of the makers of the "University" camera?—ALEX. DIACK.

We cannot say. Perhaps the maker can communicate with our querist care of the Editors.

COLLODION FILM ON COPPER.—I enclose copper plate with photograph on it from print, also enclosed. It is done, I think, by the old "wet-plate" process, and often has to be manipulated on the copper, so that the film must be tough, and not peel up when outlined with a graver. Could you give me a formula for a suitable collodion film for this process, and for a black varnish for background? I should be very glad of any suggestions.—A. S.

We will reply to your query under "Photo-Mechanical Notes" next week.

TONING BROMIDES.—Will you please inform us through the B.J.P.

of a formula for toning bromides as per enclosed. We have tried all the book methods, and only succeed in getting a yellowish sepia tone. We require these for local views, which we have done in P.O.P. up to the present, and want to get as like P.O.P. as possible.—TONER.

The following formula was probably used for the specimen you enclose, and will give you the tone you desire:— $\frac{3}{4}$ oz. of hypo is dissolved in 20 oz. of hot water, to which $\frac{3}{4}$ oz. of powdered alum is added. To this is added 1 drachm of a 10 per cent. solution of silver nitrate. The fresh bath is heated two or three times to 120-140 deg. Fahr., allowing it to cool after each application of heat. For use, the toning bath should have a temperature of 100-120 deg. Fahr. Toning occupies from fifteen to twenty minutes. Prints developed with organic developers, such as metol-hydroquinone, show a greater tendency to reddish-brown in toning. Ferrous-oxalate developed prints give the best sepia colours.

TINTING P.O.P., ETC.—1. Will you please tell me through your columns what kind of colours are suitable for tinting P.O.P. prints under celluloid—I have had some done, and the firm say they are not aniline dyes—and where obtainable? 2. Are Brun's glossy transparent colours suitable? 3. How are the colours made to run smoothly in plain background? Is there any medium used? I have tried several, but cannot get them to run smoothly. 4. Can an electric arc lamp be bought for about £5, if so, where, suitable to take a cabinet full length or a bust? 5. Could any electrical engineer fit it? 6. What distance should lamp be from sitter, standing, and same for bust?—O. B.

1. You will find several suitable colours advertised in our pages. 2. Yes. 3. A little diluted oxgall can be used as a medium, or the print can be prepared by brushing over with:—Purified oxgall paste, 60 grains; distilled water, 16 oz.; rectified spirit, 4 oz. When dry, the surface will take both oil, water, or aniline colours. 4. Write Penrose and Co., 109, Farringdon Road, E.C., or the Westminster Engineering Co., Willesden Green, N.W. 5. Yes. 6. From 8 to 10 ft. away, and about 8 to 10 ft. from the floor. A few trials will soon show the correct distance for most effective lighting.

PALAMED.—Messrs. Ross, Limited, 111, New Bond Street, or Watson's, of Holborn, make cameras that would suit your purpose, but we do not recommend extreme lightness if telephotography is the object, as rigidity is always sacrificed at the expense of weight. The firms mentioned would undertake the work.

FLASH.—The apparatus you specify will probably give as good a result as you can desire with the subject mentioned. It is exceedingly simple to use, and will light any area.

A MASS OF ILLS.—My son has been doing carbon, platinum, C.C., bromides and silver printing, and developing for about two years, and his hands have suffered severely, they being covered with sore cracks of a very watery nature, and the roots of his nails have shrunk back very much, and his nails are also disfigured, and his eyes have also suffered. He was away from business for about two months, and during that time his hands became quite well. Now he has again started on the same processes, and they are becoming just as bad as ever. I should very much like to know what you would recommend to relieve him of this complaint. Any information would be greatly appreciated by your humble servant.—WYKHAMIST.

Probably the bichromate bath is the cause of the skin affections, or possibly your son's hands are sensitive to metol. If you turn to our issue of May 19 you will find the best treatment in the case of bichromate, but in many cases discontinu-

ance of the employment of the bichromate is the only remedy. In regard to the other possible cause, see the recent correspondence in these columns and the article in our issue of June 30.

PRESS PHOTOGRAPHS.—When sending photographs to the illustrators for publication, what is the best paper to use, what developing is best, and should the prints be glazed.—WYKHAMIST.

The best of all prints is a good albumen, next glossy P.O.P. and then glossy bromide. One or two papers are known to prefer fine matt prints. The glossy prints should be glazed by stripping from glass or ferrotype. You might evidence study with profit an article on "Press Photography" in our current "Year Book of Photography."

METOL DEVELOPER.—May metol-Hauff as a developer for plates be used over and over again until exhausted, and be poured into a spare bottle between using, or when mixed with the carb. potass. does it lose its strength? Also, may the bromide be omitted for under-exposure?—S. E.

The developer made up according to Hauff's formula may be used over and over again until exhausted or discoloured. If the bottle containing the used developer is kept filled up to the top, and is well corked, the solution will keep clear for a long time. Repeated use will make it slower in action. The bromide may be omitted for under-exposure, but with some plates chemical fog will result if development is prolonged.

FROME MECHANICS' INSTITUTE Photographic Society's fourth exhibition will be held on November 1, 2, 3, and 4. The judges will be Messrs. C. B. Keene, and F. M. Sutcliffe. There are six open classes, and bronze and silver medals are placed at the disposal of the judges in each. Exhibits will, if desired, be forwarded carriage paid to the Southampton exhibition. Entry forms and particulars may be obtained from W. L. Watson, Cheap Street, Frome.

ANOTHER noteworthy specimen of up-to-date literature from the publicity department of Carl Hentschel appeared on Monday last at the Palace Theatre on the occasion of the production of Mr. G. R. Sims' "Review." It takes the form of a four-sheet newspaper, entitled the "Palace Review," and a copy is presented to every purchaser of a ticket for the Palace Theatre. The whole production is in a witty, chaffing vein, and inconsequent irresponsibility exudes from every paragraph. It is stated to be priceless, which is true, and the Earl of FitzRadium is the proprietor. Subjects ranging from "What a man from Mars thinks of London" to "Are husbands worth having?" are dealt with in the breezy fashion we have been led to expect in these spasmodic literary efforts of the firm of Hentschel, which are all the more welcome on account of their unexpectedness.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may occur to our readers as susceptible of improvement.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable new features of an informative nature will be added.

. IMPORTANT NOTICE.—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1st, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

EX CATHEDRA.

A Blank "Week in History."

The weekly dose of history which we have regularly administered to our readers during the present year is missing from this issue; but from no fault of ours or our contributor. We saw this historical Sahara of the irrevocable past when the items were planned for Friday morning resuscitation in December last, and no explorations of our friend "Historicus" have been sufficient to bring to light events or innovations deserving of a place in our chronicles of the making of photography. We have reason to believe, however, that October 6 to 12 is the only period of seven days which can be charged with photographic sterility. The series of notes will be continued in unbroken succession to the end of the year.

* * *

The Photograph in Illustration.

Photography as the destroyer of literary taste is the melancholy note sounded in a valedictory paragraph in the last number of "Longman's Magazine." "The reproduction of drawings and photographs (explains the editor in announcing the suspension of publication) has called into existence a number of magazines and papers depending largely upon their illustrations. Competition for the patronage of the sixpenny public has become very severe, and the mere endeavour to keep up a high literary standard is nowadays not sufficient." True enough, the process block has its patrons, the hurried person and the semi-educated, who read their news in pictures, reverting, in so doing, to the method of communicating ideas used by their remote ancestors. Yet we should have thought that the half-tone illustrations of popular journalism were liked by a newly-discovered set of people, vast in number perhaps, but not drawn from the readers of real literature such as "Longman's" throughout its history has consistently offered. And we cannot share a view which has been expressed that the half-tone, by its very universality, is doomed to extinction. The public shows no signs of being sickened of it; indeed, it seems about to dominate the daily Press, to make room, perhaps, for a three-colour form of it in the weeklies and monthlies.

* * *

Second-Hand Apparatus.

Buyers and sellers of second-hand apparatus are nearly always active, if one may judge from the advertisements in the journals every week. Some apparatus is excellent and good value for the money asked, and some just the reverse, and therefore the purchasers should be on the alert in making a selection. If he is not a judge of what is really good, and what is not, he will do well to invoke

the help of a friend in the inspection of his proposed purchase. In the advertisements of second-hand apparatus for sale, it is very usual to see the cost or maker's list price quoted as well as that asked by the seller. If the latter be a great reduction on the former it must not be taken for granted that the article is really the bargain it seems. Take, for example, cameras. During the past decade or two second and third-class makers have been putting cameras on the market at cutting prices, and when they are new there is no question that, as a rule, they are extremely good value for the money, yet it must not be expected that they have the durability of the more costly instruments, or will stand the same wear and tear. This applies more particularly to the lighter and more portable than it does to the heavier and more substantial patterns. One of the former, after a year's not over careful usage, may be practically a worn-out instrument, while one of the latter class, after several years' use in the hands of a careful worker, will be, for all practical purposes, nearly as good as new. In the cheaper forms of cameras of the light and portable type the wood is not usually too well seasoned, or the bellows of the best material; consequently the apparatus quickly deteriorates in use, the joints give, metal work gets rickety, and the slides let in light. Such a camera is dear at any price to the novice commencing photography, as it is likely to land him in no end of trouble. On the other hand, a camera by a high-class maker, after several years' service, may be a bargain at no very great reduction on its original cost.

Cheap Hand Cameras. What has just been said is intended to apply more particularly to stand cameras. When we come to hand cameras, more especially those with intricate and complicated changing arrangements, great care should be taken before purchasing, as the parts, even with careful use, are liable to get out of order after a time, notwithstanding that a good price was paid in the first instance. If this be the case with good class hand cameras, what can be said of those of the cheap kinds, that is of the fifteen shilling or guinea type, when they get into the second-hand market? Often when they are advertised at a few shillings they are really not worth anything for actual use—they are worn out. One general conclusion to be borne in mind by the purchaser of a second-hand camera is that the genuine bargain is most likely to be found among apparatus of the highest class. Manufacturers are now able to produce such excellent instruments at a "popular" price that there is often little to be gained by purchasing second-hand. At the same time an open mind is the best attitude to take in making a purchase of any kind. Actual inspection of the apparatus, to our thinking, should always be made before a transaction, and will usually repay the expense incurred by preventing, oftentimes, what would be a disappointing purchase.

New and Old Lenses. A few words with regard to second-hand lenses may not be out of place. Some persons seem to be under the impression that lenses do not deteriorate by use—a mistaken view, of course. They may deteriorate greatly in the hands of careless users. The high polish given by the makers may become destroyed owing to the lenses having been constantly wiped with a dusty cloth such as the focussing cloth. As a consequence, they do not yield so brilliant an image as when new. The instrument, also, may have had a fall at one time or other, and, although none of the glasses may have been broken, one or other of the elements may have become so jammed in its cell as to alter its figure and centreing, and mate-

rially impair its quality. We recently saw an expensive portrait lens, by one of the best makers, which had been accidentally dropped, but the glasses themselves were not damaged; yet the instrument would no longer produce a sharp picture. On looking through the lens at a gas flame we at once saw that the glasses had become decentered. The instrument had to be returned to the maker to be set right. When purchasing a lens, bearing the maker's name, it should always be submitted to him, and he will always examine it for verification as to its being of his manufacture. Dealers of repute in second-hand apparatus can usually be relied upon in the purchase of second-hand lenses, etc., as the apparatus is usually carefully overhauled before it is put into stock. It is more particularly to the class of goods frequently described as great bargains that our remarks are intended to apply. Although we do not deny the article is worth the money charged for it, we would disabuse the inexperienced purchaser of the idea that the very highest class of goods can be picked up for a song. The preventative of disappointment, however, lies with the purchaser, who should take steps to satisfy himself by actual examination that the instrument answers his own requirements.

* * *

Autumn Photography. Summer being past, we have, according to many of our leading landscape photographers, the very best season of the whole year for outdoor photography. In summer sunlight the cast shadows are short and very strong, and a comparatively long exposure has to be given in order to obtain full detail in them. In the autumn they are long and much softer, and hence there is little difficulty in getting full detail, however strong the light may be. The late Mr. Vernon Heath who was one of our finest landscape photographers, did the greater part of his best work during the autumn months, as he considered this was the most suitable time of the year to get the most artistic results. In the country the foliage has not changed much, but in the course of the next few weeks there will be a material difference, and the outdoor worker should be prepared for it, and take full advantage of his opportunities. There is no more glorious sight than a fine landscape in the autumn, with the sun shining on the brilliant tints of the foliage. Unfortunately photography is unable to depict the colours in all their gorgeous hues. Orthochromatic photography, of course, is a great advantage in reproducing the tints in their true relation to colour, though your photographer of the old school will aver that with a full exposure there is little or no advantage to be gained by its employment. The only way by which photography can render these beautiful effects with approach to reality is by the three-colour method, and the opportunities of the next few weeks should not be neglected by workers of that process. At present we have several methods for obtaining prints in natural colours that have really passed the experimental stage, though yet little practised by the general run of landscape workers. Perhaps the most satisfactory process for this purpose, and on the whole the most easy to work, is the carbon process, in which the three-colour tissues are on thin celluloid supports. One other thing must be mentioned in connection with autumn photography. Although the light may be bright, there is not the same actinic quality in it that there was a month or two back. Allowance must be made for that by novices; but at the same time it should be borne in mind that as the shadows are softer than they were in summer they will not require so long an exposure, proportionately, for good tone-rendering, as when the sun was nearer its zenith.

Mysterious Photographs. In our last issue is a paragraph relating to an alleged mysterious photograph taken of the interior of a Wesleyan chapel, in which appears the figure of a woman who was not in the building when the picture was being taken. It is said that this photograph is creating quite a sensation in the district, that the photographer is inundated with orders for it in its original size, that it obtains brief fame as the inevitable picture postcard. The incident suggests a business hint which may be useful to some. It is not at all difficult for anyone to produce mysterious photographs of this sort in many different ways, and under what are called "test conditions," as in the case of alleged spirit photographs. If these get well noticed in the local papers, and made a sensational matter of, there will soon be a good demand for the photographs, more especially if they are issued as postcards. There would, no doubt, be a good sale for photographs of the local electric car with, say, the blind man of local fame as the driver, the thing being seriously boomed as a "mysterious picture." A certain section of the public seem to be fond of the mysterious, and there is no reason why they should not be catered for. We are not suggesting that the chapel interior is of the "freak" character, but photographs of this description will often command a ready sale if cleverly done.

* * *

Classes in Photography. The trade classes at the Polytechnic School of Photography, Regent Street, W., commence on Tuesday, October 17. On that evening an introductory lecture will be given by Mr. Howard Farmer, entitled, "Dots, or Coming Events Cast Their Shadows Before." The Polytechnic and similar classes afford apprentices and assistants in photographic establishments in London and the suburbs an excellent opportunity of extending their knowledge and usefulness, and consequently increasing their value to employers. Many of the best appointments in photography open to competition during the last few years have been obtained by students of the Polytechnic; while the fact that out of ten photographic schools in the London district, in eight cases the head instructors were trained at the Polytechnic, may be cited as indicating the character of the instruction. At the examination held last May by the City and Guilds of London Institute, the whole of the medals for photography went to the students of the Polytechnic. Although, as at most of the photographic schools negative making and printing, as well as photo-engraving, processes are taught, it is only at the Polytechnic School of Photography that there is a regular course for professionals engaged in portraiture. Classes in practical operating are taken on Tuesday and Wednesday evenings, and special arrangements are made for students that do their practical work either early or late in the evening as may be most convenient to themselves.

* * *

Two Notable Fixtures at the R.P.S. An ordinary meeting of the Royal Photographic Society will be held, at the New Gallery, Regent Street, on Tuesday next, October 10, when the president, Major General Waterhouse, will deliver his address on "By-Paths of Photography," and will also present the medals to successful exhibitors in the technical section of the exhibition. On October 24, also at the New Gallery, the eighth Traill Taylor memorial lecture will be delivered by Mr. Chapman Jones, F.C.S., F.I.C., who will take as his subject "Photography in the Service of Science."

The "Affiliation" Night.

The meeting on Friday last of the members and delegates from the societies affiliated to the Royal Photographic Society proved conclusively the popularity with which this function is regarded. A queue of goodly proportions spread down Regent Street from the doors of the New Gallery ere seven o'clock had struck, and the flourish of red books in the face of the janitor who effected the process of admission must have brought a glow of satisfaction to the hearts of those responsible for the organisation. The Chairman of the Affiliation (Mr. C. H. Oakden) received the guests, and during the evening gave an address telling those assembled the progress of the past year and the prospects for the future. An exhibition of the slides entered in the technical section of the exhibition, and also the 1905 Affiliation Prize slides were displayed to a critical audience. Mr. Oakden's address is given elsewhere, and his appeal for suggestions from the affiliated societies should not go unheard. The scope and usefulness of the affiliation has no doubt received considerable attention at one time or another from various societies. If they have any advice to give or hints that may be acted upon for the improvement of the organisation they should not hesitate to send along their suggestion to either Mr. Oakden or the Secretary, at 66, Russell Square, London, W.C.

ARTIFICIAL LIGHT AND THE MERCURY VAPOUR LAMP.

THE utility of daylight in comparison with the various artificial illuminants at the disposal of the photographer has frequently formed the subject of debate amongst those directly interested in the management of a studio. Separated from the commercial element the question need not involve a protracted discussion. Nobody, we suppose, will be inclined to question the claim of daylight to be the best of all illuminants, if the photographer is under no particular restrictions in regard to it. If he can draw it from where he wishes, if he can employ it when he chooses, and if he has the opportunity to spend as long as he likes in applying it to his purpose, then there is no competitor to be named in the same category with the illuminant which is the free inheritance of all. But the question of the precise position of the solar gratuity in a commercial relation with other lights cannot be settled off-hand. And it is a question which offers itself for discussion about the present time of year, when the inevitable laws of nature reduce the hours of effective daylight to a comparatively short period before and after noon. Not infrequently the verdict is against the first proposition of the artificial light—namely, that its primary cost and the cost of running it will be returned to the photographer in the increased volume of business. That, of course, is only one of the arguments in favour of a light which must be bought and paid for. A second is a very commercial one indeed. It is the fixity and uniformity of the studio illumination. Instead of the ever variable power and direction of the daylight, there is a light which in these two respects is reasonably constant, though admitting of variation at will within even wider limits than daylight. We say that is a very commercial asset of the system, because it opens the door to the assistant who, with scarcely any experience, may be entrusted with the duties of an operator after having been drilled in the use of a certain fixed arrangement of lighting. Not that artificial light does not offer a great field for the practised operator, but it permits hard and fast conditions under which a responsible person has far less exacting demands made upon him. Such fixity of conditions, carried to an extreme, re-

duces the operator to an automaton, and it is in this respect that artificial light can be of no lasting benefit to professional photography, though it may fill some people's pockets for a few years. In a third respect an artificial illuminant may exert a revolutionary effect on a photographer's business. An illuminant other than daylight empowers you to put your studio where you like, to bring it down from the sixth floor to the street level, where the great public is. The possibility of making such a change may mean everything in some businesses, or it may not be worth the price of a week's gas bill in another. In balancing the probable advantages against the drawbacks of the artificial system, there are chiefly to be considered the power of the light, the quality of the result, and the costs of the installation and maintenance. With a knowledge of the various lights which have been and are at disposal, it cannot be said that, putting cost on one side, any of them approaches daylight in regard to all the factors which determine practical usefulness. Certain arrangements of incandescent gas have proved themselves excellent for illuminating a comparatively small area, but one objection to them is the great heat produced. Systems of magnesium flashlight, unless of a very elaborate character, are not free from the reproach of admitting the magnesia fume into the studio, and where they have been continuously employed with success it has usually been found that the user has perfected the construction of a combustion chamber, from which the cloud of magnesia or aluminic dust has been drawn by a flue into the outer air. In the electric arc light, it might have been thought, lay the realisation of hopes for a perfect artificial light, and, of course, wide use has been made of this illuminant, and a great deal of very fine portraiture has been done with it. Yet the arc is not a cheap light, and the concentration of the light handicaps it in imitating the soft diffused character of daylight. Its disabilities in this and other respects are by no means insuperable, but the means of remedy reduce the working value of a lamp. Though we cannot expect all the virtues of the lights we have named combined in one illuminant, to the exclusion of their defects, there are reasons for expecting in the newest form of electric lamp—the "mercury vapour"—the embodiment of certain properties of pre-eminent importance in portrait photography. The mercury-vapour lamp was the subject of a series of articles in our pages early in the year, and therefore it is not incumbent on us to enlarge upon its constructional features. It is more to our purpose to draw attention to points recommending or declaiming its adoption. Unlike the arc light, the mercury-vapour lamp distributes its illumination from a considerable area. It is a tube of incandescent light—about a yard in length, as placed on the market—and several of these tubes can be placed in juxtaposition to produce a lighting area of extent comparable with the window space of a studio. In that respect, therefore, the lamp has the advantage of arcs with their small light-sources. In point of convenience and mobility the mercury-vapour lamp assuredly is in the better position, and can be more readily made part of the studio's scheme of decoration. Certainly it need never be the eyesore which the umbrella arc-lamp must almost inevitably be. Yet before anything further is said for or against the mercury lamp, its most characteristic quality, and one which we have heard described as damning it in the estimation of any photographer, ought to be considered. We refer, of course, to the spectral composition of the light, and particularly to its lack of red rays. The lamp emits the highly actinic blue and ultra-violet rays in large proportion, but through its deficiency of red rays, it causes objects exposed to it to assume the most unnatural

appearance. The skin appears a livid greenish colour, and though the sitter may not see himself or herself, the first glance at the hand will provoke an exclamation of surprise. From this cause alone, we have been told, the mercury lamp is debarred entrance to a studio. Fortunately, however, it is not difficult to find a remedy. Although the red rays are not in the light they can be evolved separately, and one or two red lamps, or simply a few ordinary incandescent electric lamps will supply the deficient light and preserve the natural colours of surrounding objects. A neater method still of introducing the missing red constituent into the light has been advocated by the makers of the Cooper-Hewitt lamp in America, and consists in screening the tube with thin fabric, impregnated with a pinkish fluorescent dye. The dye alters the wave length of the rays, and thus corrects the illumination of the lamp.

As regards power, the appearance of the light is deceptive. It is not a dazzling or glaring light, inasmuch that no discomfort is experienced in turning the eyes directly upon it. But photographically the light is intensely active. Figures for candle-power based on visual observations underrate its actual efficiency. Practical tests which have come under notice have proved to us the remarkable results obtained with a light which to the eye was not at all a strong light. We have before us a set of four negatives made with two Cooper-Hewitt tubes, employed to give several different lighting effects. The light was screened with muslin, the lens was worked at $f/9$, and the plate was a rapid one, but not of extreme rapidity. Yet the exposures did not run to more than 1 to 2 seconds, and the results, though not all examples of good lighting, are remarkable considering the smallness of the installation. The regular skylight outfit of the Cooper-Hewitt Company comprises five lamps, and though we have not witnessed its performance under test conditions, we can readily entertain the claims made on its behalf.

One other point before concluding our present consideration of the mercury lamp. The cost of current for lamps: on the new system works out at a very low figure. It has been found that one-third of a Board of Trade unit is used by each lamp per hour, a consumption which means 2d. per hour at 6d. per unit, or the battery of five lamps in the "skylight" outfit will cost 10d. per hour. Arc light for equal illumination (visual) can hardly be worked at this figure, and in addition to the difference, the actinic superiority of the vapour lamp must be reckoned. The economy of the lamp is thus not the least remarkable of its features, and one to which in a great measure its favourable reception has been due. Hence, on both technical and commercial grounds, there seems good reason to advise photographers contemplating artificial light in the studio to investigate for themselves the claims made on behalf of the mercury lamp.

THE Secretary of the Photographic Section, Burton-on-Trent Archaeological Society, informs us that the Burton-on-Trent Photographic Society (Y.M.C.A.) has now been merged into his Society. As members of both Societies held their meetings in the same building, it was thought advisable that all interested in photography should meet together. The business meeting of the Photographic Section of the Archaeological Society was held last week at the Society's room in Friar's Walk. W. Howarth was elected chairman, and T. J. Pullin vice-chairman. A. R. Wheatley was elected secretary. H. H. Port and G. Moore, as members of the former clubs, were appointed to act on the committee. The winter programme was arranged, and it was decided to commence a circulating folio. It was agreed to hold bi-monthly competitions. The Secretary's address is 22, High Street, Burton-on-Trent.

SOME OPTICAL FALLACIES WITH REGARD TO THE LANTERN.

ONE of the most remarkable fallacies that we meet with is the idea that the condenser must form an image of the light source at or near the node of the projecting lens if the disc on the screen is to be evenly illuminated. This may be justly styled a remarkable fallacy, considering that a glance at a properly adjusted lantern in working order will usually show that an image of the light source is actually formed some little way in front of the projecting lens, while if the projector be removed, the image will almost invariably be found a considerable distance in front of the position of the projector. The actual position of the image varies considerably with the quality of the optical system and the distance of the lantern screen, but in a large number of cases the facts referred to above are quite obvious.

How the nodal theory originated it is impossible to say, but it is evident that it has been perpetuated by various "authorities" blindly quoting from one another, without troubling to make independent investigation.

Spherical Aberration.

Every lanternist is familiar with the effects of a wrong adjustment of the light. He knows that a dark patch in the centre of the disc denotes that the light is too far back, and that a falling off in the illumination towards the margin of the disc (with, perhaps, the appearance of a dark ring within the disc) shows that the light is too near the condenser. But it is open to doubt whether many lanternists have ever considered the true cause of these appearances, or realised that they are only characteristic effects of spherical aberration.

The dark central spot, which shows that the light is too far back, is nothing but the dark spot characteristic of over-corrected or negative spherical aberration. The marginal falling off of the light on the disc, which indicates that the light source is too far forward, is nothing but the characteristic appearance of under-corrected or positive spherical aberration. Also, the dark ring, which appears when the light is much too near the condenser, is only the characteristic effect of an annular obstruction intercepting the caustic surface which always bounds a spherically aberrated light pencil; the obstruction being the mounting of the projecting lens in the particular case of the lantern.

When the illumination of the disc is uneven, the characteristic effects of spherical aberration can invariably be detected, and the true condition governing the attainment of even illumination is undoubtedly the compensation by the projecting lens of the spherical aberration due to the condenser. This fact has probably escaped notice, owing to the peculiar nature of the conditions, which are not the same as those prevailing in the case of an ordinary photographic objective. The large light pencil or beam projected by the optical system of the lantern has not to be "corrected" for its focus, but for a distant plane well beyond the focus; and the compensating lens is not a negative, but a positive. Further, the amount of spherical aberration to be corrected varies enormously with very slight movements of the light source, one adjustment giving, perhaps, only a few inches of longitudinal aberration that is easily over-corrected, while another adjustment, differing from the first by only a fraction of an inch, may give many feet of longitudinal aberration that is hardly capable of correction.

When the light is too far back the conditions are equivalent to too great a separation of the lenses of the complete optical system (i.e., the condenser and the projector). This favours over-correction, while the positive aberration due to the con-

denser is so greatly diminished by drawing the light back that it is very easily over-corrected. If the light is too near the condenser the lenses are, in effect, too close together to permit full compensation, while at the same time the aberration of the condenser is excessive in quantity. When the light is very near the condenser the light beam contains convergent, parallel, and divergent rays, which complex state of things cannot be compensated by a second lens.

Size of Objective.

Doubts of the truth of the theory that the projector should be at the apex of the cone of rays emitted by the condenser have led to the suggestion that even illumination is secured when the cone of light just fills the back lens of the projector. This condition has, however, little more to do with the attainment of even illumination than the fallacious nodal theory. It is essential that the projector should transmit all the light received from the condenser, otherwise light is cut off, and it is impossible to make a proper adjustment, but it is not by any means necessary that the cone of light should fill the projector, and in practice it very often does not do so. It will usually be found that the cone only fills the back lens of the projector when a small disc is being projected on a very near screen. If the cone exactly fitted the lens with a distant screen, then the lens would be of insufficient diameter to transmit the whole cone with a near screen, for with the latter the light has to be brought nearer the condenser, and the spherical aberration is increased and the cone widened. Such condition would necessitate the use, either of a longer focus condenser with less aberration, or of a projecting lens of larger diameter.

The Quality of the Condenser.

Though it is certainly necessary that the spherical aberration due to the condenser should be corrected, it is not at all certain that a perfect condenser free from aberration would have any material advantages. To produce a perfectly even disc, without any aid from the projector, the condenser would have to be, not only free from all aberration, but also so designed as to illuminate the slide or negative with perfect uniformity. If this latter condition were neglected the illumination of the slide would only be equivalent to that of a plane surface lighted from one small point of light. The illumination would fall off towards the margins, and this effect would be repeated on the screen, in the absence of any corrective action on the part of the projector. We should then either have to obtain a condenser of an almost impossible degree of perfection, or rely to a certain extent on the projector. Even if we did obtain the perfect condenser the whole optical system would only work perfectly and in accord with the nodal theory for one fixed distance of the screen. Any variation of the distance would introduce aberration in the condenser beam, and the projector would then have to step in and correct it. It does not, therefore, appear that the perfect condenser would have any material advantages over the usual imperfect instrument. It rather appears that it is owing to the imperfections of the two elements of the ordinary lantern system that we can attain such satisfactory illumination under a great variety of conditions, provided only that the condenser and projector are well adapted to work together.

The Source of Light.

The ordinary imperfect condenser has the further advantage that it does not require an extremely small source of light. A perfect condenser would not work perfectly in accordance

with theory except with a light source of the smallest possible dimensions, which is not a desirable form of light for ordinary projection purposes with optical or enlarging lanterns. Here we touch on another fallacy with regard to lantern optics. It is very commonly asserted that the smaller the light the better is the result, but, from the point of view of the practical lanternist or enlarger, a very small light is anything but an advantage. What is wanted is a perfect representation on the screen of just the one image plane of the slide or negative, but with a very small source of light we also get shadow images of every speck or imperfection on any of the numerous surfaces

of condenser, plate, or cover glass. In the optical lantern the light passes through eight or ten such surfaces before it reaches the projecting lens, and, while only one of the surfaces is desired to be represented, it is impossible to keep all the rest speckless. With a very small source of light even a small speck may be a complete obstruction and cast a black shadow, but with a larger source no ordinary defect can stop more than an inappreciable amount of light or give a definite shadow. Hence a light source of disc form and of moderate dimensions is by far the best for practical purposes.

C. WELBORNE PIPER.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

V.

The Question of Subscription.

As mentioned in a previous article, the vitality of certain societies and the keenness of their members are often in direct inverse ratio to the amount of the annual subscription. There are exceptions, of course, but it will be found that the most "live" societies in this country have usually a subscription of less than half a guinea. Five shillings appears to be the average if the whole of the British societies are taken together, and if a photographic society can be run without loss at this figure, the members generally appreciate what they get in return for their money far more than with a higher subscription. They, moreover, attend the meetings with regularity and take more interest in the affairs of the society. When founding a new society, this question of subscription should always have very careful attention, and the class of members most likely to be attracted to the club should be the chief consideration in fixing the amount. In any case, an amount just sufficient to cover working expenses with a membership of, say, thirty should be a guide.

Value for Money.

The question thereafter for the executive of the society should be: Are the members getting full value for their money. The attitude and attendance of the members themselves will soon answer this query. With societies that have permanent club rooms and dark rooms to which access can be had at all times, the fact is often overlooked by members that these conveniences themselves are part of the return for their subscription, which is usually higher than that of societies with no permanent homes of their own. The photographic papers, too, which are taken in by every society for the benefit of its members is also a consideration, as the combined annual subscriptions payable for these periodicals considerably exceeds the member's annual subscription. A library of photographic books and certain loan apparatus can also be used as an argument showing that value is being given for the money paid in subscriptions. Unfortunately, however, as every secretary knows too well—no matter what the annual amount may be, this return is not regarded as enough. There must be a good programme of fixtures, or interest flags.

The Fixture List.

An inspection of a number of fixture lists and winter programmes from photographic societies all over the kingdom shows a great sameness and repetition in the items. The evening meetings appear to be mostly filled by "trade demonstrations" and "lantern exhibitions." The societies that show the greatest vitality have in addition lectures and demonstrations by either members or outside workers, and those that are affiliated to the Royal Photographic Society appear to make good use of the lectures provided for them by that body. The Scottish

societies, on the whole, show greater variety, and as the majority of these are affiliated to the Scottish Federation, they take full advantage of the interchange of lectures which is one of the features of the organisation. Certain English co-operative bodies, such as the Yorkshire Union and the Northumberland and Durham Federation, also provide for a liberal interchange of lectures.

"Inside" Talent.

It is, however, in the display of original demonstrations by members that the fixture lists are weak and it is in the cultivation of these lectures by members that the energies of the society should be directed if it is to hold a position in the photographic world and do a certain amount of good for photography generally. Just how to cultivate this "inside talent" is rather a difficult matter to decide, but there is no doubt much can be done by arranging a series of "open nights" during the session, and announcing subjects for discussion. For instance, "Failures with gaslight papers" may be announced as the subject of the evening. Every member who has made prints on gaslight papers will look up all his spoilt prints, and when the evening arrives will not only have examples to show, but will also have something to say as to the probable cause of the failures. In the meantime, however, the secretary has canvassed one or two of the leading workers in the club, and prevailed upon them to undertake the start of the discussion. In this way, with a little careful work, a far more interesting evening will result than if a set lecture on "gaslight papers" has been given by one member alone, or a demonstrator from outside the society. In addition to this, certain workers among the members, who otherwise would probably not have spoken at all during the session, will be drawn into the discussion, and the observant secretary should be on the watch for these modest individuals. They will sometimes betray by their knowledge of a subject in these discussions that they have a good grasp of the subject, and only want a little coaxing to give an original demonstration of their methods. By all means, therefore, encourage the "open" discussion nights, and if meetings are held during the same period of the year as the excursions, the members should have some inducement offered them to produce the results of their photographic prowess at these outings.

Competitions.

Competitions among the members should be fostered on every occasion, and, if necessary, prizes should be offered. These competitions can be monthly, or at any other convenient interval. Either set subjects can be announced and marks given by general vote, for the best show of prints produced from negatives taken on a society excursion, and an award made by an outside independent judge. Possibly the mark system—with some substantial awards in the shape of medals at the end of the year—will work best in practice, as the members then have an objec-

in view, and the interest is kept going during the entire year. In any case the results of these club competitions should be exhibited in the rooms for one or two meetings, and if a competent critic can be persuaded to give his opinion on the prints every month so much the better. A circulating portfolio of members' work should also be a feature of every well-conducted society's programme, but this will be dealt with later.

Demonstrations and Lectures.

Every society programme should be "salted" with a sprinkling of lectures and demonstrations given by experts in the photographic world quite apart from trade demonstration, which are admittedly advertisements for the goods demonstrated. The Council of every society should therefore, at the commencement of the session, when the secretary submits a rough draft of the season's programme, arrange that a certain sum be placed on the side to pay lecturer's expenses. In most cases these do not exceed travelling expenses and hotel bills, although this last item is frequently absent, as a member will be found who will gladly play host to the visitor. Four or five of these "expert"

lectures will not only give general satisfaction to the members, but embolden many of the members to emulate the lecturers.

Visitors' Nights.

"Visitors' nights" should also be encouraged as much as possible. On these occasions a set lantern lecture, often of a general character, rather than of photographic technique, will provide a good excuse for the members to bring their friends and relations to see what can be done at "our society." The result frequently means a substantial increase in the membership. The lantern shows that figure rather too often in the programmes of many societies, consisting principally of a series of views, projected on to the screen, and accompanied with a brief title, are simply a waste of time. They should be replaced by discussion nights or demonstrations, although at the same time, the announcement that certain evenings will be set aside for the lantern, during which members' work will be shown, if they bring their slides, will be of use in helping the competitive spirit mentioned above. Other items in the fixture list will be discussed in the next article. "HON. SEC."

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

THIRD NOTICE.

THE technical section of the exhibition, as regards prints at any rate, does not strike one as being strong, and there is a great similarity to previous years' shows, which possibly is unavoidable. Still, the most striking feature is the absence of photo-mechanical processes, for with the exception of three photogravures by the Rembrandt Intaglio Printing Company, Ltd., there is not a single example, save those included in the loan collection from St. Louis. A possible explanation may be that there has been no startling innovation during the last twelve months, and the general level of photo-mechanical processes is so high that not much would offer itself as suitable for exhibition purposes.

This year, however, the lantern slides included in this section are of very high average merit, and obviously the judges were impressed with this view in that they awarded two medals for slides. We speak in vain for pictorial lantern slides. Presumably none were sent in this year, or those that were fell below the standard of the Selecting Committee. We are not surprised at this, for during the last five or six years there has been a marked falling-off, both in the quantity and quality.

The Structure of Metals.

To the casual visitor, possibly the most prominent feature will be the very large number of photo-micrographs of the structure of various metals and their alloys. Interesting, no doubt, and very instructive to the engineer and metal founder, but presenting a wearisome reiteration of general features, of which one soon tires. Mr. Ed. F. Law shows principally steel structures, whilst included in the St. Louis Loan Collection are two big collections by J. E. Stead, Messrs. Harbord and Campion, the Great Eastern Railway Company, H. C. H. Carpenter, and Dr. Rose, the last named also shows some silver cadmium alloy photomicrographs.

Dr. Vaughan Cornish is again to the fore with some unusual phenomena of waves, and although he only shows five, each is well worth noting, as it represents peculiarities in wave structure which are rarely met with or seldom recognised. Possibly the most striking of these is No. 258, which shows the interference bands formed by a succession of points of intersection between the series of diverging waves originating at the bow of the ship and those originating at the stern. To those not familiar with this exhibitor's previous work in wave studies, the selection 524-532 in the St. Louis Collection is worth noting.

Nature Studies.

Of late years an increasing number of photographers have applied their hobby to the study of Nature, and first and foremost to bird life. W. Farren shows some good prints, possibly the most interesting being No. 298, "Lapwing Studies," three prints showing a bird approaching the nest, gathering the eggs under her breast feathers and then sitting. To the ornithologist, however, no doubt No. 300, "Kentish Plover," will appeal most, as this is an extremely rare bird. Miss Turner, F.L.S., takes one of the coveted medals for No. 323, "Great Crested Grebe," a frame containing four prints, showing the bird on its nest. We must confess that we cannot quite see why these should have been singled out, because they do not strike us as being above the average. Bird studies are also shown by F. Martin Duncan, Oliver G. Pike, Jasper Atkinson, and Douglas English.

Other nature studies are shown by R. A. Malby, whose prints showing natural grafts are very curious, but more interesting still is the pair of photographs by J. B. Hilditch, showing the same tree, one being from a calotype paper negative taken in 1853 with ten minutes' exposure, and the other from a gelatine negative taken this year with 1-5 of a second exposure. C. L. Williams shows two sprays of the small-leaved Virginia creeper, printed by direct contact, without a camera; a method which recalls the old nature prints of sixty years ago, the only advantage of which we imagine to be the fine reproduction of the venation of the leaves. The fish studies, taken from life, by Dr. Ward, are good and W. Farren's prints of the skin moult of the caterpillar of the Privet Hawk moth are also striking.

Radiography and Photomicrography.

Dr. Thurstan Holland's radiographs are certainly some of the finest we have seen, and show well the structure of deep-seated parts. They speak well for the "pressure tube apparatus," designed by him, with which they were taken. The value of radiography is also well proved by Dr. Rodman's exhibit, which shows very clearly the internal structure of shells, thus doing away with the necessity of destroying the shells, which hitherto has been the universal practice.

Mr. Pigg shows photomicrographs of sections of the hairs of mammals, and Mrs. Pigg has some very good studies of the germination of a grass seed.

There are one or two other exhibits, two telephoto studies and some studies of a splash by A. C. Banfield. In this section also is a three-colour print of tulips by the carbon process by W. E. Brewerton, and next to this hangs "A Woman of Connemara," by J. Cruwys Richards, which is, we presume, a study in gum in colours.

The St. Louis Loan Collection.

Here are to be met many old friends, such as Mr. Edgar Senior's photo-micrographs of negative and Lippmann films, and the astronomical and spectroscopic work by the Rev. Father Sidgreaves, of the Solar Physics Observatory at South Kensington. Here, too, is a more extended series of the life history of a splash, a work which was, we believe, first done by Professor Worthington and R. S. Cole some ten years or so ago. Nature studies by R. B. Lodge and Douglas English, and T. E. Freshwater's photo-micrographs will be recognised, and possibly a few may remember 515 and 516, two moonlight views by Sir William Abney, which were ignominiously rejected by a selecting committee many years ago.

A very large series of metal structures is also shown, and some Playertypes. The exhibit by Mr. A. J. Newton of the work done at the London County Council School at Bolt Court, is interesting and, as we have already pointed out, with Major-General Waterhouse's exhibit of old processes, forms the only photo-mechanical work.

Visitors should certainly not miss the three-colour slides by Dr. Norman, nor the studies on the biology of flowers by B. H. Bentley, M.A., F.L.S.; these are, from an educational point of view, extremely valuable. Newton and Company are credited in the catalogue with 200 slides dealing with various subjects, but only a few can be shown in the lantern stand in the North-room.

The Lantern Slides.

We cannot remember two medals having been previously awarded to lantern slides at the R.P.S. show, it must certainly be many years ago, and, if we remember rightly, not then for technical slides. One award goes to Dr. Donald H. Hutchison, for a series of the slides of butterflies by the Sanger-Shepherd three-colour process. It is stated in the catalogue that "the scientific interest attaching to these slides is in the accurate reproduction of the colours of the insects, and the usefulness of this method for recording rare varieties." Whether we were unfortunate as regards the light or something else, we do not know, but certainly some of the less rare varieties with which we are tolerably familiar do not seem to us to possess their natural colour there being an irritating preponderance of green in many of them.

Dr. J. W. Ellis, of Liverpool, has long been noted as one of our leading lantern slide workers, and his collection of 60 slides of English and Welsh mediæval baptismal fonts fully maintains his reputation for technical skill, and he deservedly wins the second medal. Specialisation such as this is much more satisfactory from a points of view than the haphazard snapshotting which is so prevalent now, and many a one who is now discontented with his hobby would take it up with renewed vigour and interest if he followed Dr. Ellis' example.

The micro-organisms by Mr. Percy P. Wilding will appeal to the microscopist, and one or two of them are very fine examples of work. Although included in the lantern slide section in the catalogue, the case of three-colour transparencies by Mr. Walter Bourke is in the gallery with the technical prints, and as far as one can judge, the results are good examples of the process, but it is somewhat difficult to see them on account of the top light.

ON MAKING NEGATIVE ENLARGEMENTS.

II.

Control in Making the Positive.

A SIMPLER method of obtaining modifications than subsequent work of any kind is to obtain local reduction or intensification in the exposure of the positive. I mean by this that if, in the original negative, there is a portion which prints too dark, it can be corrected in making the enlarged positive. A piece of paper a little smaller than the enlargement of that part should be cut out and pasted on a large piece of glass. This paper mask may be held in front of the very thin part of the negative during part of the exposure. If there is a part of the original which is much too dense, a hole may be cut in a large piece of black paper the shape of the dense part, but smaller, and the paper held midway between the lens and the plates in the frame. This will hold back all of the rest and force full detail from the refractory portion.

Clouds.

If clouds are wanted and are lacking in the original, they may be "wiped in" on the paper backing in a way to be further described, or else printed in from another negative. To do this latter most successfully, arrange everything for the exposure except adjusting the plate. Fasten a piece of cardboard larger than the plate to be used on the easel, and have its position accurately registered as by thumb-tacks. With the lights turned out and with the projected image on the card, trace carefully the horizon line of the original negative as enlarged, and leaving the registering pins or tacks in place, cut the card in two, following the line. With the two pieces of card used alternately expose the original for the lower part and the cloud negative for the sky. If accurately done there should be no more than a hair-line to be retouched in subsequently. The same method may be used with

one negative where the clouds are very dense, in that way holding back the thin part of the negative more accurately than by ordinary shading or masking. The proper effect will then be obtained on the negative without having to resort to any shading in making good prints from the large negative.

The objection to making changes from the actual atmospheric effect at the time of exposure is that false lighting is likely to be caused rendering the "picture" worse than useless. To the pictorial worker whose first and last aim is a picture, the modifications in negative are perfectly legitimate. In fact, it has become assumed that pictorial photography means photography aided by the mind and hand. The question of honour comes in only when the photographer claims the effect to be untouched—for instance, in a contest in which unretouched work is expected and required.

Preparation for Exposure.

With a positive ready for the contact exposure, examine it carefully to determine the exposure, and to decide upon the effect required in the final negative. The exposure in contact work may be easily learned. There should be a shelf a few feet from the source of light and on a level with it for the centre of the plate. The light must be uniform; a gas-jet always turned on full; a Welsbach, always in good order; or an incandescent electric light. A trial should be made to learn the printing time either with a small plate of the make to be used or with a strip of bromide paper, covering portions and giving timed exposures, as suggested in the last article. The ratios between the paper and the plate here given may then be used to determine the exposure of the plate. If cost is not important it is still better to sacrifice one plate on an experimental exposure in sections.

In loading the printing frame for the exposure, it should be placed slanting on a shelf so that there may be the least possible opportunity for dust on the transparency. Then place, first the transparency and then the new plate in position film to film. For diffusion, use the separators which come in the plate box. A piece of black paper between the plates and the backboard of the printing-frame will obviate any possible halation. Should any part of the positive be too dense, incline the frame with that part toward the light. The negative so made should print perfectly. The time of the first satisfactory print in bright sunlight should be carefully noted and marked in one corner of the negative. All subsequent prints made under the same conditions should be uniform and the wasting of large paper will be unnecessary.

Negative Making by Contact with Bromide Paper.

The method of making negatives for exhibition work by contact, using bromide enlargements, I believe is an original one. At any rate the process is exceedingly interesting and has several advantages: Economy, in the use of but one large plate; certainty, on account of a uniform exposure being given for all negatives; and third, it is a method by which modifications and corrections may be made with greater ease than by using glass positive. In giving a detailed description of the process I would prefer to avoid personal references, but can tell the story more clearly and intelligently if I take one of my negatives and describe the means by which it was made. Let us then take the negative, 18 by 22 inches, of the picture called "Saint Anne's Day," representing the interior of a church in Brittany, with the congregation of women in their white Breton caps. The original film was made with a Kodak. I had held the camera as high as I could reach against the rear wall of the church, gauging the distance at 75 ft., and stopping down about one-half in order to bring into focus far and near points. The shutter was opened and closed with the hanging bulb, the exposure being a little over half a minute. During the time, absolutely necessary on account of the "dim religious light," many of the heads had moved, no one else knowing that a photograph was being taken. There was, therefore, a great deal of blurring in the lower part of the film, and when the negative was magnified the effect was, of course, very bad indeed. The lighting was also very irregular, being in excess in the upper part of the church and on the white caps of the women. The paper used for the enlargement, the same size as that of the plate intended to be made, was thin, smooth bromide, which has a very regular texture and a surface well adapted to the use of the pencil.

Masking.

The whole negative was first exposed for the time required to print the thin portion, then a piece of cardboard was held in front of the thin part as shown on the screen, and moved slowly upward as the lighting in the film gradually increased towards the top. The upper part of the bromide paper was in that way exposed two or three times as long as the central part. Then, with two pieces of cardboard, the whole of the image was covered except where the heavy high-lights of the caps appeared in the lower part of the film. This brought out the detail which otherwise would have been lacking. It will readily be understood that if a bromide enlargement had been made without these precautions the central part of the church would have appeared very black, or else the top would have been white and the caps mere white patches. The print, when developed, proved to have been exposed to represent uniformity of lighting, or as if there had been windows in the lower part of the building instead of at the top alone. After washing, the print was fastened to a flat board by means of thumb-tacks, so that in drying it was stretched flat and smooth. I now use, instead, a strong solution of glycerine, after which prints dry flat when hung up and have no tendency to curl.

Retouching the Positive.

The trouble commenced when it came to removing the many evidences of motion. A very few of the people had not moved, including one old woman who was standing, and these few deserved my benediction. The retouching materials consisted of a number of lead pencils of different grades of hardness. In some parts of the print, hair-lines were sufficient to make the corrections. In others it was necessary not only to use the blackest pencil, but to put on all of the lead that the paper would take. When the print appeared to be finished, it was taken from the board or easel and held up to a window so that it could be examined by means of the daylight passing through. There were still some places where the moving caps had left lighter patches. These places had to be worked up again on the white side of the paper. This was done by holding the print against a large window-pane. There were no insertions in the print, the only modifications being those for the lighting and the correction of the motion, both of which changes would be regarded as legitimate by the most earnest advocate of the doctrine of straight photography.

Making the Negative.

It is necessary in using this method to make sure that the back as well as the face of the print is free from marks or stains, excepting, of course, the retouching marks. Dirt or stain on either side of the paper will cause blemishes in the resultant negative. The materials required in making the negative are: A printing frame the size of the negative and a piece of clear glass to fit the frame. The clear glass is first placed in the frame, then the bromide picture with the white side next to the glass, and then the dry plate, coated side next to the film side of the print. The back is then clamped on the frame ready for the exposure. With a fast plate one does not obtain sufficient density on account of the thin emulsion of the paper, while a process plate would produce rather too harsh an effect. It is best to use but one kind of plate in all work by this method, and to learn the exposure and development of that plate as perfectly as possible.

The Exposure.

To make the exposure, there should be a narrow shelf in the dark room about five feet distant from the white light. A screw-hook may be used to hold the heavy printing frame in place. All bromide prints, correctly exposed and developed, will receive a uniform exposure by this method. It is therefore important to find out precisely what that exposure should be by experimenting with strips of bromide paper. The preference between underexposing and overexposing would be to overexpose slightly in order to avoid the harshness resulting from prolonged development. Such harshness would cause the grain of the paper to show in both the negative and in prints from it. Strange as it may seem, a negative properly exposed and developed gives scarcely any evidence of the texture of the paper unless one prints on a slow gaslight paper, which of course he will not wish to do with work of this character. The plate being a very little overexposed, it should be normally developed so that the image will be nearly darkened out when development is complete. Considerable overexposure will produce flatness, so that the word "slightly" is important. Development should be full, but not forced. The plate should be washed before development and the whole surface lightly rubbed with the hand to remove bubbles, which cause pinholes. The tray containing the plate should be rocked during the development to secure evenness. The result is worth the additional trouble. The negative should be carefully rinsed to avoid stains and then fixed. The best developer appears to me to be metol-hydroquinone.

Enlarging from a Small Contact Positive.

This is the method which is usually employed by the experienced amateur photographers who are willing to take the trouble to make large negatives for their own use. The reference to it can be very

brief, as the process is quite similar to that of enlarging on paper. It is not always the best looking transparency which gives the best negative. A positive made on a slow plate is apt to have more contrast than the original negative, and while such additional contrast may be very pleasing to the eye, too much harshness is apt to result in enlarging it to a negative. The right positive is usually a slightly overexposed one, developed for detail with a rather weak developer, such as diluted metol-hydroquinone. The positive must be made with the greatest care, as the most minute pinholes caused by air-bubbles or gas in old developer will, when magnified, cause the negative to be most unsatisfactory. An excellent way of printing a positive is to use a wax match and hold the small flame a little in front of the too dense parts of the negative.

Secondary Enlargements for Negatives.

The method which is usually employed by professionals in making large negatives is to first make a transparency enlargement of about one-half the diameter of the final negative and then make the final negative by a secondary enlargement from it. The reasons for this are twofold: First, some economy in plates, and second, the professional feels more at home when all of the work is done by enlargement rather than partly by contact; that is, he believes he can judge the exposures better when he sees the image thrown on the enlarging board. This method can be sufficiently learned from that which has been already written, so that no further reference to it is required.

Paper Negatives.

Paper negatives can be classed with "freak" work, suited for certain purposes, but not to be depended upon for all-round use, either by the amateur or the professional. They have the great advantage of economy. The silver emulsion of bromide paper is much thinner than that of plates. As a result, a print from a paper negative is lacking in strength and gives a flat, faded appearance. The amateur who wishes to have a "low-toned" effect may obtain it by using a paper negative. Suppose, however, that the matter of economy is an urgent one, the pictorialist not having the means or perhaps the opportunity of purchasing large plates, it is then a question of ascertaining the method of making the best possible paper negatives, for printing with sufficient contrast on any sun-printing paper. He should give the right exposure to obtain the needed detail, and, by using plenty of developer so as to keep the paper well covered from the air, give as long a development as will be possible without staining or fogging. In other words, he will aim to give the paper negative all of the "body" that can be obtained. He can work up the paper negative when dry by means of the pencil or charcoal, and in that way can frequently secure remarkably good results. A way of making these negatives with full contrast from flat originals is to work for contrast in the contact positive by using a slow plate or by prolonged development, or both. Another plan is to use gaslight paper instead of bromide, giving, with regular Velox paper, an exposure of minutes instead of seconds, as compared with bromide. This paper makes good negatives, although the increased contrast frequently makes the high lights unprintable. When the negative made by any of these processes is ready, the first print should be made in full sunlight and carefully timed. The suggestion has already been made that the time of a correct print in full sunlight should be marked in a corner of the negative with one of the blue marking pencils, so that all future prints may be correctly exposed without spoiling paper.

WALTER ZIMMERMAN.

On October 25 Messrs. Cassell and Co. will issue the first seven-penny part of Sir Benjamin Stone's pictures. The first series to be issued from La Belle Sauvage will deal with British festivals, ceremonies, and customs.

THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.

MR. C. H. OAKDEN, in welcoming the representatives of the affiliated societies at the New Gallery, Regent Street, on Friday evening, September 29, said:—

"On behalf of the Executive Committee I wish to say that it is their express desire that you should bring forward suggestions for their consideration. Every society, no matter how small, has an equal voice in the management, and any suggestion that is made receives most careful consideration, and if it is found to be valuable it is carried into effect, so that the members individually have practically a joint interest in the affiliation.

The Executive Committee, during the past year, have, owing to the new arrangements made concerning the "Red Book," a larger amount of money at their disposal, and that has enabled them to expend a larger amount for the general benefit. It was found, as the years went on, and the members of the affiliated societies increased, the demand for the "Red Books" became so much greater, and the cost consequently so much more, that very little money was left for other benefits. After a very long and careful consideration and discussion it was decided to make a small charge for the "Red Book," and in that we have included a number of permits. I think I ought to say one word with regard to these permits. They are granted as a matter of courtesy—not as a matter of right—on the part of the persons in charge of, or the owners of, the properties. Therefore you cannot make use of these permits as a matter of right, and seek to enforce the permit against the will of the owners or the persons in charge of the property. Much difficulty has been experienced in obtaining these permits, and it is the misuse by some photographers of the right to photograph that very often creates a large amount of difficulty in including a certain place in the list. To give an instance: During the past year we have been making certain inquiries and extending this list of permits. The result has been that we found in one case a society (I cannot believe that it is an affiliated society) obtains permission to photograph in a public building, and when at work there they abused their privilege and offended the principal person in charge, the man who had practically complete control. The result is we are no longer able to include that building as one which the "Red Book" will enable you to go into and photograph. The terms upon which permission is now granted are of the most onerous character. I therefore ask all members of societies, when making use of these permits, to use them in a proper manner, and not to use them in a manner which this unaffiliated society has done. I am very sorry that such a thing has occurred.

The "Red Book" also includes this year a number of half-price tickets to the Royal Photographic Society's Exhibition, and this has been arranged by the Executive Committee with a view of saving your secretaries trouble.

With regard to the print competition, the Executive are having the prints illustrating lectures passed by the Selection Committee covered with celluloid, and fitted with stiff backs.

Mr. J. McIntosh (the Secretary of the Affiliation) has written a fresh lecture upon "Intensification and Reduction"; Dr. Norman has prepared for us a lecture (illustrated) on the "Three-Colour Process in Photo-Micrography"; Mr. F. Martin Duncan, "Photography of Marine Life"; Mr. E. W. Taylor, "After-Treatment of the Negative"; Mr. F. J. Mortimer has written a lecture on "Marine Photography"; Mr. J. P. W. Goodwin on "Making Enlarged Negatives," illustrated by small negatives and enlarged negatives; Mr. F. C. Tilney on "The Romantic in Landscape"; Mr. H. W. Bennett on "The Selection of a Printing Process"; Mr. E. T. Holding, "Figure Studies"; Mr. J. C. S. Mummery, "Gum-Bichromate"; and Mr. T. Coysh, "Architecture." In addition to

lectures, arrangements are being made to provide a further set of architectural slides, with descriptions by a well-known writer. It is proposed to limit the number of slides sent in for competition at year. At the end of November we are holding a print competition on similar lines to that held in 1904; and in the following month we have a competition of an entirely different character, called a "Lecture Competition." It is open to every member to write a lecture on a photographic subject of general interest and send it in with a chance of winning a plaque and securing payment of five guineas if the lecture is accepted. The idea of this competition is to keep up the number of lectures available for circulation. One other feature that I must call attention to is the steps which we have taken during the past summer to link up to the affiliated societies those who describe themselves as "Down Unders." I refer to the societies on the other side of the world, the societies of Australia, New Zealand, and Tasmania. During the past summer representatives of those societies have visited the rooms of the Royal Photographic Society, and have conferred with the Executive Committee, and arrangements are almost completed by which lectures will be circulated on the other side of the world with equal facilities to which they are circulated in this country. I must say that these gentlemen, when they understood the advantages granted by the Affiliation, were very much surprised, and they stated that the Affiliation had been much misrepresented on the other side of the world. They practically told us that we were providing them with too much for their money. It is, however, the intention of the Executive Committee to provide you with as much as they can by the means at their disposal."

DEATH OF MR. JOHN HOWSON.

It is with very great regret that we have to announce the death of Mr. John Howson, which took place on Tuesday last, October 3, from aneurism of the heart. Mr. Howson had been in failing health for some months, but on his return from the sea quite recently it was seen that the disease would have a fatal termination. Mr. Howson's name was so well known throughout the photographic trade that it is scarcely necessary for us to refer to his connection first and for many years, with the Ilford Company, and subsequently with the Imperial Dry Plate Company. Under his commercial management—which commenced almost with the inception of the present firm of Ilford, Limited—a series of pioneer steps were taken towards the establishment of popular photography, and, as a corollary, the foundation of plate and paper making as an important industry. The introduction of P.O.P. is, perhaps, associated most intimately in the public mind with Mr. Howson's name, for he spared no energy in familiarising British photographers with the paper, which his company was the first to place on the market. But in other directions his labours were freely devoted to the important interests of the Ilford business. For several years he had been associated in the commercial management of the Imperial Dry Plate Company, Ltd., and his demise, in little more than middle life, has evoked sincere expressions of regret from the staffs of both the great establishments with which he was connected. The interment is to take place to-morrow (Saturday) at Kensal Green Cemetery.

ECLIPSE Photographs.—Gradually the results of the different expeditions of "eclipse" observers are filtering in, those from Egypt being especially interesting. Professor Turner, whose duty it was to measure the coronal light, took fourteen photographs; Mr. J. H. Reynolds mounted at Assouan his 120-ft. reflecting telescope, and with its aid took two photographs which should prove the most valuable of all. The American mission used a camera 40 ft. in length, and took eighteen photographs.

FORTHCOMING EXHIBITIONS.

September 21-October 28.—Royal Photographic Society, New Gallery, 121, Regent Street, London, W. Secretary, J. McIntosh, 66, Russell Square, London, W.C.

September 15-October 21.—Photographic Salon, 5a, Pall Mall East. Hon. Secretary, Reginald Craigie, Camera Club, Charing Cross Road, W.C.

October 11-13.—Northcote Camera Club. Hon. Secretary, H. Clifford Bennett, 26, Granville Road, Walthamstow.

October 17-18-19.—Isle of Wight Photographic Society. Hon. Sec., V. Howard Burgess, 53, Pyle Street, Newport, I. of W.

October 18-21.—Rotherham Photographic Society. Hon. Secretary, H. C. Hemmingway, Tooker Road, Rotherham.

October 19-21.—Grangemouth Amateur Photographic Association. Hon. Secretary, Robert Marshall, 3, Park Terrace, Grangemouth.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

October 31—November 1.—Cambridge and District Photographic Society. Hon. Secretary, T. J. Sowdon, Sunny Side, Guest Road, Cambridge.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November.—Bristol and Clifton Arts and Crafts Society. Secretary, R. H. Parr, 5, Grove Buildings, Blackboy Hill, Bristol.

November, December, January.—Second American Photographic Salon. H. Snowden Ward, 6, Farringdon Avenue, London, E.C.; Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

November 1-4.—Frome Mechanics' Institute Photographic Society. Hon. Secretary, Wilfred L. Watson, 14, Cheap Street, Frome.

November 1-4.—Hackney Photographic Society. Hon. Secretary, Walter Selfe, 70, Paragon Road, Hackney, N.E.

November 3.—S. Norwood Photographic Society. Hon. Secretary, George R. Beckett, 28, Carmichael Road, S. Norwood.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers, 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 16.—St. Matthew's (Bootle) Camera Club. Hon. Secretary, H. Tempest, 78, Thornton Road, Bootle, Liverpool.

November 16-18.—Burnley Camera Club. Hon. Secretary, F. Pinder, Mechanics' Institute, Burnley.

November 17.—Redhill and District Camera Club. Hon. Secretary, James Paterson, M.A., Whalley, Lynwood Road, Redhill.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 21-25.—Sefton Park Photographic Society. H. Cubley, 3, Langdale Road, Sefton Park.

November 23-25.—Isle of Thanet Photographic Society. Hon. Sec., L. G. Hodgson, 58, Queen Street, Ramsgate.

November 25-December 2.—Glasgow Eastern A.P.A. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarnock Street, Parkhead, Glasgow.

November 27-30.—Lancaster Photographic Society. Hon. Secretary, R. T. Simpson, 60, North Road, Lancaster.

December.—Muirkirk A.P.A. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-6.—Hove Camera Club. Hon. Secretary, A. R. Sarjeant, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. MacLachlan, Blairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph. A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January, 1906.—The Dover Institute Photographic Society. Hon. Secretary, H. Plowright, 47, Maison Dieu Road, Dover.

January, 1906.—Brierley Hill Camera Club. Hon. Secretary, J. Thomas, William Street, Brierley Hill.

January 11-13, 1906.—Boston Camera Club. Hon. Secretaries, H. M. Hames and R. W. Halliday, 65, West Street, Boston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

January 25-27, 1906.—South Essex Camera Club. Hon. Secretary, Thomas Michell, 180, Browning Road, Manor Park, E.

January 31, 1906.—Tring Camera Club. Hon. Secretary, J. Owen Raymond, Frogmore Road, Tring.

- February, 1906.—Windsor Camera Club. Hon. Secretary, Thomas J. Cartland, Thames Side, Windsor.
- February, 1906.—Cardiff Windsor A.P.S. Hon. Secretary, W. A. Woodward, 187, Mackintosh Place, Cardiff.
- February-March, 1906.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.
- February 3-February 25, 1906.—Marseilles Fourth International Salon. M. Astruc, Sec. Gen., 11, Rue de la Grande-Armée, Marseilles.
- February 6-9, 1906.—Guisbrough Fine Art and Industrial Society. Hon. Secretary, George Page, 34, Westgate, Guisbrough, Yorks.
- February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.
- February 20-21, 1906.—Royal Albert Institute, Windsor. J. W. Gooch, Hon. Secretary.
- Feb. 22-24, 1906.—Bowes Park and District. Hon. Sec., H. C. Bird, 91, Whittington Road, Bowes Park, N.
- February 24—March 10, 1906.—Edinburgh Photographic Society. Hon. Secretary, J. S. McCulloch, 5A, N. St. David Street, Edinburgh.
- March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.
- March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Sec., W. B. Woodland, 18, Beckingham Road, Leicester.
- March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.
- March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.
- March, 1906.—St. Helens Camera Club. Hon. Secretary, John Glover, 14, Ormskirk Street, St. Helens.
- March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.
- March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.
- March 7-8, 1906.—Doncaster Camera Club. Hon. Secretary, T. Haigh Connor, 39, Market Place, Doncaster.
- March 13-14, 1906.—G.E.R. Mechanics' Institute (Stratford). Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.
- March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Yines, Market Chambers, South Parade, Nottingham.
- March 19-24, 1906.—Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.
- April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.
- April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.
- April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.
- May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

FORTHCOMING COMPETITIONS.

- October 15.—Lantern Slide Competition, Association Belge de Photographie. Secretary, Palais du Midi, Brussels.
- October 31.—"Zigo." Cash prizes for prints on "Zigo" self-toning paper. Thos. Illingworth and Co., Limited, Willesden Junction, London, N.W.
- November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.
- December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

WARWICK Competitions.—The result of the September competition is as follows:—First prize, £10: E. C. Winney, 34, Mornington Road, Leytonstone, London, E., "Harvesting." Donation, £5, to the Woodford Photographic Society. Second prize, £5: Miss Marian Silverston, 24, Clarendon Road, Edgbaston, Birmingham, "Study, Head of a Boy." Donation, £2 10s., to the Birmingham Photographic Society. Entries for the last competition this season must reach the Warwick Dry Plate Company, Warwick, not later than October 16.

Photo-Mechanical Notes.

Transferring Image to Copper for Engraving

A correspondent, "A. S.," sends us a copper plate carry a collodion film, and asks how to do similar work. The im on the copper is certainly a wet-plate film. Any ordin collodion will do for the purpose. We have found a 2 cent. celloidin collodion to be the best for the purpose, as is quite tough, and will therefore stand handling. A suitable formula is:—

Celloidin	20 grammes.
Ether	500 c.c.s.
Alcohol	500 c.c.s.
Ammonium iodide	6 grammes.
Cadmium iodide	6 grammes.

The collodion should be coated on a piece of taled glass and, after sensitising, exposure, and development, the negative is soaked in weak acetic acid (say 5 per cent). The part be lifted is then cut out from the rest, and a piece of dam paper, cut to that size, placed over the film, which can then be lifted up. It can then be laid down on the copper. necessary to reverse, it should first be transferred to another piece of paper. It will be found that the collodion will cut without chipping if the film has been soaked sufficiently in acetic acid. In wood engraving, it is usual to coat the wood block with:—

Gelatine	2 parts.
Potassium bichromate	2 parts.
Water	100 parts.

Into this some ground lamp black is put, sufficient to make it quite black. This is then rubbed on the wood block to make a black background. It would, however, be more desirable and probably quite easy in the case of copper to blacken by chemical means. A well-known formula is a mixture of solutions of copper nitrate and silver nitrate, each 200 gr. per ounce, in which the clean copper is immersed, and heated strongly on removal.

Thursday Evening Lectures at Bolt Court School of Photo Engraving.

The following is the list of lectures to be delivered during the winter at the Bolt Court School, Fleet Street, E.C., from November 16 to March 1. Preliminary to these discourses on particular subjects, a course of five lectures on the chemistry of photo-engraving will be delivered by Mr. Kenneth Mees, B.Sc. Admission to any lecture is obtainable on application to Mr. A. J. Newton, Principal of the school. November 16, 1905.—A. J. Newton: "Ten Years' Work of the L.C.C. School of Photo-Engraving and Lithography." November 23, 1905.—Arthur Cox (Arthur Cox Illustrating Co., Ltd., Birmingham): "Photo-Engraving as a Business." November 30, 1905.—Edwin Bale, R.I.: "The Influence of Illustration in Modern Life." December 7, 1905.—R. Burch: "The History of Colour Printing in England." December 14, 1905.—Frank Colebrook: "Latest Developments in Multi-Colour Printing." January 11, 1906. Carl Hentschel: "The Future of Illustration." January 18, 1906.—E. W. Foxlee: "The Use of Bichromate Salts in Photography." January 25, 1906.—F. E. Witthaus: "English and Continental Collotype Compared." February 1, 1906.—F. T. Corbett: "The Production and Distribution of the Picture Postcard." February 8, 1906.—Arthur Dix: "The Present Position of Wood Engraving." February 15, 1906.—Wm. Gamble: "The Reproductive Arts in America." February 22, 1906.—Edward F. Strange: "Artistic Lithography." March 1, 1906.—Graily Hewitt: "Caligraphy and Illumination." March 1, 1906.—A. J. Bull: "The Photographic Lens." All lectures commence at 8 p.m.

"Carl" of Fleet Street.

Mr. Carl Hentschel has been persuaded by the editor of "M.A.P." to write a chapter of autobiography, and what he has to say of his early days with his father makes good reading for those who associate "Hentschel" with the prosaic business of photo-engraving. The elder Hentschel "was an American citizen. He invented the Gladstone bag and the paper collar, and numerous other inventions may also be placed to his credit, the patents ranging from preserving meat, making ivory out of milk, photography on porcelain, engraving on glass, and various autotype processes. He was the pioneer of process engraving, which altered the whole character of the newspaper world, and fairly revolutionised illustrated journalism . . . My father, who was an expert photographer and chemist—trained in the former capacity under Daguerre, in the latter under Baron Liebig and Professor Hoffmann—about this time turned his attention to wood engraving, and invented two or three processes for photographing on wood. I was enlisted at the early age of fourteen to assist in the practical work, and I look back with interest to a little office on the top floor in Fleet Street, near Red Lion Court, where I acted as office boy, messenger, and general workman to my father, while I was still in knickerbockers. But my father had the foresight to see that wood engraving would be superseded, and all his spare time was spent in seeking to perfect the mechanical method of reproducing illustrations on zinc, now called process work." Mr. Hentschel looks back on those early struggles with relish—the feeling, perhaps, is strengthened by improbability of their return—and recalls how his dinner was a slab of phenomenally heavy pudding and a cup of coffee, how he worked usually from 7 to 12, and how eventually he built up his present business, in which employment is found for 400 hands. Mr. Hentschel claims a record as a "first nighter" at the theatres. Since 1879 he has missed only a few of the first productions, but he thinks the happiest days of his youth were spent on the river. He was the "Harris" of Mr. Jerome's "Three Men in a Boat."

Process Instruction at Manchester.

The syllabus of the photographic and printing crafts' department of the Municipal School of Technology, Manchester, reaches us from the Director, Mr. Charles W. Gamble, to whom the equipment and organisation of this important centre of instruction in "process" must be credited. The lecture and laboratory courses include pure photography, orthochromatic and three-colour work, half-tone and line engraving, lithography, and other branches of photo-mechanical reproduction. A course of practical instruction is given, extending over two sessions, which deals with typical photo-mechanical processes. The instruction is tutorial, and of a strictly practical character, and each student attending will have full opportunity given to him for carrying out the various operations in the processes as shown. Those requiring instruction, and living within reach of Manchester, are fortunate in having access to a school where they may be taught the technical side of their craft at almost nominal fees.

New Books.

"Successful Negative Making." By T. Thorne Baker, F.C.S., F.R.P.S. London: Marshall, Brookes, and Chalkley, Limited. 6d.

The price of Mr. Thorne Baker's manual may mislead some into the belief that it is only for the beginner person; but a study of its pages shows us that the author refuses to descend to the depths of ignorance in which the photographic neophyte is reputed to abide, for we find him assuming a knowledge of the ordinary way

of doing a thing, drying a negative for example, and turning aside to give hints and precautions on methods which the more advanced photographer may study to his profit. The text of the book is quite on the modern lines of orthochromatism, etc., though we should have thought "combined development" was out of place in a text book, and the selection of intensifiers is rather curious.

"Eder's Jahrbuch, 1905." Halle: W. Knapp. Price M 8.

We substitute the conveniently brief title of "Eder's Yearbook" for that of "Jahrbuch für Photographie und Reproduktionstechnik," which appears on the cover, for Dr. Eder has associated himself so intimately with this yearly digest of photographic literature that the shorter phrase is equally descriptive of the contents. Though we may be accused of leaning towards the photographic literature of Germany, we cannot yet disguise our admiration of the summary which is produced each year under Dr. Eder's direction. The arrangement and completeness of the current volume appear equal to those of its predecessors. The original contributions, however, are less interesting to us than usual, for a large proportion are on the more recondite aspects of scientific photography; but the volume, as a whole, presents the year's work in all branches of photography in the most systematic way. Readers of German can want no better work of reference.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between September 18 to 23:—

PHOTOGRAPHIC TRANSFERS.—No. 18,888. A new method of transferring photographic transfers to the surface of any substance for the purpose of printing therefrom. Edward Richard Ede, 74, Ravensbourne Road, Catford, Kent.

DARK SLIDES.—No. 19,032. Improvements in photographic dark slides, Gustav Geiger, 4, South Street, Finsbury, London.

FLEXIBLE DARK SLIDES.—No. 19,165. Improvements in dark slides made of flexible materials, and in camera attachments for receiving same. Richard Schütttauf, Jena, Germany.

THREE-COLOUR FILTERS.—No. 19,902. Process for the manufacture of three-colour screens for use in colour photography. Robert Krayn, 322, High Holborn, London.

ENLARGERS.—No. 19,224. Improvements in and connected with photographic enlarging apparatus. Max Schütze, 24A, Luisenstr., Berlin.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

MOUNT.—No. 12,273, 1905. The claim is for a mount giving a *passerpartout* effect without cutting the matt portion proper or to produce a machine-made flat-backed mount having any kind of border, a central countersunk portion for the print and a plain or coloured inside bevel. The mount comprises three essential parts, viz., a countersunk surface sheet, a cut-out filler and support, and a back, all united to make a solid finished article. In manufacturing these mounts, a sheet of paper is subjected to pressure beneath a suitable die to countersink a central portion, corresponding to the size of the picture to be mounted. For the filler one may employ one or more sheets of the cheapest cardboard obtainable, and cut out the filler to form an opening

which will just receive the central portion and its inclined walls, leaving the outside of the bottom of the central portion flush with the outer surface of the filler. The object of the filler is to support the border portion of the outer flexible sheet and the bevelled portion, and to give the necessary rigidity and strength to the mount. The back sheet is then pasted on to the filler to support the central part and give finish to the mount. The outer edges of the mount may be bevelled in the usual manner. *Eston Saxe Cheney, 1444, Fourth Avenue, Oakland, California, U.S.A.*

PLATES IN ENVELOPES.—No. 11,786, 1905. The invention refers to a system of carrying plates in envelopes, the latter being transferred to a holder, withdrawn (leaving the plate inside), and re-inserted, to enclose the plate after exposure. The holder or exposing chamber contains a receiving shell, into which the envelope containing the plate is inserted. The plate is transferred to this slide without access of light, and is removed from it after exposure, the mechanism necessary for these operations requiring the drawings given in the patent specification for its proper explanation. *Jesse Daugherty Lyon, Farmers' National Bank Buildings, Pittsburgh, Alleghany, Pennsylvania, U.S.A.*

PIGMENT PRINTING.—No. 26,456, 1904. The basis of the new process is the fact that neutral and insoluble chromates, e.g., those of copper, cobalt, mercury, etc., insolubilise a layer of colloid and pigment when acted on at the same time by dilute acids. Paper is sensitised with a ferric salt, such as does not form (when reduced) a precipitate with bichromate, but does so with neutral chromates. A visible image of ferrous salt is obtained, and, on treatment with a bichromate, reduces the latter to chromate the latter at once yielding a precipitate with a metallic salt, such as sulphate of copper, present in the paper. The precipitate thus forms on the parts acted upon by light, and the paper is then washed for a short time and pressed against a pigment paper impregnated with a dilute acid. After some hours development is done in hot water in the usual way, with the result of an unreversed pigment print. Suggested formulæ for the process are:—Coating mixture.—1000 parts of water, 10 parts of gelatine, 5 parts of chrome alum, 100 parts of ferric chloride, 100 parts of citric acid, and 100 parts of copper chloride; dry in the dark. To prepare a copy, expose in daylight under a negative until the picture is clearly visible. Immerse the copy for 1-2 minutes in a solution containing 5 per cent of bichromate of potassium, wash for 5 minutes under the tap, to remove the excess of bichromate, and then press the copy under dilute sulphuric acid (5:10000) against a pigment paper (coated with gelatine or gum and a dye). Squeeze the two papers together to remove the air bubbles, and press between blotting-paper for about 3-6 hours. Then soak in hot water, until the picture can be readily detached from the pigment paper, and wash the former with hot water until all the parts not acted upon by light have disappeared and a very distinct picture is visible. *H. E. Newton, for the Farbenfabriken vormals, Frederick Bayer and Co., Elberfeld, Germany.*

GELATINE-COLLODION FILM.—No. 10,372, 1905. A gelatine film protected on either side by a layer of nitro-cellulose is made as below described, instead of by the methods hitherto used of immersion of the film in nitro-cellulose solution, or of coating nitro-cellulose, gelatine, and, again, nitro-cellulose on a glass plate. Two component films are prepared by coating upon an appropriate smooth base a gelatine solution, and, after drying, coating upon this again a solution of nitro-cellulose; when the double films are dry they are stripped from their base, the gelatine surfaces brought together in a slightly moist condition, squeegeed together, and

thus brought into intimate combination. If such a film is to be employed for photographic purposes, one of the component films is coated before stripping from its support with a photographic gelatine emulsion. This process produces films composed of a double gelatine film with a protective coating of nitro-cellulose in intimate combination with the gelatine surfaces upon both sides, which withstand the action of the photographic baths and solutions and show no tendency to curl. *John Henry Smith, 417, Seestrasse, Zurich.*

New Materials.

Folding Screen Mounts and Flexible Album. Made by Kodak, Ltd., 57-61, Clerkenwell Road, E.C.

The Louis XV. screen mount is a new departure and is founded on the design of a three-fold Louis XV. screen. Three slip-in mounts of appropriate shape are fastened together with red silk ribbon hinges, the colour being a quiet shade of green with lithographed design. Openings of different shapes are supplied, and when filled with photographs the mount looks very attractive. Another type of mount is the "Watteau" mount. This is similar to the "Louis XV.," but the openings differ in shape. They are both supplied for quarter-plate and 3a F.P.K. or postcard pictures at sixpence each.

The Flexible Album is a very neat variant of the usual album. It is of the paste-in variety with leaves of thick art green paper. The covers are stout but flexible, and the single word "Prints" stamped in gold on the outside is not obtrusive. The album is made in two sizes, No. 1, with twenty-four leaves, measuring 6½ in. by 5 in., and No. 2, with fifty leaves, 10 in. by 7 in., the prices being 1s. and 2s. 6d. respectively. A pocket is provided inside the back cover for the accommodation of loose prints.

"Chess" Brand Bromide Paper. Made by Photographic Materials, Ltd., Rickmansworth, Herts.

Samples of this latest claimant for notice by bromide workers have been sent us. The paper is made in four grades—rough, smooth, glossy, and cream-tinted. It is well coated, and works very evenly, good black tones being obtained with any normal bromide-paper developer. The paper is rapid, and needs a very short exposure, about six seconds at a distance of 3 ft. from a 16 c.p. incandescent electric light giving fully exposed prints with a negative of normal density. The following one-solution developer is specially recommended by the makers:—Metol 10 grains, hydroquinone 30 grains, soda sulphite 330 grains, soda carb. 330 grains, water 20 oz., 10 per cent. solution of potassium bromide 20 drops. The paper is sold in the usual sizes at popular prices.

The Lambton C.C. Printing-out Paper and Postcards. Sold by Chad Hodgson, 5, Wade Street, Leeds.

The Lambton C.C. paper is a well-made production that prints rapidly and tones to a good colour in the sulphocyanide toning bath. There appears to be little indication of blistering when using this paper, although special instructions are given for its prevention. The postcards are also reliable in this respect, and both in the glossy and matt varieties give very pleasing results with little trouble. The paper is supplied in the usual cut sizes and sheets.

"Rajar" Bromide Paper and Postcards. Made by Rajar, Ltd., Moberley, Cheshire.

The latest introduction of the "Rajar" Company takes the form of a first-class bromide paper. It is specially intended for enlarging by artificial light, and our tests prove it to be rapid for contact

work. Good black tones appear to be easily obtainable. The paper is made in five grades, and sells in rolls or packets at the usual prices.

"Primoids." Made by W. Butcher and Sons, Farringdon Avenue, London, E.C.

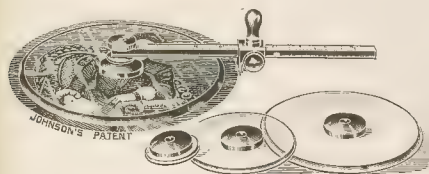
These chemical preparations are in the form of small circular tablets, and are sold in glass tubes. They are easily soluble in water, and make standard developers and toning solutions with very little trouble. They are at present supplied in four varieties, and are not expensive.

In our hands, "Primoid" Metol Quinol developer proved clean and quick-acting for both plates and films, and the "Primoid" Gold Toning and Fixing appear to give a reliable combined bath.

New Apparatus, &c.

The Victor Circle Trimmer. Sold by Charles Johnson, High Street, Gillingham, Dorset.

This is a well-made, practical piece of apparatus for rapidly cutting circular prints or thin mounts. Glass circles are supplied with central bosses to take a loose arm carrying a wheel cutter at one end. At the other end of the arm is a pin which engages in a hole in the central boss. The glass plates are only used to hold the print down

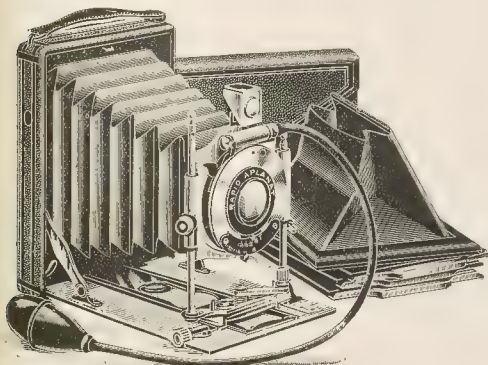


firmly, and not as a guide for the cutter. Circles of any diameter up to 9 in. can be cut, and the size is easily regulated by means of a sliding clamp on the loose arm.

It is a useful little piece of apparatus, and is now stocked by most of the leading houses.

The "Minimum Cameo" Folding Hand Camera. Made by W. Butcher and Sons, Farringdon Avenue, London, E.C.

This little camera, just introduced by Messrs. Butcher, can claim

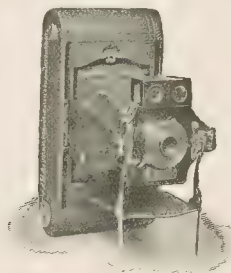


to be one of the smallest quarter-plate folding cameras on the market. It measures but $4\frac{1}{4}$ by $5\frac{1}{4}$ by 1 in., and is exceedingly light. When open, however, it will be found to possess all the

attributes of a complete folding camera, and it seems remarkable how so much can be compressed into such a small compass. The lens is a rapid aplanat of excellent covering power, and a reliable ever-set diaphragmatic shutter is included. A hooded focussing screen can be used, and a rack and pinion forms part of the base board for fine focussing. Rising and falling and cross-front movements, and a neat little brilliant finder forms part of the equipment. The plate-holders are well made of metal, and hold one plate each. They are supplied in a neat little carrying case. The entire outfit is very dainty, and excellently constructed. Full particulars will be supplied by Messrs. Butcher on application.

A New Model 1a Pocket Folding Kodak. Made by Kodak, Ltd., 57 61, Clerkenwell Road, London, E.C.

This latest introduction of the Kodak Company is an improvement on the earlier form of the popular little camera known as the 1a F.P.K., and the features we favourably commented upon when recently reviewing the No. 1 F.P.K. (New Model) have been embodied in this pattern. The working parts are entirely enclosed by the folding base board, and this base, which now protects the hitherto exposed lens and shutter, is so connected with the front that the action of opening the camera instantly brings the front into



the correct position for work. Only this one operation is necessary, therefore the camera can be said to be always ready for immediate use. From its design the camera is necessarily of fixed focus, and the lens, which is capable of giving excellent definition at full aperture, is neatly mounted in an ever-set shutter. The camera takes pictures measuring $4\frac{1}{4}$ by $2\frac{1}{2}$ in., and, being constructed on the daylight loading and changing principle, can be charged with spools for twelve or any less number of exposures. As a pocket film camera it would be hard to beat, and if Messrs. Kodak could be persuaded to fix some sort of focussing device to the lens its utility would be even greater. The price is only 50s., and the little camera should prove just as popular as its predecessor.

CAMBRIDGE and District Photographic Club will hold its first "open" exhibition in the Guildhall Buildings, Cambridge, on October 31 and November 1 and 2, 1905. The judges will be Messrs. A. Horsley Hinton and H. Snowden Ward. The awards will take the form of specially-designed bronze plaques, silver plaque being awarded to the best picture in the members' and open classes. As Cambridge possesses a very large class of University residents who are very much interested in art, the exhibition ought to be a great success, both from the promoters' and exhibitors' points of view. Arrangements have been made to forward exhibits to the Ipswich exhibition free of charge. Schedules and all information may be obtained from the Secretary, Mr. T. J. Sowdon, Sunny Side, Guest Road, Cambridge.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Oct.	Name of Society.	Subject.
6.....	Blackburn Camera Club	Development by Pyro-Soda. Mr. W. A. McLean.
7.....	Glasgow Southern Photo. Assn.	Outing to Milngavie.
7.....	Woolwich Photographic Society	Outing to St. Paul's Cray.
7.....	Kinross Park Camera Club	Outing to Gleniffer.
9.....	R.P.S. Exhibition New Gallery	Picturesque Devonshire. Mr. John A. Hodges, F.R.P.S.
9.....	Southampton Camera Club	"Westminster Abbey." Part I.—Its Evolution and Historical Associations. Illustrated. Mr. E. W. Harvey
9.....	South London Photo. Society	Paper, Hon. M.S.A. (London).
9.....	Luton Camera Club	"Cameras and Apparatus." Mr. W. Page.
9.....	Leek and District Photo. Soc.	"Auto-Paste." The Autotype Co.
9.....	Barrow Naturalists' Field Club	Development of Plates, by Messrs. Howarth, Nithsdale, and Prince.
10.....	R.P.S. Exhibition New Gallery	"Recent Work Among the Birds." Illustrated. The President.
10.....	Sheffield Photographic Society	Presidential Address: "By-Paths of Photography." Major Gen. J. Waterhouse.
10.....	Halifax Camera Club	"What I Saw in a Dutch Fishing Village." Mr. T. P. Brogden.
10.....	Thornton Heath Photo. Society	"P.O.P. from Negative to Mount." Mr. J. H. Hanson.
10.....	Leeds Photographic Society	Demonstration of Kodak Specialties, by Kodak, Ltd.
10.....	Darlington Camera Club	"Through to Venice, the Queen of the Adriatic." A Lantern Lecture with Dissolving Effects, Depicting Sunrise from Pilatus Summit, and Venice by Night. Mr. A. A. Pearson.
10.....	Gateshead Camera Club	Grand Opening Night and Social Evening, with Music, and Exhibition of Lantern Slides.
11.....	Photographic Club	"The Rapid Printing of P.O.P. by Development." Dr. A. W. Blacklock, M.D.
11.....	G.E.R. Mechanics' Institution	"Some New Applications of Velox." Mr. A. W. Green.
11.....	Huddersfield Nat. and Ph. Soc.	"The Amateur Photographer 1904 Prize Slides."
11.....	Boro' Poly. Photo. Society	"Through Canada from the Atlantic to the Pacific." Mr. Ernest Slater.
11.....	Hull Photographic Society	Summer Outings Print Competition.
12.....	Handsworth Photo. Society	"Yorkshire Minsters." Mr. C. B. Howdill, A.R.I.A.
12.....	London and Prov. Photo. Assn.	"Printing on Bromide Paper." Demonstrated by Mr. E. G. Collins.
12.....	Glasgow Eastern Ama. Ph. Assn.	"Gum Bichromate." Mr. J. C. S. Mummery, F.R.P.S.
12.....	R.P.S. Exhibition New Gallery	"Gum Bichromate." Dr. Andrew Richmond.
		Pictures in Colour by Triple Projection. Sir W. Abney, K.C.B., D.C.L., F.R.S.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

MEETING of the Liverpool Branch of the P.P.A.—The first meeting of the session was held September 29, G. Walmough Webster occupying the chair. The secretary reported progress in the matter of the promotion of a Professional Photographers' Club. The matter had been postponed at an earlier meeting, and it was now regretfully resolved that it be postponed indefinitely owing to the limited support the circulars had evoked. The secretary was instructed to convey through this report acknowledgments and thanks to those photographers who had replied favourably to the circular.

Mr. Priestly passed round a series of interesting and very successful photographs he had taken of the recent eclipse of the sun, giving details of the circumstances under which they were taken; he also showed the members some pictures of entomological interest, notably pictures of a caterpillar feeding, and when disturbed simulating a twig of the branch he was feeding on.

Mr. Webster commented on the foolish action of many photographers in parting with their copyrights at absurdly low prices, and gave some interesting personal experiences. Mr. Mowll pointed out how on this point, as on many others, lack of concerted action was altogether at the root of the grievance, thereby enabling the purchaser to play off one photographer against another to their disadvantage. It was announced that at the next meeting there would be a discussion on the platinotype process.

THE Cripplegate Photographic Society's new session commences on Monday, October 9, with a demonstration by J. C. S. Mummery, F.R.P.S., on gum-bichromate.

WORTHING CAMERA CLUB.—The Worthing Camera Club has entered upon a new venture, which should prove successful. Club rooms have been secured in Liverpool Terrace, where all necessary accommodation in the shape of dark-rooms, committee and lecture halls, etc., will be provided. It is hoped that the enterprise of the committee will result in an increased membership. It is possible that the subscription will be increased for new members, but the extra benefits will justify it.

WARRINGTON PHOTOGRAPHIC SOCIETY.—The second of the winter series of demonstrations was given on Tuesday last by Mr. Kenneth F. Bishop, who dealt with the whole subject of postcard printing.

ILFORD AND DISTRICT PHOTOGRAPHIC SOCIETY.—On Monday evening last the autumn session of this society was opened by a meeting in the Cranbrook College. Mr. A. E. Colledge gave a lantern lecture on "Common Insects as seen through the Microscope."

BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—At the annual general meeting on September 27 the following officers were elected: Mr. A. Bedding (president), Mr. W. Page (vice-president), Mr. F. W. Crutenden (treasurer), and Messrs. A. J. Blane, J. Bullock, E. W. Burch, P. C. Cornford, C. Inskeep, J. N. Spare, A. J. Sturgess (committee). The secretarial work is now in the hands of Messrs. G. W. Francis and G. Wynne, to whom communications may be addressed, at 103, Borough Road, S.E.

CROYDON CAMERA CLUB.—September 27. An almost record attendance of members assembled on this, the opening night, to hear Mr. F. J. Mortimer lecture on Marine Photography. The president, Mr. W. H. Smith, in a few opening remarks, said that he was glad to note that the club was going stronger than ever. A large number of new members had recently joined, and the club was well represented at the R.P.S. Exhibition, and also in evidence at The Salon. Perhaps the scientific aspect of photography, and its unsullied technique, attracted him more strongly than the "art" side. They had several members doing, and capable of doing original work, and he should be sorry to see research work in any way neglected.

NEWCASTLE AND NORTHERN COUNTIES PHOTOGRAPHIC ASSOCIATION.—The twenty-fourth annual meeting of the above association was held at Crosby's Cafe, Northumberland Street, Newcastle, on Tuesday of last week. The reports of the hon. secretary and the treasurer were both adopted, and the election of the office-bearers took place as follows:—President, Mr. J. W. Dyson; vice-presidents, Messrs. W. E. Cowan, J. J. Kirkwood, W. Dotchin, and J. H. Holmes; council, Messrs. C. E. Barkas, W. Parry, W. S. Corder, W. L. Cookson, D. A. Lowery, T. M. Clague, W. G. Lewis, E. Holmes, D. Wait, and E. G. Lee; lanternists, Messrs. T. Bulman and J. H. Harbottle; honorary secretary, Mr. F. Milburn; assistant honorary secretary and treasurer, Mr. A. Scott; Federation delegates, Messrs. J. W. Dyson and F. Milburn; Affiliation delegate, Mr. J. Brown.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—September 28. Mr. E. R. Human in the chair. Mr. C. H. Hewitt, of the Photographic School, Regent Street Polytechnic, gave a lecture on portraiture. Confining himself to portraiture out of doors and in ordinary rooms, he remarked on the tendency of the former to flatness and of the latter to hardness. Relief was obtained out of doors by the old device of putting the sitter in an angle of two walls, so as to cut off light from one side. A large umbrella or a child's hoop covered with canvas served to intercept the excessive toplight. Outdoor portraits, said the lecturer, were better if frankly aiming at an outdoor effect. Attempts to obtain the appearance of por-

is taken in a studio were rarely successful. In indoor work similar expedients of lighting were mentioned, stress being laid on a suitable angle of the "line of light," (i.e. the line along which it falls on the sitter), and the "line of vision" (i.e. the straight line between sitter and camera). A good position for the sitter was on this angle was 45 deg. A method of softening contrasts by increasing the intensity of the high lights without increasing the necessary exposure was to interpose a diffusing screen of muslin or finer's tracing cloth between the light and the sitter. The alternative method was to lighten the shadows by reflecting more light on them, in doing which too white or too near a reflector was to be avoided, as it introduced secondary lighting on the face, giving high-lights, which were comparable with those from the principal source of illumination. A grey and somewhat distant reflecting screen was therefore better, and in line with the suggestion of H. P. Robinson that the walls of the studio should be turned into reflectors by being papered a light grey. Whatever reflector was used, it should be employed to carry on the illumination of the main source of light. In regard to negative-making, Mr. Hewitt mentioned that to obtain a negative perfect for platinotype printing the commercial method was to expose and develop for good half-tones, but otherwise not of the strength at the ends of the scale for platinotype. It is easy to turn out a negative such as this, and the finishing touches of density and shadow are put in with the pencil and knife. Referring to the defects which occurred more or less in all sitters' portraits, and which the photographers had to disguise, the lecturer mentioned the crooked nose—photograph that side of the face from which it turns; unlevel eyes—have the lower eye the further from the camera; eyes of unequal size—the larger eye should be placed nearer the camera; and the "narrow-slit" type of eye, which was treated by inclining the chin of the sitter downwards and making him look upwards to the lens, the eye being thus expanded. The persons were best photographed when leaning forward, as the thick and double chin then showed the fat to a less marked extent. The proposition of Mr. J. S. Teape a vote of thanks was accorded Mr. Hewitt.

SOUTHAMPTON CAMERA CLUB.—The winter session of this club was inaugurated on Monday, the 26th inst. by the Rev. H. W. Dick, of Manchester, who lectured on the subject of "Art by Photography." The lecturer started out from the point that, while the use of the camera in the way of simple record and work of purely passing interest is quite understandable, yet that the true use of photography was the more serious attempt to produce works of art by means thereof. Disclaiming all ability to produce a simple phrase embodying a perfect description of what art is, he urged that art is the embodiment of some means and in some form of an idea or feeling which is in the man himself. He pointed out that art had nothing to do with the means by which it was expressed, and also, by various illustrations, how the ability to reproduce with great faithfulness any familiar natural scene might prove a man a wonderful craftsman, while he might be devoid of artistic sensibilities. Carrying on his principle into the practice of photography, the lecturer urged his audience to use their skill with the camera as a means of carrying out their artistic conceptions, so that with them art should live by its means. He pointed out that all workers who professed to be serious in their work should set out to find material to embody their previously conceived ideals, and drove home the point by explaining the inartistic procedure of searching for a title for a print instead of working up to the title or idea previously chosen. Coming to his especially favourite work of figure study, the lecturer proceeded to urge four chief requirements: first, simplicity of subject; second, the subduing of detail in surroundings; thirdly, accentuation of lighting and of characteristics; and, lastly, reality of occu-

pation in the model. Afterwards he proceeded to show a fine selection of slides illustrating his principles.

FIXTURE LISTS AND EXHIBITION PROSPECTUSES RECEIVED.

THE winter syllabus of the HULL PHOTOGRAPHIC SOCIETY points to the fact that the council have had the requirements of the beginner well before them when drawing up the list of fixtures, and a large and varied programme of good things has been prepared. We note a lecture on "The Principle of Composition in Pictorial Art," by J. Somerscales, the well-known painter. This should prove a very instructive evening.

THE EDINBURGH PHOTOGRAPHIC SOCIETY is again well to the fore this year with an attractive winter programme, and the SHEFFIELD PHOTOGRAPHIC SOCIETY's syllabus takes the form of a well got-up little booklet. Interesting lectures and demonstrations are announced for every Tuesday, from October 3 to May 1, 1906, and a series of "elementary nights" appear to be a feature. The PHOTOGRAPHIC SECTION OF THE G. E. R. MECHANICS' INSTITUTION, Stratford, usually has an attractive list for the winter session, and this year it is well up to standard. Fixtures are announced for every Wednesday from September 27 to May 9, 1906.

THE GLASGOW SOUTHERN PHOTOGRAPHIC ASSOCIATION's winter programme also shows evidences of considerable vitality among the members, and the THORNTON HEATH PHOTOGRAPHIC SOCIETY has a fixture list which promises several interesting evenings, among which we note "Soirée Dansantes," "Conversational Evenings," a lecture on "Mud Island and its Flats by One of Them," and a humorous demonstration of spirit photography.

THE CHELSEA AND DISTRICT PHOTOGRAPHIC SOCIETY, the WANDSWORTH CAMERA CLUB, and the JERSEY PHOTOGRAPHIC SOCIETY have each produced a card of fixtures that indicates the healthy state of the respective societies.

THE REDHILL AND DISTRICT CAMERA CLUB, the HANDSWORTH PHOTOGRAPHIC SOCIETY, and the SHEFFIELD FRIENDS' SCHOOL PHOTOGRAPHIC SOCIETY have also published their winter programmes indicative of a good season's work; and the GATESHEAD CAMERA CLUB and the BARROW-IN-FURNESS NATURALISTS' FIELD CLUB have lists of interesting fixtures.

Exhibition entry forms and particulars have been sent us by the following societies:—

SOUTHAMPTON CAMERA CLUB.—Last day for entries, November 11. Hon. sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

EDINBURGH PHOTOGRAPHIC SOCIETY.—Last day for entries February 10, 1906. Hon. sec., J. S. McCulloch, 3A, North St. David Street, Edinburgh.

BURNLEY CAMERA CLUB.—Entries close November 8. Hon. sec., F. Pinder, Burnley Camera Club, Mechanics' Institute, Burnley.

GUISBOROUGH FINE ART SOCIETY.—PHOTOGRAPHIC SECTION.—Entries close January 31, 1906. Secretary, Geo. Page, 24, Westgate, Guisborough.

TRING CAMERA CLUB.—Entries close January 1, 1906. Hon. sec., J. Owen Raymond, Frogmore Street, Tring.

ISLE OF THANET PHOTOGRAPHIC SOCIETY.—Entries close November 11. Hon. sec., L. G. Hodgson, 58, Queen Street, Ramsgate.

IMPROVEMENTS in Edinburgh Photo Society Premises.—During the summer recess extensive alterations have been carried out on the society's premises. In place of the small dark-room there is now a spacious apartment containing every fitting which the most exacting and enthusiastic photographer could desire. One side has been fitted for four bromide workers, and the other for six plate or film workers, whilst down the centre a screen has been placed with tables and racks on each side, at the end of which washers have been erected. Electric light has been fitted throughout the premises, and in the dark-room each worker has a light controlled by a separate switch for his own use.

News and Notes.

LECTURES at the R.P.S. Exhibition.—The following lectures will be given at the New Gallery during the ensuing week:—Saturday, October 7: "Nine Thousand Miles in Five Weeks," by R. Child Bayley, F.R.P.S.; Monday, October 9: "Picturesque Devonshire," by John A. Hodges, F.R.P.S.; Thursday, October 12: Pictures in Colour by Triple Projection, by Sir W. Abney, K.C.B., D.C.L., F.R.S.

POSTCARD Vagaries.—"Truth" last week had a word or two to say on the present chaotic state of the postcard regulations in the postal authorities' scheme of jurisdiction. The editor remarks:—"I have received sundry letters drawing attention to the absurdity of the international postal regulations with regard to postcards. There is, for instance, a bewildering diversity of practice respecting the use of the face of the card for correspondence. Here, the left side of the face of the card may be so used for inland, but not for foreign postage. In some countries abroad the same rule is enforced; in others, cards with correspondence on the face of them are passed in certain specified cases for foreign postage, though not for the United Kingdom. Again, any card within the regulation size, bearing a halfpenny stamp, is accepted here as a postcard for inland postage, regardless of the question whether the words "post card" are printed across it. For foreign postage, however, it must have this printed endorsement. Everybody is supposed to know the regulations, but few people do so, and all this confusion leads to the vexation and expense of constant surcharges for unwitting mistakes. Surely it should not pass the wit of the authorities of the Postal Union to devise a uniform code in these and similar matters."

At the Whitechapel Art Gallery, High Street, Whitechapel, E., a photographic exhibition is to be held this autumn. The exhibition will be open free, daily from 12 noon to 10 p.m., for four weeks from the end of October. The Trustees of the Gallery will undertake the expenses of collection, and will insure the exhibits if wished. The exhibits will be collected about October 20, and invitations are being sent to all the leading British workers for loan of their pictures. The Gallery, which is within fifteen minutes' walk from the Bank, was opened by Lord Rosebery in 1901. Since then sixteen exhibitions have been held, and nearly 2,000,000 people have visited the Gallery, so that, besides providing a source of interest and pleasure to the poorer people of East London, such an exhibition as the one now being organised offers an opportunity of making pictorial photographic work very widely known to people in all parts of London. A section will be devoted to the early development of photography, and any exhibits illustrating this will be welcomed. Charles Aitken is the Director of the Gallery, and all communications should be addressed to him as above.

NATURE Lectures.—Mr. F. Martin-Duncan, whose unique photographs of animal life have been so widely admired, notifies that he is prepared to lecture on one or two subjects during the present season. The lectures at present arranged are "Pond Life," "Denizens of the Deep," "Devil Fish and Kraken," and "Flesh-feeding Plants," and "With Microscope and Camera." Appropriate selections from the marvellous series of animated pictures taken by Mr. Duncan with the Urban-Duncan micro-bioscope, and produced with extraordinary success by the Charles Urban Trading Company, Ltd., can be included in these lectures by special arrangement. We can

scarcely promise a greater treat of interesting discourse and sensational illustration than one of these lectures.

THE Southern Exhibitions.—The southern exhibitions have each their position amongst the foremost of provincial exhibitions for the fourth year the Southampton, Hove, and Southsea Societies are co-operating together. To those exhibitors who intend exhibiting at all three exhibitions, free conveyance of exhibits is offered between the Hackney, Southampton, Hove, and Southsea shows, and as the first-named Society collects exhibits free from the Royal and Salon, this will be extremely convenient to those whose exhibits are either "hung" or "unhung," are at present at the London exhibitions. The Isle of Wight and Frome Societies also convey exhibits free to the Southampton Exhibition. Each of the Societies has fresh designs for their plaques this year, and a special award in the shape of a bronze salver is offered to the exhibitor who is adjudged the winner of the best collective exhibit in the three shows. The following are the judges for the respective exhibitions:—Southampton: Rev. F. C. Lambert, M.A., F. H. Evans, and A. Horton; Hove: E. R. Ashton, Charles Job, and J. C. S. Mumm; Southsea: Reginald Craigie and H. Snowden. Entry forms and full particulars can be obtained from the respective secretaries, who are:—Southampton: S. G. Kimber, Clarendon, Highfield, Southampton; Hove: A. R. Sargeant, 55, The Drive, Hove; Southsea: F. J. Lawton, 20, Clarence Square, Gosport.

DURING a cinematograph exhibition at a Portuguese theatre the apparatus caught fire, and the building and the one next to it were completely gutted. Our contemporary "The Globe," commenting on the affair, remarks:—"The audience, though annoyed at having their entertainment broken off in the middle, could not but admit that the one substituted for it was worth looking at. No exhibits were given."

Commercial & Legal Intelligence

KODAK CASES.—In the Vacation Court, Mr. Justice Bray was asked for leave to serve notice of motion with the writ in an action brought by Kodak, Limited, against Kearney for next Wednesday. Lordship gave leave as asked.—In the London Vacation Court, before Mr. Justice Bray, sitting as Vacation Judge, counsel applied for an action of Kodak, Limited, v. Hall to serve notice of motion for an injunction with the writ. Counsel stated that it was an action of infringement of trade mark and passing off. Mr. Justice Bray granted the application. There was also down in the paper for hearing, before Mr. Justice Bray in the Vacation Court, a motion in the action of Kodak, Limited, v. Hutchings. Counsel for the plaintiff said that the defendant's counsel had consented to treat the motion as the trial of the action, and to agree to a perpetual injunction restraining the defendant from doing what was complained of, and to pay 40s. damages and costs.

THOMAS WELLS, LIMITED (85,885).—Registered September 1904. Capital, £100 in £1 shares. Object, to carry on the business of chemists, druggists, dyers, oil and colour men, manufacturers of photographic and scientific apparatus and material, etc., and, in particular, to take over the business formerly carried on by the late Thomas Wells at 91, Charlwood Street, Pinlipo.

A. H. TAYLOR AND CO., LTD., has been registered with a capital of £1,000 in £1 shares, to acquire and take over as going concerns the businesses carried on as Alfred Edward Haybury in Liverpool, Manchester, Oldham, Blackburn, Sheffield, and Newcastle as H.

jets, and as Lauder in Liverpool, and to carry on the business of photographers, dealers in photographic materials of all kinds, etc. Registered office: 262, Upper Parliament Street, Liverpool.

PHOTOLITHO Printing-Surface Company, Limited.—Registered September 25 by Robbins, Billing, and Co., 218, Strand, W.C. Capital, £10,000 in £1 shares. Objects: To adopt an agreement with W. Hudson, E. Hudson, and H. B. Hudson; to acquire and work the secret process of photo-zinc lithographic printing referred to therein; and to carry on the business of photo-lithographers, printers, etc. No initial public issue. Registered office, 35, Surrey Street, Strand.

PHOTOGRAPHIC FRAUDS.—The police are seeking a short old man who has secured a large number of half-crowns from poor people in Chichester, West Sussex, and East Hants. The man obtained photographs of their relatives from his victims for the alleged purpose of enlargement, and promised to return in a few days. Weeks have elapsed, but the man has not appeared. He gave an address in Portsmouth, but he is unknown in that town.

MISSING CAMERAS.—A remand was ordered at the Guildhall last week in the case of Ebenezer John Faulkner, an engineer, from Manchester, charged with stealing two hand cameras and a tripod, value about £15, from the premises of Messrs. R. J. Beck, Ltd., opticians, Cornhill. The firm's manager stated that Faulkner was a casual customer, and called at their shop on Thursday afternoon with a large kit bag. After he had been there some time the articles forming the subject of the charge were missed. A policeman was called, and, on the bag being searched, they, it was stated, were found inside. Detective-sergeant Gale stated that he had been to the address of a relative of the accused, and had found there some £40 or £50 worth of stolen property, some of which was identified by Mr. Beck.

Correspondence.

* * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * * *We do not undertake responsibility for the opinions expressed by our correspondents*

MYSTERIOUS PHOTOGRAPHS.

To the Editors.

Gentlemen,—Noticing the paragraph in "News and Notes" on "Mysterious Photographs," might I add a suggestion which, although very improbable, is not altogether impossible, viz., that the impression was in the glass? I have seen, some years ago, a family group 12 x 10 on the sides of a greenhouse quite plainly; the plates had been previously used at a photographer's.

I do not wish to suggest that plate-makers use old plates; but I do believe there is something in the melting of old negatives which have stood years away and become printed in the glass, but I do not know whether they would still remain or show if the glass plates remained intact after being thrown into the melting with the films on. I should be pleased to hear if this could be so.—Yours faithfully,

IGNORAMUS.

[Our correspondent no doubt refers to the wet-collodion process, in which an image from a previous exposure might frequently re-occur if the glass was not chemically cleaned. We have some recollection of allegations of the same kind having been made against gelatine plates; but we cannot imagine any ground for it. Most probably a double exposure or a pin-hole image is the cause of the mystery.—Ems. B.J.P.]

Answers to Correspondents.

* * * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

* * * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

* * * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*

* * * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

J. Wheeler, 4, North Street, Hoxham. *Five Photographs of Viscount Turnour.*
J. Joeb, 23, High Road, Bromesbury, N.W. *Photograph of Wive Haired Fox Terrier "Champion Dussy Siren."*

C. W. Pool, 45, Dawson Street, Heywood, Lancashire. *Photograph of Interior of St. Joseph's (R.C.) Church, Dawson Street, Heywood.*

F. Coghill, 31, Carlisle Road, Londonderry. *Photograph, Group of His Grace, Dr. Alexander, Primate of Ireland, and His Grace the Duke of Abercorn.*

Two group Photographs of Irish Church Conference, Londonderry.
W. D. Moss, 3, Castle Street, Cirencester, Gloucester. *Photograph of D. G. Bingham, Esq.*

J. Davidson, 111, High Street, Kirkcaldy. *Photograph for Comic Picture Postcard entitled "The Whole Dam Family."*

R. Shankland, 5, St. Vincent Place, Glasgow. *Photograph of the Crypt of Glasgow Cathedral.*

DEVELOPMENT, ETC.—1. Will you kindly inform me if a fractional development can be recommended for Imperial plate, using the Imperial Standard developer? The above query is for portrait negative. 2. What formula is used for bleaching parts of bromide enlargements after being mounted? I am using ferricyanide and hypo, but that leaves a slight yellow mark.—H. TIMS.

1. We presume you mean "factorial." Certainly the system can be applied to any plate. 2. Add 10 minims 10 per cent. solution of iodine in potass iodide solution and 5 minims 10 per cent. potass cyanide solution to about 1 oz. of water. This forms a powerful and clean bleaching and reducing solution.

R.P.S.—I am desirous of becoming a member of the R.P.S. Will you kindly instruct me what steps I should have to take, or whom I should have to write to?—E. P. G.

Write to the Secretary, Mr. J. McIntosh, 56, Russell Square, London, W.C.

B. ELLIS.—We cannot find any trace of the prints sent anonymously.

PUBLICATION QUERY.—Would you kindly give me your opinion on the following facts? A short time ago I invited a customer of mine, who is rather popular as a sacred soloist) to give me a few sittings for postcards. He approved of the pictures, and we put them on sale. He told me he would want no fee, so I presented him with a dozen or two, but later, when he found they were selling rather well, wanted to know what terms I could give him. I offered him a sum, which he did not think enough. We heard nothing from him for a time, but last week he sent a note telling me to withdraw them from sale, and that any sold or exposed for sale after a date named would be illegal, and I should be liable. My opinion is that we have a right to sell if I wish, and that, as he was invited to sit and would accept no fee (which I can prove by a witness), he has no voice in the matter at all.—INQUIRER.

As the portrait was taken for the express purpose of publication, which the person distinctly understood at the time, and received a number of copies in return for the sitting, we do not see how he can now prevent you from selling the pictures. It seems to us that you have a perfect right to do so.

COPYRIGHT.—Will you kindly answer the following questions for me? A. is collecting materials for a local handbook or guide

and amongst the photographs is one of B. sent by B. for the purpose, the mount of which is marked "Copyright." Can A. have this reproduced without risk, supposing B. to have paid photographer for this particular photograph, and original sitting for same? 2. A lady has given me the copyright of a photograph, and has signed a paper to that effect. If I affix a sixpenny stamp now is that sufficient, or ought it to have been stamped before she signed?—COPYRIGHT.

1. If the photographer was paid for taking the portrait he has no copyright in it unless the sitter formally assigned it to him in writing. B. would know if he did that. 2. The agreement should have been stamped before the lady signed. If you affix a stamp now and get her to sign her name across it that will be sufficient.

RETOUCHING (Reply to Touché).—1. Too minute a touch for the subject, and the wrinkles not cleanly and brightly treated. 2. Same as No. 1, and the line from nostril is smeary, and looks much better in the unretouched—leave its depth in more. 3. Remarks made for Nos. 1 and 2 apply. 4. Not fine enough, and all too flat. Increase your high lights more in every negative you work. 5. Too dirty, and insufficiently fined up and modelled. Your retouching is weak, and you require finishing lessons. Combined with your operating and general experience, your work should secure you an average situation in a second-class firm. Impossible to state salary. You ought to be able to form some idea from the "Situations Vacant" columns of the JOURNAL.

CHARLES MARSHALL.—Our answer was correct. We recommended a lens which was not *chromatic*. The definition of the print you send is not good enough for a properly corrected lens—i.e., if the negative has good definition.

INSTRUCTION IN THREE-COLOUR.—I want to make negatives for the three-colour process. Will you please tell me (1) where I can learn the method; (2) or is there a book on the subject, giving practical details of the plates, dyes, light filters, etc., employed?—MARYPORT.

1. Bolt Court School of Photo-Engraving, Fleet Street, E.C.; Photographic School, Regent Street Polytechnic, Regent Street, W. 2. "Hübl's Three-Colour Photography" (Penrose and Co.).

PROCESS.—Will you please inform me who are the makers of apparatus required by a newspaper printer to reproduce photographs in his newspaper in Africa? Are there any books published giving instructions in the art?—G.G.B.

Presumably your inquiry relates to materials for process block making. Messrs. Penrose and Co., 109, Farringdon Street, E.C. A book on the subject is the "Half-Tone Process," by Verfasser (Iliffe).

COLLODION PAPER.—Will you kindly answer me the following questions in your JOURNAL? Whether C.C. matt prints toned in platinum bath are permanent or not? 2. I wash prints for half an hour between toning and fixing; is that right? 3. Also, how can I obtain sepia tones on same paper?—BLARNEY.

1. Yes, they will last for years if properly made. 2. Yes; all the better if the prints are transferred for a few minutes to a weak bath of soda carbonate after toning, and then washed for, say, a quarter of an hour. 3. Use a weaker platinum bath (more water), and arrest toning at an earlier stage.

FLASHLIGHT GROUP.—I have to take a group of about 150 or 200 performers in our opera-house here. It will be taken in the afternoon, but, owing to several of the windows being blocked out, there will be very little daylight available. I thought of using two flash lamps. What distance from group or stage

would you advise lamps placed? Would they have to be rear of camera? How much powder would you think necessary for each lamp?

With a large group like this the lamps should be placed at least twenty yards away to secure good modelling. They should also be well above the heads of the group—say, 20 ft. up, and, if possible, behind the camera. One light slightly to the left of the camera should be stronger than the other, which should be well to the right, or vice-versâ. Use about 2 oz. flash powder for main light, and 1 oz. for subsidiary light. Rapid plate and *f*/11.

PLATINUM RESIDUE.—I am informed that there are firms that take waste platinum prints, in order to obtain the platinum that is left unused in them. Would you kindly inform me whether you know the name of any firm that does so, as I have been unable to obtain the name of one?—A. B. C.

You will find the advertisements of several purchasers of photographic residues in our pages week by week.

LEARNING RETOUCHING.—What likelihood is there of a lady (never having had any photographic experience) learning "retouching" thoroughly? And, if there is no reason to prevent her, what course would you suggest? Briefly, I am prepared to go to a little trouble and expense if there is any chance of success. I am willing and anxious to learn, and am assiduous in anything I undertake. My husband's hobby is pictorial photography, chiefly portraiture, but neither he nor I have any knowledge whatever of retouching, and I wish to learn, if possible, not from any pecuniary motive, but simply as an adjunct to my husband's hobby. If you will give me your advice I shall be grateful.—A. E.

You should have no difficulty of learning retouching under instruction. If you are unable to obtain a teacher in your neighbourhood, you may put yourself under a well qualified instructor through the post; see our advertisement page 78. We cannot hold out much hope of your making satisfactory progress unaided.

PURCHASING SILVER.—As I require a quantity of metallic silver for experimental purposes, and as the second-hand metal purchased from jewellers, etc., varies so much in quality, while the price is always extremely high, would you kindly place favour me with the information—where, and in what quantities, the metal may be procured?—GEO. W. VENMORE.

You can buy pure silver metal from Merck, Jewry Street, London, E.C.

H. R. ROBERTSON.—Strictly speaking, your friend has no legal right to copy the photographs, but you need be under no apprehension as to using them in the limited and private way proposed. It would be a different matter if the slides were offered for sale.

**** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. As in the past, we shall be pleased to receive and consider suggestions for increasing the value of the ALMANAC in directions which may occur to our readers as susceptible of improvement.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, the year's advances in theory and practice will be recorded, and wherever practicable new features of an informative nature will be added.

. IMPORTANT NOTICE.—Our publishers ask us to draw the attention of advertisers to the fact that the latest date for receiving orders and copy for advertisements in the "Almanac" is WEDNESDAY NEXT, OCTOBER 18.

EX CATHEDRA.

The British Journal Almanac, 1906.

The pages of the forthcoming "Almanac" are now in an advanced stage of preparation, and within the next two weeks will be completed for the press. We therefore ask contributors to place any MSS. they may have in preparation in our hands with as little delay as possible. The "Almanac" is booked to appear on December 1, and as the largeness of the edition makes it impossible for copy to be considered after October 18, it is hoped that we shall not be compelled to exclude articles or formulæ from the volume, not from a desire to do so, but from exigencies of time and the demand from our publishers and the public for prompt publication.

* * *

Advertising.

This is possibly one of the best opportunities the good business man has of showing his ability. To put himself and his productions in the most advantageous way before the greatest number of people is the aim of every man whose heart is in his business. At the same time, there is no way of frittering away money so quickly and to such little purpose as by misdirected advertisement. Circulars, newspaper paragraphs, and pages in bazaar programmes all have their uses; but the value varies according to local circumstances. We believe a good window display, attractively arranged and frequently changed, is of the utmost value in attracting business. We recall the case of a business in the home counties which the owner admits was largely made by the judicious use of an unusually extensive window display; but each display was changed regularly every week. Where the population is not a floating one, a business thoroughly established as the best studio in the district may do with a good deal less advertising or window show. In large towns it is necessary to keep one's work constantly displayed. Fresh people are continually coming and form their opinion on the work shown, and by comparison with other windows. One of the most effective methods of advertisement is the cultivation of a distinctive style of work. Some years ago a well-known and very artistic Scotsman commenced the production of very warm toned P.O.P. prints. They attracted customers, and very soon people got to say, directly a warm-toned print was shown them—"That's a portrait by so and so."

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Preparing the Studio for the Winter.

With the first early signs of winter some difficulties may already have been experienced in preserving the tightness of the studio roof. During the summer months the putty dries and becomes brittle, cracks, and

in places leaves the glass, and, as a consequence, the water finds its way in. Of course, to remedy this evil the services of a glazier must be invoked; but a few hints as to how he should proceed may be useful.

Old-Fashioned Studio Roofs.

The most troublesome roofs to deal with are those constructed in the earlier days when it was erroneously considered that the more glass there was in the studio the shorter would be the exposure required. With the above idea the sash bars were frequently made so slight that they were scarcely strong enough to bear the weight of the glass they had to sustain without bending, and with a heavy wind they would give considerably. We have been in a studio of this description in a heavy gale and seen the roof bend in to an almost alarming extent. Under such conditions there need be little surprise that, after a hot summer the over dry and non-elastic putty should crack and separate from the glass. In such a case the first thing to do is to strengthen the sash bars, and render them rigid. This may be done by fixing inside and transversely a bar of T iron which is screwed to the sash bars; this by reason of the strength of the T-shaped bar will confer great rigidity. If the roof be large, two bars may be required. Having secured rigidity in the sash bars, we have a fair foundation to work upon. The old putty, wherever it is found to have cracked or separated from the glass should be hacked out and the parts painted, the paint being well worked in between the edges of the glass and the wood or iron as the case may be. When this is dry, or partially dry, new putty should be filled in, and the work receive a coat of good whitelead paint.

Maxims in Studio Repairs.

The putty used is of importance. It should be made of whiting and good linseed oil with a little whitelead, and not the putty of the oilshops. The addition of a little red-lead is sometimes recommended; it makes the putty dry quicker and harder; but it is a question if this is an advantage, inasmuch as it causes it, after a time, to become brittle and liable to crack if there happen to be any give in the sash bars. It is sometimes found—after the roof has been repaired—that water gets through it in places where it did not before, and often the workman is blamed for not doing his work properly. The fault is not, however, always his, for it may happen, owing to the slenderness of the sash bars, that his weight on the roof while finishing his work, causes the old putty, which it was not thought necessary to remove, to crack away from the glass, and so occasion fresh leakage. It has before now been recommended to tar the sash bars instead of painting them, and we have known cases where this has been done with good success. Tar does not become so brittle as paint, particularly bad paint. While the men are on the roof it is a good plan to get them to clean the glass thoroughly, for, as a rule, it is thickly coated with a yellow film of dirt from smoke. After the outside work has been completed it is well to give the inside of the roof sash bars a coat of paint. This will fill up any little points that may have escaped the outside treatment.

Heating the Studio.

After the studio roof has been made proof against rain, the next thing to be considered towards making the place comfortable for winter work is the heating arrangements. Some studios are painfully deficient in this respect, and a sitter, after having been shown from a none too warm dressing room into a cold and cheerless studio, is not by any means in the best

conditions for a pleasing portrait. If the studio is at a warm and genial temperature any little shabby appearance of the surroundings will probably escape attention, but if it be, as is too often the case, cold and cheerless, the total effect will be most depressing. Of course there are many ways of warming the studio. Undoubtedly the best is by means of hot-water pipes with the boiler outside the building. It is cleanly and economical, but somewhat costly to fit up. Yet if all the rooms are on one floor it is not unduly so, for one fire will suffice for all, and then this system will be found, on the whole, superior to any other. The drawbacks to this method of warming—and all systems have their drawbacks—are that the fire must be started some hour or two before the heat is necessary so as to get the water in circulation, and that the pipes are liable to be stopped, and possibly burst, by a hard frost. This may, however, be avoided by keeping a small fire going under the boiler during frosty weather. In a small hot-water installation gas may be employed as the fuel, and that is easily regulated.

Heating by Gas.

Gas as a means of heating is exceedingly convenient and easily under control. But it has its drawbacks. For example, if the stove has a flue to carry off the products of combustion to the outside, then much of the heat is lost, as, thus used, gas is not at all economical. Other gas stoves which do not require a flue, and yet give off no fumes, are unfortunately productive of very little heat. The most economical gas stoves are those in which the fumes from the burning gas escape in the apartment. The fumes are unpleasant and injurious to health if the stove is in an ill-ventilated apartment, but photographic studios, as a rule, cannot be classed as that, as the roof usually affords a fair ventilation, and if a vessel of water be placed on the stove, or beneath it, much of the unpleasant vapour will be absorbed. There are many forms of these stoves on the market at a moderate price, whilst most of the gas companies will let the stoves on hire at quite a nominal charge, and some even go so far as to fit them free of cost. Last winter we saw in a good-sized studio a so-called "Chancel" stove, supplied, if we mistake not, by Fletcher and Co. It is a flat stove and lies near the floor, and gives off a good heat with a moderate consumption of gas. Of course, all the products of combustion remain in the room, but there was a tin tray of water underneath it that absorbed a large proportion of them, so that the atmosphere of the place was not unduly unpleasant.

Pipe Stoves.

A very general way of heating the studio is by a pipe stove, an economical method particularly if there is a good length of pipe within the room. The best form of stove is one of the slow-combustion type. With these almost any fuel may be employed, even the cinders from ordinary grates. The rate of combustion is conveniently regulated by means of dampers. The stoves require but little attention; if they are filled up in the morning and the dampers not opened too widely, they will keep a studio at a comfortable temperature throughout the day without the addition of more fuel. If made up in the evening and the dampers nearly closed, they will keep alight all night. They are to be had of all sizes and all prices. Some of those encased with tiles are exceedingly ornamental, and not very costly. Small, plain iron ones are to be had for about a guinea, and these will suit admirably for a small studio. There are one or two disadvantages attending these stoves. One is that the combustion is so perfect that the fuel is con-

sumed to a fine ash, and when it is cleared out a good deal of dust is created. Another is that the insurance companies have an objection to pipe stoves, and will sometimes increase the premium where they are in use. In no case should a pipe stove be fitted without giving the insurance company notice, or the policy may be invalidated.

* * *

Blinds and Skylights.

The condition of blinds and glass in the studio roof requires attention about this time of year. Possibly the inner side of the glass has been covered with mineral paper through the summer, and this will have become more or less yellowed in the continuous strong light. Its light-stopping power will be much too great for even bright October days, and it should be removed entirely and at once, and the glass thoroughly cleaned both inside and out. If direct sunlight enters in any particular places new pieces of paper may be affixed by their edges, and will serve to diffuse the direct rays without lessening unduly the actinic power. Not only does the sunshine of July and August affect the temporary diffusing media, but it lessens the efficiency of blinds or curtains, bleaching to some extent dark blinds, and, in combination with dust, and rain leakages, darkening any light blinds which may be employed. Prompt attention to all these matters will not only make work much simpler and more certain, but will give the studio a bright and fresh appearance. In any event, roller blinds must be taken down and thoroughly wiped with a damp cloth, and, if the material is rotted, as is often the case, new blinds should be fitted. White blinds may be washed unless very badly stained.

* * *

Dark-Room Safe Lights.

If the developing-room is illuminated by daylight filtered through some orange or ruby material, the summer light will probably have lessened the efficiency of this medium. Particularly will this be the case if the medium employed is paper or one of the stained fabrics, though it must not be too readily assumed that continued strong light has no effect on coloured glass. We are often surprised to note the dodges resorted to by workers to enable them to develop with what they know to be a more or less unsafe light. As the cost of renewing the materials is so very slight, this can only be to save the trouble of doing the work. If the least doubt is entertained, the filtering media should be renewed at once and the new light carefully tested. This can be done by exposing one half of a plate of the brand in use for say two minutes, placing the dark slide in the spot usually occupied by the dish when developing. The slide must be loaded in darkness, and the plate developed for five minutes with a normal developer, keeping the dish covered the whole time. If, on fixation, no difference can be seen between the two halves of the plate, the light may be regarded as safe. It must be observed that, though a light may be perfectly safe when tested in this way, if the plates are held repeatedly and for unduly long periods close against the window, fogging may ensue with the safest of "safe lights." A plate may remain unfogged with the light two feet away; but may be very readily fogged when held within two inches, receiving as it would 144 times as much light. It is assumed that the dish will always be covered during development, and the time of the test exposure, viz., two minutes, is long enough to allow for one or two brief examinations for density towards the end of development. Assuming daylight to be the illuminant, the test should be made about noon on a bright day, so that the maximum light is known to be safe.

PRINTING PROCESSES.

XIV.—BROMIDE PAPER.

In the last article the question of suiting the exposure to the developer was considered; the production of good black tones on bromide papers depending on correct exposure, combined with normal development. If the correct exposure necessary to allow the light to penetrate the densest parts of the negative is departed from, the constitution of the developer has to be altered to compensate for this difference, and the colour of the developed image becomes altered also.

Of the modern developers for bromide papers amidol probably stands highest in favour. This is due, not only to the rich black colour obtainable with correct exposure, but also to the simplicity of the formula employed and the ease with which it is made up. No free alkali is necessary with this developer, and the only disadvantage in its use is that it loses its developing power entirely if kept for long as a stock solution. This developer, therefore, should be made up fresh for each batch of prints, and the most simple method of quickly preparing it is to keep a stock solution of sulphite of soda, and add the dry amidol as required.

A convenient form of keeping the sulphite of soda is in a 10 per cent. solution. Sufficient water is added to two ounces of sulphite to make twenty ounces, and twenty grains of potassium bromide added. To each ounce of this stock solution five grains of dry amidol are added just before use, and the developer is then diluted with an equal bulk of water. The amidol will dissolve readily, but care should be taken that no particles remain in the solution or black spots will be caused on the prints. Filtering the developer will obviate this.

If the stock solution of sulphite of soda is objected to, an alternative formula giving excellent results is:—

Water	20 oz.
Sulphite of soda	650 grs.
Potassium bromide	10 grs.
Amidol	50 grs.

This should be mixed in the order given and used within twenty-four hours.

The restraining effect of potassium bromide is not very marked with amidol developer; and its action appears to be confined to keeping the whites pure. The best restrainer for use with this developer—when one is needed,—will be found to be citric acid. A few drops of a 10 per cent. solution has a very marked restraining action.

Rodinal, in the concentrated form as purchased, can be regarded as an even simpler form of developer than amidol. Water and potassium bromide are the only additions necessary to make a reliable developer for bromide prints; but in many workers' hands it does not give such fine blacks as amidol. The correct procedure with rodinal is to develop with a dilute developer consisting of rodinal, 10 minims; potassium bromide 10 per cent., 3 drops; water, 3 ounces, or any larger quantity in the same proportions. If the paper has been correctly exposed, a weak, grey image will appear in about a minute. The developer should then be poured off and rodinal 25 minims, potassium bromide 5 minims added to it and well mixed. This is poured back on the print and development completed. A good black tone should result.

Both metol and hydroquinone have qualities of their own that commend them to the bromide-paper worker, notably cleanliness of working and the number of times they can be used before exhausted. Metol, however, has, unfortunately, an affinity for the cuticle of some workers, and its well-known effects debars its use. It is, neverthe-

less, used extensively by more than one trade enlarger, and professional bromide printers who employ it find it very rapid in action and certain in results. The rapidity of metol is somewhat against its universal adoption, although by following a certain procedure, as with rodinal, fine black tones are obtainable. It is in combination with the slow-acting hydroquinone that we get an almost ideal developer. Used either as a one, two, or three solution developer, metol-hydroquinone acts equally well. For general purposes the following one-solution formula will be found to give greatest satisfaction for correctly exposed bromide prints:—

Metol	16 grs.
Hydroquinone	60 grs.
Sulphite of soda	1½ oz.
Carbonate of soda	1½ oz.
10 per cent. potassium bromide solution	40 min.
Water	40 oz.

Ortol has also considerable claims for attention as a satisfactory developer for bromides, and unlike amidol, it is slow-acting. A certain amount of time is therefore necessary for the image to gain full strength, especially if the developer is used in a dilute form. It keeps well in solution, does not stain, and can be used several times before exhausted. A good formula is:—

A.—Water	20 oz.
Metabisulphite of soda.....	150 grs.
Ortol	½ oz.
B.—Water	20 oz.
Carbonate of soda	1 oz.

Equal parts of each are used for obtaining a good black colour, but it will be found that with increased exposure and the addition of potassium bromide pleasing warm tones are easily secured with this developer.

Edinol and adurol also lend themselves to the production of warm tones on bromide paper by increased exposure combined with dilute developer well restrained with bromide.

For the production of the finest warm tones on bromide paper by development one must employ pyrogallic acid as the agent. It is a mistake to imagine that "pyro" is more likely to produce stains than any other developer used with the same amount of sulphite. Used either with ammonia, soda, or potash as the accelerator, pyro will be found to prove a very good developer for bromide paper. The following formula will prove reliable:—

A.—Pyrogallic acid	½ oz.
Sulphite of soda.....	3 oz.
Citric acid	1 dr.
Ammonium bromide.....	1 dr.
Water up to	10 oz.

B.—Carbonate of potash	½ oz.
Sulphite of soda.....	½ oz.
Water up to	10 oz.

With normal exposure take 30 minims of A and 80 minims of B, and add one ounce of water. This will give a warm black image. Double the exposure, double the quantity of water, and add 10 minims of a 10 per cent. solution of potassium bromide and an agreeable warm tone is produced. Increase of exposure, coupled with further dilution of the developer and additions of bromide will, with this formula, give a range of colours from black to red.

WARM-TONED BROMIDE ENLARGEMENTS.

HAVING noted from time to time the inquiries for a reliable method of toning bromide prints, I beg to submit the enclosed method to readers of the B.J.P. I may say that the method here described has enabled me to considerably increase my business and to obtain a price half-way between that of ordinary bromides and carbon, and I find they give absolute satisfaction. I have had a print in full sunshine for the last two summers and it shows no sign of any change whatever up to now, which, I think, a very severe test.

First, select a good bromide paper—the ordinary smooth-surfaced variety is best, known to possess a heavy coating of emulsion. Make the enlargements in the ordinary way, taking care that there is a fair amount of contrast. The print should be very thoroughly soaked in alum, or formaline, or, better still, both, as the subsequent toning operations tend to blister and soften the film.

When the enlargement has been very thoroughly washed, it is placed in the following bleaching solution (which may be poured back into the bottle and used over and over again) until all trace of blackness has disappeared, and only a faint image remains visible. This takes from a few seconds to two minutes.

No. 1.—Potassium ferricyanide	1 ounce.
Ammonium bromide	1 drachm.
Water	20 ounces.

Rinse quickly in two changes of water and transfer to the following, which can only be used for one batch of prints and should then be thrown away.

No. 2.—Sodium sulphid. (sat. sol.)	1 drachm.
Water	5 ounces.

It is sometimes necessary to use this rather stronger, but the weaker it is the less chance there is of blistering. In this solution the print will gradually regain full vigour, and, if in the first instance at all too dark, may be taken out when the correct intensity is reached.

The prints will now have assumed a rich sepia-brown tone, which has not affected the original permanence, or in any way degraded the whites.

They should be washed for at least fifteen minutes and hung up to dry.

When quite dry, any surface may be produced by first soaking and then squeegeeing on to any of the following, which must, of course, be absolutely clean and prepared with French chalk, or any other preparation to prevent sticking, in the same way as for P.O.P. Rough ground glass can be used for broad effects; opal for medium surface, and fine ground glass, as used for focussing screens, for semi-matt surface. Ordinary temporary support, as used for carbon prints, well waxed, produces a surface similar to the ordinary carbon print. If a highly glossy surface is desired, the glossy paper may be used and squeegeed on to polished glass in the ordinary way. It is advisable to back prints while on the support, and mount by gluing the edges only. Enlargements treated in this way have the richness and depth of carbon prints, and, as far as exhaustive tests can prove, are practically permanent. W. SHENTON.

THE WEEK IN HISTORY.

The Ammonia Process of Emulsion-making.

It is just a year over the quarter of a century since the Monckhoven ammonia process of ripening an emulsion was published and came into use. Dr. Monckhoven's first paper appeared in the *BRITISH JOURNAL OF PHOTOGRAPHY* for October 17, and though it was not by any means the first communication on the use of ammonia in emulsions, credit is due to Monckhoven for his explanation of how the increase in the sensitiveness of the emulsion came about. Those who are interested in the literature of this single item in photographic progress should turn up a letter to the *BRITISH JOURNAL* from Mr. E. J. Wall on January 13 of the present year. Monckhoven added the ammonia at the last. "Its effect," he wrote, "is to render the ammonia ready to be used in a few minutes; or, if great sensitiveness be required, it can be obtained in a few hours instead of days, and thus decomposition of the gelatine is avoided."

This process is a combination of those of Mr. Bennett and Messrs. Wratten and Wainwright with this difference—that I add the ammonia in order to have the emulsion ready to work in a few hours instead of days."

The Invention of Pigment Printing.

The letter of Mr. Walter S. Corder passed on to me by the Editors, and printed this week on another page, raises certain points with which I will gladly deal, though I am not at all sure that I can add anything to what was written in previously referring to Ponton's work in the "Week in History" for May 12. Mr. Corder's queries may be collected under the title "The Invention of Pigment Printing" at the head of this paragraph, because without the fact of insolubilisation of gelatine, etc., by the bichromate in light there would be no printing in pigments any more than there would be photogravure and the other photo-mechanical processes. Mr. Corder asks in what manner the credit for the early work in these processes should be divided between Ponton, Talbot, and Poitevin. To answer his question first in a word or two, the evidence seems to be that:—

Ponton first applied the known fact of the sensitiveness of bichromates *plus* organic matter to light in the delineation of objects, i.e., copying engravings by contact.

Talbot was the first to observe the insolubility of gelatine produced on exposure to light with bichromate.

Poitevin applied this fact to preparing photographic pigment prints, taking advantage of the insoluble gelatine to fix the pigment.

Thus bichromates in photography are due to Ponton, photo-mechanical bichromate processes to Talbot, and pigment printing to Poitevin.

I cannot find that Ponton regarded his bichromate process as involving anything more than the production of an image produced by light from the substance. Certainly had he done so, Hunt in his "Researches in Light" (1854) would have added a note of the fact to his description of Ponton's work. He is the more certain to have done this, as he himself worked out a modification of Ponton's crude process which he named "chromatype." But beyond some observations Becquerel published in the "Comptes Rendus" for 1840, I cannot find any further perfection of Ponton's work until Talbot patented his photo-mechanical process in 1852. I shall refer to this process in the "Week in History" for October 27, so that perhaps Mr. Corder will allow me to leave it until then. Poitevin's English patent in which he announced a photo-mechanical process, which was practically collotype, appeared in 1855. It contains also the description of the pigment print which Talbot in his aims at a mechanical reproduction had overlooked. His invention stirred up interest in pigment processes, and led to the offer in 1856 of a prize by the Duc du Luynes for methods of making permanent photographic prints. One participator in the awards was Mr. Poncey, with a process substantially that of the present gum-bichromate.

HISTORICUS.

ON THE ORTHOCHROMATISM OF PLATES BY BATHING.

In the course of an article on bathed gelatine plates in "Photographische Korrespondenz," Dr. E. König reviews the present practice of orthochromatising ready-prepared plates. Bathed plates, in the case of dyes which strongly stain gelatine, are more strongly dyed on the surface than underneath. That fact, however, is not an explanation of the greater sensitiveness of the bathed plate, inasmuch as plates which are bathed until the dye penetrates completely through the film of emulsion show the same sensitiveness as those bathed for only a few minutes. Also plates containing pinachrom in the emulsion give, on being bathed in a pinachrom solution, the same sensitiveness as ordinary plates of the same mother emulsion treated in the same dye bath.

Sensitisers With and Without Ammonia.

It is customary to add ammonia to many dye baths, an addition which is absolutely necessary with many dyes, such as Wollschwarz and Benzolnitrolbraun, in order to obtain a notable degree of sensitiveness. Without ammonia, only those basic dyes are used, e.g., those of the acridine series, which are precipitated by ammonia.

Mr. Kieser has recently examined the sensitising properties of a new series of dyes produced by the action of cyanides of the halogens on pyridine and aniline. He found that in the case of these dyes the sensitising power is greatly raised by ammonia. As is already mentioned in the instructions for the use of the Höchst orthochrom and pinachrom, the ammonia can be left out of the

sensitiser. Many plates are not fitted for sensitising with the isocyanines, as they show fog thereby sooner or later; but this fog, as a large number of experiments has shown, occurs only in the case of sensitising baths which contain ammonia. Sensitised in neutral dye-baths, these same plates will keep for months in perfect condition. The sensitiveness of plates thus sensitised with orthochrom or pinachrom in neutral solution proves, in practical three-colour work to be about equal to that of the ammonia-sensitised plates, when both are exposed behind the green screen, and about four-fifths that of the ammonia plate behind the red screen. The following formula is recommended for orthochrom or pinachrom:—

The plate is bathed in the dark for two or three minutes in—
 Water 200 ccs.
 Dye solution 1:1000 3 to 4 ccs.

Washed for two minutes and dried. Specially rapid drying in a forced draught is not necessary. The plates work perfectly clearly when dried spontaneously in the air. A further advantage of the non-ammoniacal sensitiser is that ordinary tap-water can be used for the dilution of the dye solution. With ammonia in the bath, carbonate of lime is precipitated from the calcium bicarbonate in solution, and this action makes itself evident in markings on the film. Even when distilled water is used for the ammoniated bath, a precipitate of carbonate of lime is often produced when the plates are washed in tap-water.

How Washing Benefits the Bathed Plate.

It is often stated that the washing of bathed plates is useful by removing the excess of dye, and that the latter is the more easily washed out, the greater the solubility of the colouring matter. But this general rule does not hold good—at any rate, not for the cyanine dyes. There is little probability of producing dyes of such strong basic character as those of cyanine, which will be removable from the gelatine film by simple washing. To refer to facts, the experiments showed that equivalent solutions of nitrate sulphate, chloride, bromide, and iodide of orthochrom, i.e., substances of very different solubility in water, when employed to dye gelatine plates to the same depth, could none of them be totally removed by washing. Moreover, plates dyed in the very easily soluble sulphate or chloride was left just as strongly stained after five minutes washing as those immersed in the difficultly soluble iodide. Their behaviour in this respect does not stand alone, for other very soluble basic dyes, such as methyl violet, are not removable from water by simple washing in water.

The indisputably favourable effect of washing on bathed plates consists only in this: that the adhering dye which easily dries on the film in streaks and patches, is removed. This takes place on merely rinsing the plate, but the presence of alcohol in the dye-bath may render the action uneven. Washing should therefore be done only until the so-called "greasy" appearance of the surface of the plate disappears. It is perhaps not generally known that these "grease markings" occur very lightly, or not at all, if the dye is dissolved in methyl alcohol in place of the ordinary spirit (ethyl alcohol).

Ammonia Substitutes in the Sensitising Bath.

But it is possible to employ an alkali with a less injurious effect than ammonia in the sensitising bath. A solution of pinachrom containing 1 per cent. of potassium carbonate was found to give greater red-sensitiveness than a pure aqueous solution.

It is also worth while to note that a solution of cyanine or isocyanine prepared in water by means of completely neutral ammonium salts, such as the chloride or sulphate, is almost completely decolorised, but the colour returns in the presence of an alkali. If plates are bathed in a pinachrom solution to which 1 per cent. of ammonium chloride is added, somewhat greater colour-sensitiveness is obtained than with a pure aqueous solution. Sodium chloride acts in a similar way, but ammonium sulphate and sodium sulphate exhibit no sign of this action.

The user of sensitising baths will be well advised to add nothing to the solution, and to sensitise his plates on the lines suggested above. The action of ammonia is noteworthy in the case of Schleussner plates, which, on being sensitised in ammonia-pinachrom baths, fog, as a rule, but give excellent results, and keep for months when sensitised without ammonia. The new "special rapid plate" is specially suitable.

Cyanine and Cyanine.

Before closing these remarks on orthochromatic practice, a few words may be said as to cyanine itself. By this dye is usually understood the substance, lepidin-chinolin-amyli-cyanine-iodide, discovered by Williams and examined by A. W. Hofmann. Although this compound is perhaps the most unsuitable of all lepidin cyanines for photographic purposes, it appears to be almost always used. Williams' cyanine is insoluble in water, and very easily soluble in alcohol, and hence it is not very easy to obtain it in a perfectly pure state, and to separate it from the resinous and flocculent bodies occurring in the production of the cyanine. In fact, commercial cyanine is very often highly impure. For photographic purposes the lepidin-chinoline-ethyl-cyanine-iodide, which is less soluble in alcohol and more soluble in water, is far more suitable than the old Williams product.

As a colour-sensitiser of plates cyanine is in the bad books of emulsion makers. Plates sensitised with it show fog and markings, and the sensitiveness is reduced to one-fifth or one-tenth. The fog and markings cannot be laid at the doors of the slight solubility of the iodide salt of cyanine, since the easily soluble nitrate and chloride exhibit the same defects. Probably the depression of sensitiveness found by different observers is due to impurities in the dye. Carefully prepared dye (amyli cyanine) with or without addition of ammonia, produces plates which, according to the writer's tests in daylight without a filter, as well as by sensitometric measurements, are not appreciably less sensitive than the unbathed plates. Also, plates produced for some years by the Höchst Works with ethyl-cyanine exhibit greater sensitiveness than those made with amyli-cyanine. Compared with pinachrom, the sensitiveness of the ethyl-cyanine plates, as seen in spectrum exposures, reaches further into the red. The sensitiveness of the ethyl-cyanine plate, however, behind the red filter is somewhat less than that of the pinachrom plate. A spectrogram made by aid of a given dye gives by itself no useful indication of the value of the colouring matter for photographic purposes.

LETTERS TO A MIDDLE-CLASS PROFESSIONAL.

III.

DEAR J.,—In my last letter to you (see B.J.P. for August 18) I discussed the colour of mount advisable for your different needs, intimating that in the future I hoped to discuss other little matters which go to make a successful and pleasing mount. This is my fulfilment, and I shall treat briefly of outside size of board, thickness of board, bevels, position of space to surround print, type of border to enclose print, position for name and address.

All these may seem to be of no moment, and be left to the mount manufacturer, but, personally, I think that they should receive your best attention, for mounts, as a whole, are very similar, and only in small matters can individuality be shown. I think, and would mention right here, that half a day spent in designing and making full working drawings for mounts is time well spent, and that the man who takes a pride in every portion of his work should invariably provide the mount maker with these full instructions rather than accept the conventional and often badly-designed and proportioned mounts that will otherwise be supplied.

I trust that if I seem too positive and somewhat pedantic you will forgive me. Doubtless all my suggestions will not commend themselves to you, for taste is a personal factor and differs considerably. That which may be bad taste to some appears good to others, and vice versa; but in this letter I wish to point out the lines on which a mount should be made, so that it will suit the greatest number of people and prints.

The outside size of mount has, of recent years, tended to get larger and larger. Most of us can remember the time when any one size of mount was used for all cabinets, and all cabinets were not square. The mount was usually only one-eighth bigger than the print on three sides, with larger piece at bottom for name and address. In those days one only had to say 10,000 of so-and-so at 25s. a 1,000 and the matter was settled. The change is, from artistic reasons, excellent—from a monetary standpoint, perhaps, not so commendable; though, even if we must stock three or four colours in mounts, and square, cab, panel, oval, court oval, and circle shapes in most

sizes, our work is certainly enhanced, and the numerous shapes give greater freedom in composition. The mount order is certainly more complicated, and, as I want to drive into you, should receive your concentrated attention.

The small close-up mount may be left out of our calculations, and we will discuss the size and proportions of board, not forgetting that these depend greatly on individual circumstances, though, as a rule, a small board is nowadays poor economy. The public want all they can get for their money, and these large mounts enhance the importance of the print. Therefore I say spend a little more on your mount order and get good-sized mounts, they look good value, and, if the colour of board is well chosen, the print is improved and looks "swell."

The square cabinet is still, and deservedly, a favourite shape. The boards for this size vary, but 10 by 8 has been a favourite size; it suffers, however, in common with other shapes, by being too square. The newer 10 by 7 is preferable. This size, however, now mounts are getting so large, is just a trifle skimpy, and 11 by 8 is better. This size is a standard one, and cuts economically; 12 by 10 is a trifle large and square, though the usual size for paper mounts.

Taking things all round, the 11 by 8 is advisable. The longer proportions are more effective than the 10 by 8, and, as I hope to show you, a long mount is extremely useful. It has long been the custom of mount manufacturers to vary the size of board for the panel, oval, and circular shapes, making them much smaller than the square cabinet shape. This I think a mistake, for these sizes, to begin with, are smaller in area than the old-fashioned square, and when placed on a smaller board look insignificant compared with these, though the prints cost us as much to produce. The sale for these sizes is thus curtailed, and the primary aim of saving money

on the mounts almost defeated. Anyhow, the saving is only a few shillings a thousand, which the superior appearance of the larger mounts should repay. Moreover, by choosing a regular outside size for all cabinets, with suitable placing of the print, not only do the various shapes look of equal value, but many other things are simplified.

As you may not be quite "au fait" with the sizes of mount that cut most economically from makers' board, the following measurements may help you; there are others, but these are about the proportions for economy and effectiveness. The larger sizes do not require so much border as the cabinets. The carte, also, is somewhat small, this not at present being a selling size.

Size in inches:—For carte, $4\frac{1}{2}$ by 8 (this is a long, handsome shape); for whole-plate (Imperial), 14 by 11; for panel, 16 by $10\frac{1}{2}$; for 12 by 10, also 10 in. circle and 12 in. oval, 18 by $13\frac{3}{8}$. To recapitulate a remark made in my last, as it is important, "it is advisable to order a set of mounts in one lot, as you are then sure of getting all mounts of identical material and colour. This is of the utmost importance for dressing show-cases, as nothing looks worse than mounts that have gone off to various tints."

The thickness of board is not of so great importance as the size, though it is usual to vary the thickness according to the size. Until recently the thicker the mount the more appreciated it would be, ten and twelve sheet being generally used. Since the introduction of the flimsy mounts opinion tends more towards boards of thinner substance, say eight-sheet. A nearer approximation to the paper mounts, popular but difficult to mount on, is the six-sheet board. This is just thick enough for wet mounting without cockling, yet it feels and looks delicate, and is preferred by many patrons to the paper.

But I must break off at this point and conclude my letter in next week's JOURNAL. STUDIOSUS.

DISTORTION WITH THE FOCAL-PLANE SHUTTER.

The occurrence of distortion in the photography of rapidly moving objects by means of the focal-plane shutter has frequently been dis-

our issues of January 20 and 27, in which attention was drawn to the right and wrong ways of working a focal-plane shutter when



Fig. 1.

cussed and disputed, and contrary opinions expressed in regard to it. The question was touched on in two articles on the focal-plane shutter in

photographing objects moving in various directions. A general rule for practice is to hold the camera so that the line of movement of the

shutter is parallel to that of the object, not at right angles to it. Our own opinion is that, with precaution in regard to this point, it is difficult to obtain distorted photographs of objects, even in the most rapid motion. The subject is discussed in two recent articles by German writers, which we may present here, in a slightly abridged form, in further reference to the matter. Our first author is Herr Emil Bose, in the "Physikalische Zeitschrift."

It is pointed out, as regards the speed of a shutter, that if a narrow slit moves over, say, 1-20th of the width or height of a plate in 1-1000th second, the actual speed for the whole plate is twenty times this period, or 1-50th of a second. Hence any object which moves appreciably in this time may become distorted as photographed on the plate. Many so-called instantaneous subjects do not move rapidly enough to show this distortion, but others, such as rapidly moving trains, may exhibit the distortion most plainly. An example is the

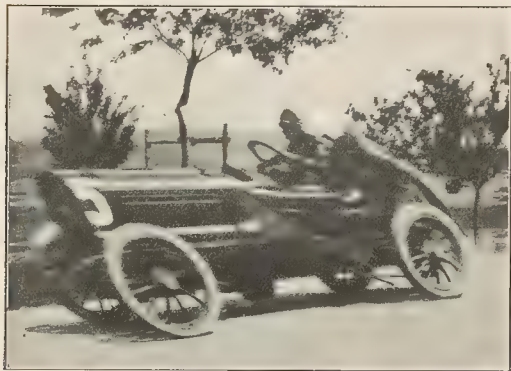


Fig. 2.

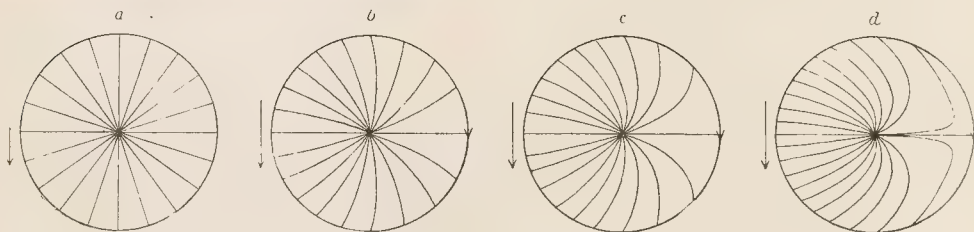


Fig. 3

blurred photograph of a motor coach on the Marienfeld-Zossen line. The angling of the conducting masts on the roof, compared with the upright telegraph poles, shows that a period of time elapsed between the exposure of the top and the bottom of the masts. The car, moving about 200 kilometers per hour, this time would correspond to a movement of the car of .55 metres; the height of the mast being three metres. From this it follows that the interval between exposure of the top and the bottom of the mast is .045 seconds. Although the whole car, which occupies about one-half the height of the image, was taken in 1-50th of a second, its great rate of movement shows the step by step character of the exposure, the car appearing to lean forward in the direction of motion.

A more striking example is seen in Fig 2, a photograph of a motor car at full speed in the Gordon-Bennett race. Here there is no mistaking the shifting of the various horizontal planes, nor the tilting of the front of the motor, which should be at right angles to the frame. One may reckon that the slit was .09 seconds in passing over the whole

plate, the speed of the motor can be taken as 150 kilometres per hour.

In order to show the distortion which occurs when rotating bodies are photographed with a focal-plane shutter, the following diagrams have been made (Fig. 3). They show the visible distortion of equidistant spokes for four different speeds of revolution. During the time occupied by an infinitely thin slit in travelling the diameter of the wheel, the latter made revolutions as follows:—*a*, 0; *b*, 1-10; *c*, 2-10; *d*, 4-10. It is seen that the spokes close up together as the speed of rotation is increased, despite the unsharpness of the spokes in the upper part of the wheels, where the movement is most rapid. This phenomenon can be seen in the photograph on the left-hand side of the wheel.*

It remains to say how this chief defect of the slit shutter can be avoided. The solution of the difficulty is simple, and by no means novel. The shutter is placed in the narrowest portion of the optical

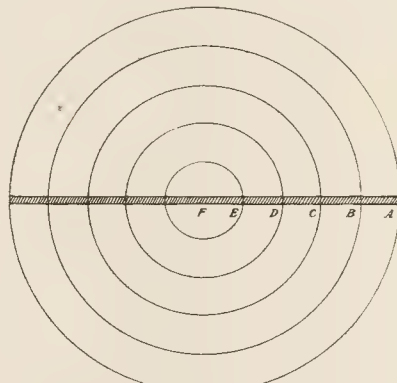


Fig. 4.

system, *i.e.*, in or near the lens or diaphragm. If the full aperture of the lens be opened for exactly the time which the slit would take to traverse its own width, the whole exposure is obtained at one operation, and we have—to return to our previous example—a true exposure of 1-1000th second, in comparison with the instance already quoted, in which the exposure of the whole was 1-50th second, and of the strips 1-1000th second.

It will thus be easily understood within what limits a shutter can be worked without giving distorted pictures. Whether there are shutters which can be worked at a speed equal to that of the focal-plane is a matter apart from the present considerations.

The second paper is by U. Behn and W. Heuse, in the "Zeitschrift für Wissenschaftliche Photographie." With a view of examining the distortion which occurs when photographing a horizontally moving object with a vertical slit (Figs. 1 and 2) they proceed as follows in order to obtain by photography distortion of the kind produced by

* We fear the reproduction does not show it.—Eds. B.J.P.

calculation in Fig. 3. The test object is a disc of card (Fig. 4) about 50 cm. (20 in.) in diameter, across one diameter of which a strip of white card, 1 cm. ($\frac{1}{2}$ inch) is fastened. The disc is rotated on its centre by a motor driving it at a constant speed. A 10 by 18 cm. camera is provided with a lens of 210 mm. ($8\frac{1}{2}$ inches) focus, the image of the white band being 10 cm. (4 inches) on the focussing screen, so that the slit was used over almost its whole effective portion. The number of revolutions per second could be varied between two and eight. The speed of the slit (9 mm. wide) was about 50 cm. per second.

On rotating the slit the vertical component of movement of the point A (Fig. 4) on the band near the edge of the screen is represented in diagram (Fig. 5) by a sinus curve *a*. The movements of the points B, C, D, E, and F, are shown by similar curves of smaller amplitude. Representing the movement of the slit in the same diagram we ob-

on the breadth of the slit. Fig. 7 is a specimen. Such curves, in which the slit running oppositely to both halves of the strip and meets it twice, are frequently obtained. As shown in Fig. 5, the conditions are favourable to its occurrence since the moment of emergence of the slit, can be varied within extremely wide limits.

The intersections of the lines, *gr* and *st*, with the sinus curve give a figure of special interest. In this case the slit meets the opposing half of the strip as it passes through the horizontal position, i.e., at the moment of greatest speed in the vertical direction. The image is practically without distortion. When moving with the slit the arm, the outer end of which is met three times, at *a*, *b*, and *c*, is subjected to a hammer-shaped distortion (Fig. 8b). Fig. 8 shows the image obtained by construction. This thrice-repeated coincidence and the image resulting from it can only be obtained when the speed of the

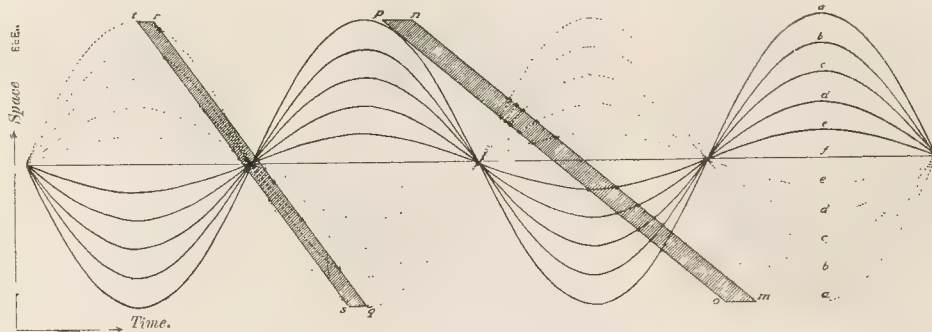


Fig. 5.

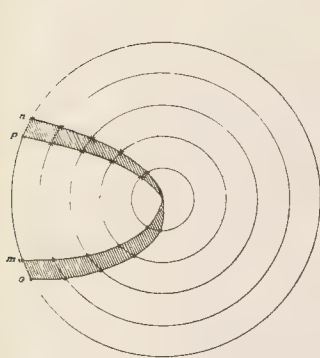


Fig. 6.

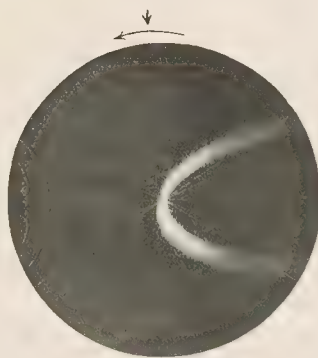


Fig. 7.

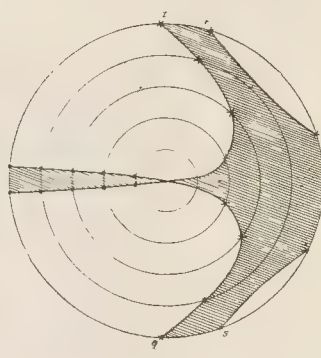


Fig. 8.

tain, in the case of constant speed and infinitely narrow slit, a straight line, the position of which is fixed by (1) The moment of emergence upon the field of vision, i.e., by the section on the axis of the co-ordinates; and (2) By the speed of the slit, i.e., by the angle this line makes with the axis. In the case of an accelerating movement this line is bent up, more so as the breadth of the slit is represented by a correspondingly broad band in the drawing. The points where this band intersects the sinus curve represent the coincidence of the slit with corresponding points of the image of the band. By means of these points the distorted image can be built up.

In Fig. 5 the lines *mn* and *op* represent the front and broader edge of the slit respectively. By constructing a distorted image from the intersections of these lines with the sinus curves, we obtain the curves *mnw* and *opv* in Fig. 6. The area enclosed by these two curves depends

slit is somewhat smaller than the maximum value of the vertical component of the movement of A. Only in this case is it possible for the slit to overtake the point, then to be overtaken by it, and finally as the vertical component of the slit again falls off to meet it once more.

Intermediate between these two characteristic types of distortion are figures 9 and 10. In the case of both, the arm moving with the slit is first met at its outer end, and the formation of the whole image then commences from the other end. Whilst, however, in Fig. 9 the parts lying near the periphery of the moving arm first overtake the slit and are then overtaken by it, these points in Fig. 10 occur only within the area of the slit and remain behind without having overtaken it. For this reason in Fig. 9 there is a luminous segment with a dark nucleus *kkk*, such as occurs also in Fig. 8b, this dark nucleus being missing in Fig. 10. These characteristics are obtained

analytically by taking the speeds of the rotating strip of the slit as constant according to the formula:—

$$r \sin \phi = a \phi + b,$$

where a is the ratio of the two speeds and b the phase-constant. The distortions of Figs. 7 to 9 can be very prettily demonstrated by running the image of a slit over a large rotating screen with a band across its diameter.

In considering how this defect of the focal-plane shutter is to be avoided, it is well to consider the various subjects in two groups. Either it is desired to obtain a representation of a moving object, say for photogrammetric purposes, in which absence of distortion is the first consideration, even at the expense of sharpness, *masumi*, as

sary. These rules have not been followed in at any rate the first of exposures shown in Figs. 1 and 2, and, therefore, the defects of the shutter are made out worse than they need be: a slight compression of the image of the car, when using a horizontally running slit, would scarcely be noticeable.

In conclusion, a further point in reference to the focal-plane shutter must be mentioned. The exposure reproduced above permits of an estimation of the total time of exposure, and also of the time of exposure of the separate parts.

If the slit ran with uniform speed, the time of exposure for separate parts of the image would be the same. But it can be calculated from Figs. 7 to 10 that this is not the case.

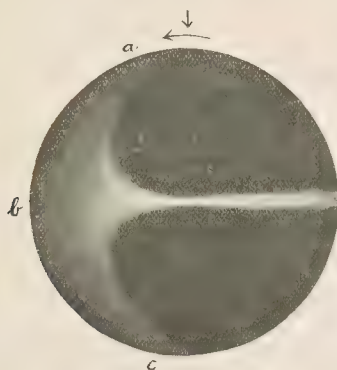


Fig. 8B.

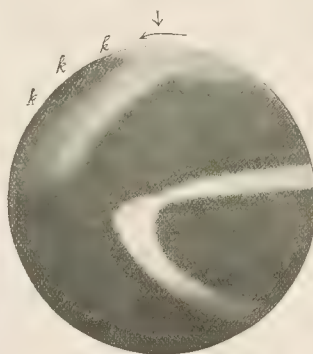


Fig. 9

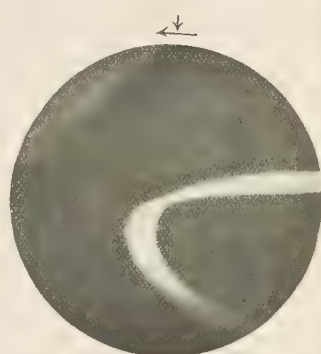


Fig. 10.

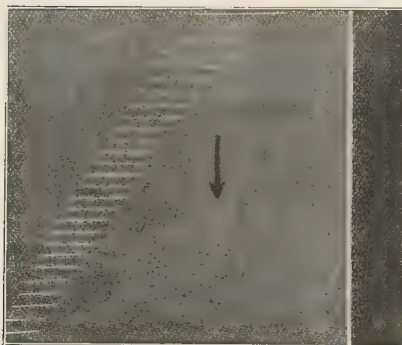


Fig. 11.

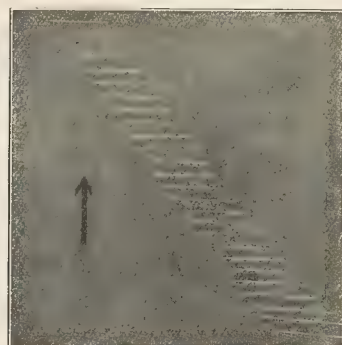


Fig. 12.

distortion will vitiate any measurement of the prints; or a negative is required of the utmost sharpness. The first consideration is generally that of scientific photography; the second that in commercial and amateur work.

In the first case, the suggestion of Herr Bose may be taken and the shutter placed in the diaphragm slot, but all the advantages of a shutter close to the plate are immediately lost, chiefly the employment of the full aperture of the lens. In the second case the slit travels close to the plate, and it should then be made a rule to have the slit moving in the direction of the quickest movement of the subject. Also the blind should be driven at its highest speed, *i.e.*, with the slit fully wound, and the slit narrowed as may be neces-

The following proved to be a more informative method of work:—An object hanging at rest vertically was photographed with a camera, moving at a constant speed on a vertical axis. In practice, silvered glass balls strung on a thread were strongly lighted whilst hanging in the vertical position. The camera, with its moment of inertia purposely increased, was rotated on a vertical axis with such slight friction that its speed did not fall off as much as 1 per cent. during a whole revolution, as it moved only through about 30 degrees during the exposure the error from variation of speed was less than 1 per cent. On photographing the series of luminous points in silvered balls, a curved series of short lines was obtained on the plate, as shown in Figs. 11 and 12. In the first is seen the images of luminous points,

photographed with the camera at rest. A slight alteration in the speed of the slit during the movement can be detected in two ways. First, the length of the short lines is different, and the curve of the whole series is more or less inclined, the band thus undergoing

compression. Both phenomena prove that in this case the speed of the slit has increased during the total course, in consequence of the mass and inertia of the roller and in spite of the falling-off in tension of the actuating spring.

THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

FOURTH NOTICE.

The Professional and Trade Sections.

THE display of general professional work in the South Room is one of the most interesting which has been made since this section of the exhibition was given a room to itself. In noticing the various pictures we frankly recognise that there are different styles and classes of work, and our remarks, whether critical or appreciative, are based on this. No greater mistake can be made from a commercial point of view than to offer the public something for which it is not ready, and if a professional finds P.O.P. or bromide preferred to carbon by his clients it is obviously unfair to him to find fault with his display on account of the method of printing employed. The aim of the professional section is to afford bread-and-butter photographers an opportunity of displaying bread-and-butter photography. At the same time, what is done should be well done, and our criticisms are on the way methods have been employed rather than on the methods themselves.

Taking the exhibits in the order given in the catalogue, we come to the display of Miss Stephanie Maud, of 16, Brook Street, Hanover Square, W. This lady shows some originality of idea in her posing and arrangement of accessories. An interesting portrait of a child opening a cupboard door, and peeping in shows that Miss Maud has some original, or at any rate individual, accessories to work with. It is of course open to the objection that the face is not seen, but it is sometimes possible to give an excellent likeness without showing the face. There is character about a well-caught pose. From a business point of view perhaps the experiment is risky. A black platinotype of a girl sitting reading a letter is pleasingly arranged, and delicate in production.

From his studio at 4, Onslow Place, South Kensington, S.W., Mr. W. H. Harrison sends a number of capital portraits, all of ladies or children, and we believe this photographer makes a specialty of this class of work. The centre picture (in the absence of numbers it is a little difficult to indicate with certainty which picture is being referred to) in an oval mount, is delicately tinted, the flesh being especially good; the expression in the eyes is well rendered, and the hair is nicely lighted, with a complete absence of wiriness or sharp rendering of individual hairs. The large head immediately below this is softly lighted, and there is a feeling of atmosphere, or space, round the head which is satisfactory. In the large head of a child in the centre at the top of the display Mr. Harrison has not been quite so successful, the reflections are too large, particularly that in the right eye, and should have been carefully reduced in size.

The display from her studio at St. Ives, in Cornwall, which Mrs. Bainsmith has sent up, is an ambitious one, but the work needs taking just a little further before several of the portraits could be termed really good. The most successful portrait photographers are those who study the work of others and gradually eliminate the defects they notice by comparison in their own work. It is one of the difficulties which workers in isolated places experience that they have such few opportunities for this comparison. The enlarged portrait of a gentleman, presumably Sir Charles Tupper, would have been more effective had the dark background extended right across the figure. At present the outline of the shoulder and arm is very insistent. The large panel portrait printed in red lacks any

point of interest. The face does not in any way dominate the picture, nor is the position of the figure particularly graceful. The colour used in finishing does not match the colour of the print, and gives to the flesh round the ear a dirty appearance.

Mr. James Clark, of Hanger Lane, Ealing, W., shows several pictures, the best of which is a portrait of a laughing boy which is framed in a circular wood frame. The expression in this, and in the portrait of a lady in a bonnet, which is hung close to it, is undoubtedly good, but these are almost the only exhibits in which the expression is satisfactory. The others, or most of them, convey the impression that more attention has been paid to technical points, the arrangement of accessories, dress, and other details, and that the sitter has to some extent wearied, and freshness and spontaneity have been lost. These points are not unimportant, but they should not be placed first. We believe in ninety-nine cases out of a hundred the sitter values expression most. The portrait of John H. Gear, Esq., is a trifle theatrical, perhaps, but is very characteristic. Of "To the Land of Nod" we have nothing good to say. The whole thing is quite unconvincing. We have yet to learn that it is usual for young ladies in baronial mansions to undress in the hall and light themselves upstairs attired in their nightgowns. If Mr. Clark had sat down in front of this picture and carefully thought it over, we feel sure he would not have exhibited it. Better still would it have been to think the print over before making so big an enlargement.

In the prints by Histed, 42, Baker Street, W., we note a rather curious effect of shadow on both sides of the face, the portion of the face nearest the camera being the best lighted. The effect may be satisfactory in certain instances, but carried to the extent seen in this display is apt to savour rather of an affectation. We have a bit of good modelling in the head of Forbes-Robertson, but unquestionably the best portrait of all is the head of Sir Henry Irving.

The portrait we like most in Lambert Weston and Sons' exhibit is one of a very little girl, in the centre of the bottom row. There is an absence of distracting accessories so painfully present in the portrait of an older child on the left-hand side, where, also, the pose is somewhat affected. One or two nice miniatures are shown, but another is spoilt from the colour scheme point of view by a red flower in the hair.

The work of Miss Lena Connell we regard as the best all-round example of conventional professional work, and it evidently attracts to her studio at 50, Grove End Road, St. John's Wood, a number of celebrities. There is here a very happy combination of good, sound commercial work, with just enough artistic feeling for the well-educated public. The remarkably even character of the portraits shown is notable; either Miss Connell always attains a high standard, or knows what to select and what to reject from her recent sittings for the purpose of display. The enlargements we like least. No. 17, Vera Marks, is a beautiful portrait of a beautiful child sitter, the soft brown eyes and gentle expression, with a certain suggestion of latent womanhood, and an entire absence of "pose" making an altogether charming picture. It is a long time since we saw a child portrait which pleased us so much. No. 14, "Who Are You?" is a pretty conceit, a child looking at a doll in

a chair. In an unnumbered print, a full-length portrait of a lady with the face turned to the camera, there is a rather strong light on the hip which somewhat distracts the eye, and which might have been slightly lowered by reduction on the negative.

Mr. William Crooke, of Edinburgh, fills the south wall with an imposing exhibit, quite in the style which he has associated with his studio. Work such as this is to an extent apart from criticism, for it cannot be judged by the conventional canons of commercial portraiture. In one or two instances we should have liked to have seen the shadows on the flesh a little less heavy, though it is possible the light on the pictures might be better. There is a fine portrait group which should be studied by those who want to keep accessories properly subordinated.

The most extensive display in the room is that of W. and D. Downey, of Ebury Street, S.W., and amongst the photographs are many of various members of the Royal Family. Nos. 20, 21, 22, and 23 are probably exhibited on account of the positions occupied by the sitters rather than because of any special excellence as photo-

graphic portraits. Frame 29 contains three portraits, presumably theatrical pictures, which are pleasing and entirely suited to this class of work. No. 27 is a good specimen of commercial coloured work, the colour scheme being quiet, and yet sufficient to raise the picture above a mere piece of tinting. The centre print in No. 7 is a good bit of work, and No. 11 gives some flesh tones, the values of which are as near right in relation to the light draperies as the general public will accept. No. 32 of the pigmies is more interesting than artistic, and has no doubt been included as being topical. No. 9 fairly successfully solves the problem of high lights on a court dress without heavy shadows or too dark flesh tones. The large case of miniatures and ceramic enameled contains some good specimens of these classes of portraiture.

Mr. Hollyer, of 9, Pembroke Square, W., shows three portraits and three reproductions of works of art. The reproductions are, we consider, the finer work. The portrait of the late G. F. Watts seems to show signs of enlargement, and, frankly, we do not like the fingers stretched across the arm of the chair.

THE TRADE SECTION.

Every available space in the Fountain Court is occupied by trade exhibitors this year. Messrs. Wellington and Ward, on the left hand of the entrance, have had Mr. George Walton design a sort of kiosk for them, and have thus obtained better means of displaying negatives on Wellington films and plates, and prints and enlargements on the various papers of their manufacture. Within the structure, at approximately hourly intervals, Mr. John H. Avery demonstrates the sepia toning of bromide prints by the "sulphide" process.

The stall of Kodak, Limited, on the other side of the entrance, displays, of course, the latest models of Kodak cameras and the Kodak tank developer. As these pieces of apparatus have been, or will be, reviewed in our pages, we need not enlarge on them here. A selection of enlargements from negatives made by H.M. Queen Alexandra is a notable feature at the Kodak exhibit, where also demonstrations of developing and printing are given at frequent intervals.

A tour of the Court from left to right brings the visitor first to J. H. Dallmeyer, Limited, whose exhibit represents their manufacture of substantial high-class tourists' cameras. The item of special interest, however, is a form of the "Adon" telephoto lens specially adapted for the No. 3 Folding Pocket Kodak. The back component of the No. 3 F.P.K. lens is a single unachromatic glass, but on substituting for the front lens a telephoto attachment designed by Mr. T. R. Dallmeyer, the whole combination is corrected, and gives sharp pictures up to a magnification of two. This result is obtained without greater extension of the camera. As the new "Adon" is only about the size of a Watkin's cylinder meter, and can be fitted to the lens in a few seconds, the attachment ought to be largely used.

Messrs. Sanger Shepherd show chiefly apparatus for three-colour and scientific photography, including an improved model of a half-plate camera for survey work. Messrs. Houghtons, Limited, make an enticing display of hand and stand cameras, chiefly of the Sanderson pattern; but perhaps one exhibit of theirs of special interest to the professional photographer is the "Phosys" file for the storage of negatives or prints on the card-filing system.

The firm of C. P. Goerz follows its own precedents for several years past in exhibiting enlargements from negatives taken with Goerz anastigmats, but the most striking of the present examples are those taken with the Goerz telephoto lens. Another novel exhibit is an apparatus for the photography of wild animals by flashlight, the exposure being made by the animals themselves. The apparatus has been made at the Goerz factory for the German explorer, Dr. Schilling, who has perfected the system of flashlight photography employed by Shiras in America, in which the act of exposing the plate is very

advisably left to the animal itself. The camera is a special form of the Goerz-Anschütz folding, and the focal-plane shutter is connected with an electric release, by which it is actuated at the same moment that a flash powder is fired. Both these events take place at the same moment, the causative factor in the case being the lion or tiger across whose homeward path the photographer has spread a cord from the apparatus.

Messrs. W. Watson and Sons exhibit a large selection of apparatus, including a new pattern of the Argus reflex camera, fitted with square reversing frame.

"Chess Brand" printing paper—P.O.P., bromide, and gaslight—occupy a tastefully arranged alcove, next to which is the stand of Sanders and Lrowhurst displaying latest models of the Birdland camera and the Southport enlarging easel.

The Platinotype Company's stand, as the scene of demonstration of this beautiful printing process, attracts, perhaps, more visitors than any other exhibit in the gallery, and this year the printing of a platinotype is carried through from first to last before the eyes of the onlooker. A battery of four mercury-vapour lamps fixed some 4 in. from a printing frame, is found to permit of a print being made from a good negative in about seven minutes, and the rest, as the company's demonstrators have the enviable task of proving, is soon over.

The Fountain in the entrance court is covered by the stand of Meister, Lucius and Brüning, whereat is demonstrated the new tricolour process of pinatype. Mr. Ernest H. Schol, of the firm's scientific chemical staff, gives demonstrations of the process, an account of which appeared in these columns a week or two ago, and is further explained this week in the report of a lecture by Mr. Schol before the Croydon Camera Club. A considerable number of specimens of the process are shown in the North Room, and include several good examples of trichromy. Others are far from satisfactory, and in acknowledging the candour which prompts the makers to exhibit them, it must be added in extenuation of their defects that the process is still very young, and the workers of it in Messrs. Meister's works do not profess to be experts in photography.

In the North Room, to the right of the entrance, the first display to attract notice is that of Ilford, Limited, who have essayed with considerable success the difficult task of composing an exhibit from a number of competition prints. There is a great deal of good photography in the numerous frames in this space, and the general scheme of decoration is harmonious and pleasing. With the temptation to put forward a more striking display of large work of the usual order,

Messrs. Ilford, Limited, pursue the wiser policy of showing the public the results obtained on their products by the amateur and professional user.

The exhibit of Photolinol, Limited, is divided between enlargements in oil, pastel, and water colour on "photolinol" as a base, and specimen prints on the new "Angelo" sepia platinum paper.

The Gem Dry Plate Company have a small, but striking, display of results on "Gem" plates and paper. Messrs. Rogers and Webster exhibit their "Multi-screen," an arrangement of hinged frames which fold back against the wall and can carry a number of prints, frames, etc., many times greater than that permitted by the same area of wall space. Quite a valuable accession in a photographer's show-room. The Ozotype Company keep their non-transfer pigment process in mind by the "Ozotype Album," next to which is the collection of the Paget Prize Plate Company, a remarkably fine exhibit of prints on the Paget gelatine and collodion papers. Of these, special mention must be made of the Collodion Cream Crayon P.O.P., an exquisite matt collodio paper eminently suited to all kinds of high-class professional work.

The last and largest exhibition in the room is that of the Autotype Company, divided into three sections—carbon reproductions of well-known paintings, "Autogravure" reproductions of portraits by A. S. Cope, A.R.A., and carbon enlargements from photographers' negatives. We would not exalt the interest of the last above that of the other two, for we would emphasise to photographers the opportunity offered in the Autotype Company's publications of imparting a handsome appearance to a show or reception room. There is no cast-iron law to the effect that the photographer's window or showcase should be occupied exclusively with specimens of the ordinary commercial kind. A handsome display of acknowledged works of art might very well supplant the conventional cabinet and enlargement on occasion, and there is no reason also why the sale of such reproductions could not be added to many photographers' businesses. The third section shows the admirable work the Autotype Company can produce from photographic negatives.

Photo-Mechanical Notes.

The "Enamel" Resist.

We have more inquiries relating to the resist for printing half-tones on metal than on any other process matter. Yet if the principle of the resist was grasped, nothing should be difficult about making the solution, nor should it easily go wrong. The essentials are fish glue, bichromate of ammonium, and water. If it is required to have the solution print quickly, as much bichromate should be added as possible, but not beyond the point where it begins to crystallise out when drying the film. The amount of water added will depend upon the thickness of coating required, and this again should depend upon the character of the negative and the kind of resist wanted. A large shadow point will stand more chance of printing small with a thick solution, while a thin solution is better for a negative with extremely minute shadow dots, as these, in a thick film, will tend to "bung up." If a rich chocolate-coloured enamel is required after burning in, then a thick solution must be used. If the bichromate is made up in saturated solution, this may be added to Le Page's clarified glue in equal quantities, and then water added until found to give the desired viscosity of solution. A drop or two of ammonia may be added to make sure that the solution is not acid. The addition of white of egg is not necessary, and it is questionable if the increase of sensitiveness gained by the addition of chromic acid is worth the risk run

of turning the solution more or less insoluble and causing "scummy" prints.

The Arc and Eyesight.

THE enclosed arc now in use in all photo-engraving studios should not be looked at with the naked eyes, as, although apparently less bright than the ordinary electric arc, the ultra-violet rays that give the value to this form of lamp are particularly damaging to the eyesight. The blue goggles sold by opticians are not much protection, as they probably let through most of the ultra-violet light, while smoked spectacles are generally too light for the purpose. However, deep neutral-tinted glass can be obtained from the glass merchant at the rate of about 2s. per square foot. A small circle or square should be bound round with lantern binding strip and carried by the operator in his waistcoat pocket for use whenever he requires to look at the lamps burning.

A Popular Account of Process.

No. 78 of the "Electrician" handbooks is devoted to the subject of "Photo-engraving," and treats in detail of line work, half-tone, and photogravure. Each process is briefly but lucidly described, and all necessary formulæ are given. There are some excellent half-tone blocks showing a negative and positive and various pieces of apparatus. The price of the pamphlet is threepence, and the writer is Mr. Donald Cameron Swan, of the Swan Electric Engraving Company—certainly a high authority on process matters.

The Reproduction of Pencil Drawings.

At the Manchester Municipal School of Art there is at present an exhibition of studies by the late Sir Edward Burne-Jones. The catalogue for this has been prepared by the Photographic and Printing Crafts Department of the Municipal School of Technology, and an excellent piece of bookwork it is throughout. To illustrate it, permission has been obtained to reproduce fifteen of the studies, and these are quite admirably done in half-tone. Though most of them have the half-tone tint running through the background, the device of printing the blocks on very white paper, and then trimming the print down and mounting on a very dark green cover paper, entirely masks any degradation of background, and makes the reproduction of the pencil work stand out most effectively.

At a meeting of the City of London Common Council on Wednesday, an amusing incident in the proceedings was the taking of a flash-light photograph of the members "in Court of Common Council assembled." The flash-light mixture created a tremendous "bang," while the Chamber was filled with smoke. At the same time, there was a fall of black particles, which descended in a shower upon the heads of the members. The photograph, it may be added, was taken for reproduction in a new publication about to be issued.

B. J. EDWARDS and Co.—Mr. Roland P. Stone asks us to announce that his connection with Messrs. B. J. Edwards and Co. has ceased, the business having been purchased by Messrs. Johnston Matthey and Co., Limited.

THE South London Photographic Society, following the plan adopted last year, extend an invitation to all unattached photographers to attend the elementary evenings held alternate Mondays at their headquarters, Collyer Hall, Peckham. Last session a considerable number attended these meetings and expressed themselves much pleased with the help so freely given, and some eventually joined the society. The next meeting will be held on October 23, the subject being "Developers and Developing." Intending visitors should write to the Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E., when a card of admission will be forwarded.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between September 25 and 30:—

PRINTING.—No. 19,446. Improved apparatus for use in photographic printing and retouching. Thomas Clegg, 38, Chancery Lane, London.

FOCAL-PLANE SHUTTERS.—No. 19,817. Improvements in focal-plane shutters and other roller-blind shutters. Arthur Lewis Adams, Birckbeck Bank Chambers, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PROJECTION LANTERN.—No. 23,685, 1904. The invention relates to projecting lamps for use with Nernst filaments and resistances. To obviate the risk of breaking the filaments, each one is fixed together with its porcelain base on a non-conducting plug or disc, which also carries the resistance. The plug has a screw-thread on its periphery on to which two pieces of tube are screwed, one from each side; one of the pieces serves as a cap to protect the filament, and the other, which is preferably longer, encloses the resistance. This latter tube carries two projecting lugs having holes whereby the lamp is supported on the usual carrying pin. The outer end of this latter tube is conveniently covered with perforated sheet metal in order to provide thorough ventilation for the resistance. A hole is provided in the centre of the perforated metal to enable the connecting wires to be passed into the lamp. Leo Kamm, 27, Powell Street, Goswell Road, London, E.C.

The following specifications are open to public inspection before acceptance under the Patents Acts, 1901:—

TRIPOD STANDS.—No. 18,332. Tripod stands for cameras, etc. McLeod.

LIGHT FILTERS.—No. 19,202. Process for the manufacture of three-colour screens for use in colour photography. Krayn.

New Apparatus, &c.

The Bausch and Lomb "Automat" Shutter. Sold by A. E. Staley and Co., 19, Thavies Inn, London, E.C.

The 1906 model of this well-known shutter has been submitted to us by Messrs. Staley, and we find it "in form and moving" as convenient an instrument of this class as could be desired. The shutter, of course, is of the diaphragmatic type, and is threaded back and front for the reception of the components of an R.R. lens. It is provided with an iris diaphragm, the scale of which can be marked for any given focal length. The three movements of the shutter—instantaneous, bulb, and time—are obtained most simply by rotation of the central disc, which is marked for exposures of 1, $\frac{1}{2}$, 1-5th, 1-25th, 1-50th, and 1-100th of a second.

The "Rajar" Film Slide. Made and sold by Rajar, Limited, Moberley, Cheshire.

This piece of apparatus embodies a new system of daylight loading and changing for cut films. The changer itself is light and compact, being constructed of wood and no larger than an ordinary double dark-slide. It is made in the size to fit ordinary popular patterns of camera—and can be sent out ready for use on naming the camera—

or supplied with its edge ungrooved so that any cabinet-maker can cut the groove for a trifling sum. The film slide is loaded in daylight with separate cut films, which, after exposure, are collected up to the number of about a dozen in the film slide. Each film is supplied in a light-tight envelope, which is inserted in the slide. Here it encloses the film as shown in Fig. 1, the tag projecting from the top of the slide. On pulling the tag a short distance, the loop or "cap"



Fig. 1.

is drawn behind the envelope and the film is caught on its two extreme corners by two steel wire springs. The figures show the stages in the charging of the slide:—Fig. 2, film envelope inserted in front of shutter by passing through valve between the shutter and the body of the slide. Fig. 3, tag raised as far as it will come, to draw the "cap" behind the envelope. Fig. 4, envelope pushed back into the slide in front of "cap," and film caught by wire hooks. The

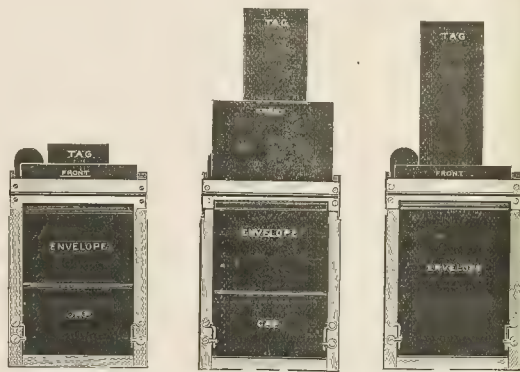


Fig. 2.

Fig. 3.

Fig. 4.

envelope and cap are now pulled right out of the film slide, and the film is left ready for exposure, as shown in Fig. 5; the shutter of the slide in this and other drawings being shown removed to disclose the stages of the process. After exposure, the film is transferred to the back part of the slide simply by withdrawing the slide. The price of the slide is 10s. 6d. in the quarter-plate size, and films of the same size, special rapid or ordinary, are 2s. per dozen. The apparatus



Fig. 5.

weighs only a few ounces and is absolutely free from mechanism. The manipulation of the envelopes is easily understood, and the new system should appeal strongly to the amateur tourist photographer who fights shy of dark-rooms, but yet wishes to carry with him the means of making an unlimited number of exposures. The lightness and flatness of the Rajar envelope-packages are two great points in their favour.

New Materials.

"Synoloids." Made by the "Synoloids" Company, 4, North St. David Street, Edinburgh.

When the development of faintly printed P.O.P. was suggested some years ago, it was thought that this new power, placed in the hands of the busy printer, would revolutionise the production of prints on gelatino-chloride paper. The process, however, although carefully worked out, and brought to a practical and reliable state, did not appear to "catch on" to any great extent, and from time to time new formulae and preparations for developing out an image on these papers have been advocated. The latest claimant for popularity in this direction is called "Synoloids." Synoloids take the form of little tablets, which are put up in convenient form in glass tubes. A pair of these tablets will, when dissolved in water and applied to P.O.P., on which only a slight impression of the image has been formed by light, develop the picture right out in less than a minute, and with a pleasing range of tones from warm chestnut brown to nearly black. No other chemicals, with the exception of hypo, are needed, and for the busy worker who has no time to fully print out his P.O.P., we can conceive no simpler method for the production of prints with all the attributes of the completely-finished and toned result. The depth to which the original printing has been carried affects the final tone. Very faintly printed prints develop a very dark tone, almost black, while those that have received a more prolonged exposure give warmer tones. Still blacker tones can be obtained by using a special Synoloid tablet. The developing process is conducted as follows:—Immediately before use a couple of the tablets are dissolved separately in two ounces of water. These two solutions are then mixed, and poured straight on to the dry print in a perfectly clean dish. In a few seconds the image will begin to strengthen and development will be complete in about half a minute. The print is then transferred to the fixing bath—hypo, three ounces; water, one pint; and a certain amount of loss of tone takes place—so the development must be carried further than appears necessary. We think, however, that an intermediate washing between development and fixing would be more conducive to permanency, as there would then be less chance of sulphurising action on the print. "Syno." P.O.P. (made by the Gem Plate Co., Ltd.) is specially recommended for this treatment, but it is applicable to any other variety. The tablets are not expensive, and full particulars will be sent free on application.

The Latest Colour-Photography.—A so-called "Mars-Star" process is announced, by which filters, etc., are dispensed with, and—to quote the circular — "amateur photographers can now sort out their favourite negatives and print from them a bromide print, and after immersing the print in the developing colour compounds, the bromide print is re-developed up in colours, the compounds having the power to produce the colours in re-development according to judgment." The price of an outfit is half a guinea for amateurs; special licensees, presumably at a price, are to be granted to professionals. We are afraid the company will not get along very fast on these lines.

We have been asked by the hon. secretary of the Hackney Photographic Society to remind our readers that entries for the Hackney Exhibition close on Saturday, October 21. Pictures will be collected from the R.P.S. and Salon free of charge. Full particulars will be sent by Walter Selfe, 70, Paragon Road, Hackney, N.E.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Oct.	Name of Society.	Subject.
13.....	Leicester Lit. and Philo. Society	"Factorial Development of Negatives." Demonstrated. The Chairman, "Trimmer and Trimming of Prints," "Use of Lanternscope." Members' Slides.
13.....	Colne Camera Club.....	"Barnet" Post Card Competition. Mr. J. K. Harvey.
14.....	R.P.S. Exhibition New Gallery	"A French Wonderland and the Devil's City." Mr. James A. Sinclair, F.R.P.S.
16.....	Dewsbury Photo. Society.....	"Gun Bichromate." Demonstrated. Messrs. Lyles and Dawson.
16.....	Widnes Photographic Society..	"Views of Norway." The late Mr. Paul Lange.
16.....	R.P.S. Exhibition New Gallery	"Some Unfamiliar Denizens of Rivers, Lakes and Ponds." J. Martin-Duncan.
16.....	Wandsworth Camera Club	"Amilaxion Lecture on "Landscape Photography."
16.....	Bowes Pk. and Dis. Ph. Soc.	"Ozotype." Mr. Thos. Manly.
16.....	South London Photo. Society ...	"Toning Bromide Papers." Rev. H. O. Fenton; and the <i>Amateur Photographer</i> 1905 Prize Slides.
16.....	Halifax Camera Club	"St. Alban to Lichfield." Mr. G. Birgley
16.....	Luton Camera Club	Exhibition of the <i>Amateur Photographer</i> Prize Slides.
16.....	Barrow Naturalists' Field Club	"To the Arctic Regions and Back in a Fortnight" (illus.) Mr. M. Stables.
16.....	Southampton Camera Club	"A Founder of Empire" (illus.) F. G. Ryder.
17.....	Thornton Heath Photo. Society	Demonstration of Rotograph and Rotox Gaslight Papers. By the Rotary Photographic Co., Ltd.
17.....	Barrow Naturalists' Field Club	Opening of Enlarging Lantern.
17.....	St. Helens Camera Club	"Platinotype." Mr. J. Collins.
17.....	Hackney Photographic Society	Excursion Prints Judged and Criticised. (Entries for Exhibition due.)
17.....	Jersey Photographic Society ...	"The Romantic in Landscape."
17.....	Bristol Photographic Society ...	Enlarging Demonstration by Mr. H. R. Harford.
17.....	Sunderland Camera Club	Half-yearly Meeting.
17.....	Nelson Photographic Society ...	Demonstration—Lantern Slides. Mr. W. Baldwin, Foulridge.
17.....	Birmingham Photo. Society.	Demonstration on "Oil Printing." Mr. James Gale.
17.....	Holmfirth Photographic Soc....	"Art." Mrs. G. L. Richardson.
17.....	Darlington Camera Club	"How to Make a Lantern Slide." Mr. H. L. Thomson.
18.....	Croydon Camera Club	"The Carbon Process." Lionel Kough.
18.....	Boro' Poly. Photo. Society	"A Week-End in Venice." Mr. A. E. Pain.
18.....	Cricklewood Photo. Society.....	Demonstration by Messrs. Kodak, Ltd.
18.....	Coventry Photographic Club	"Hand Camera Work." Mr. J. I. Bates.
18.....	North Middlesex Photo. Soc....	"Lantern Slide Making by the Carbon Process." Mr. Louis Dick.
18.....	G.E.R. Mechanics' Institution	"An Amateur on Colour Photography." Mr. G. U. Haslam.
18.....	Redhill and Dis. Camera Club.	"Homeward Across the World." Mr. A. H. Dunning.
19.....	Southport Photo. Society	"Rome and Southern Italy." Mr. T. E. Rice-Jones.
19.....	Sheffield Photographic Society	Demonstration "Bromide Enlarging." Mr. Geo. Tomlinson.
19.....	London and Prov. Photo. As....	"Through Dalmatia and Bosnia." Mr. C. Dalgarno.
19.....	Liverpool Amateur Ph. Assn....	"Making of Enlarged or Reduced Negatives, by Reflected Light from an Untoned P.O.P. Print." Mr. F. Rust.
19.....	Chelsea and Dist. Photo. Soc. ...	Demonstration "Page-Croft Pigment Paper." Mr. R. C. Gibbs.
19.....	Glasgow Eastern A.P.A.	"Artistic Mounting of Photographs." Mr. J. S. Melville.
19.....	Handsworth Photo. Society.....	Demonstration — "Toning Bromide Prints." Mr. J. A. Swift.
19.....	Wimbledon and Dis. Cam. Club	"Hampton Court Palace." Mr. J. Munro.
19.....	Hull Photographic Society	"Warwickshire, Gloucestershire, and the Wye Valley." Mr. Godfrey Bingley.
19.....	Balham Camera Club	Members' Night.
19.....	Rodley, Farsley & Calverley P.S.	"Steroscopic Work."

ROYAL PHOTOGRAPHIC SOCIETY.

The opening meeting of session 1905-6 was held in the New Gallery, Regent Street, on Tuesday last, October 10. Major-General Waterhouse delivered the presidential address, on "By-Paths of Photography." He instanced the many fields of photography which were yet unexplored, and went on to review the numerous and valuable services which the camera had rendered to the arts and sciences. On the proposition of Mr. J. C. S. Mummery, seconded by Mr. John Spiller, a vote of thanks to General Waterhouse was carried.

CROYDON CAMERA CLUB.

On October 4, "Pinatype," the new system of three-colour photography (described at length in the B.J. for September 22), was demonstrated before the members of this society by Mr. Ernest Scholl, representing Messrs. Meister, Lucius, and Brünig, of Hoechst-on-Main. In some respects it bears a certain family likeness to the system evolved some time ago by Messrs. Sanger, Shepherd and Co., but there are cardinal points of difference. In each case three negatives are obtained under well-known conditions, yellow, blue, and red positive images are obtained, transferred to paper, and superimposed. Messrs. Sanger-Shepherd, however, print direct from the original negatives on bichromated gelatine films, supported on thin celluloid, dissolve by hot water the parts least acted upon by light, dye the reliefs so formed, and transfer the dyes to a suitable prepared paper by contact. In Pinatype, three bichromated films on glass plates are exposed behind three positives obtained from the original negatives, either by contact or by enlargement, the bichromate is then removed by washing, and the films, which are left intact, are dyed as in the former process. The unhardened parts of the films—representing the deep shadows of the positives—take the dyes readily, the half-tones less so, and the highest lights little or none at all. A piece of gelatine paper is then squeegeed into contact with one of the dyed films, and a portion of the colour is transferred to it by absorption. The paper is next successively squeegeed into contact with the two remaining dyed films, correct registration being effected by looking through the glasses supporting them. After the demonstration the president (Mr. W. H. Smith), after a passing allusion to the magnitude of the Aniline Dye Works at Hoechst-on-Main, which employ 5,000 workmen, consume over 600 tons of coal per diem, and possess over forty-two kilometres of railway track and eighteen locomotives, drew attention to the fact that the bichromate films were in the nature of negatives; if these, and the intervening positions, could be dispensed with, and the original negatives, by any means, employed direct for transfer of the dyes to paper it would tend towards simplification. He thought he had heard some such idea advanced in the past. Mr. E. A. Salt was of opinion that few amateurs would care to orthochromatise plates by the bath method—which necessitated careful manipulation and a drying cupboard—or undertake the manufacture of three filters of definite ratio to each other; these might with advantage be supplied adjusted to English brands of plates. He inquired whether long or short washing after dyeing an ordinary plate affected its colour sensitiveness. Mr. C. E. Kenneth Mees, said that the length of after-washing did not seem to influence the colour sensitiveness; a certain amount to remove excess of dye was necessary. The dye appeared to enter into a definite chemical compound with the silver bromide, which, *per se*, was not affected by long washing. (See Dr. König's article on another page. Eds. B.J.P.) As to the adjustment of filters for various brands of ortho plates, in ordinary three-colour work these were very much alike, Lumière's filters excepted. For instance, plates dipped in orthochrome T would work well with Messrs. Sanger Shepherd's filters. He agreed that it was difficult to successfully bathe and dry plates without special appliances, but it should be remembered that a bathed plate was superior to the ordinary commercial panchromatic plate in the proportion of about 5 to 1. With reference to the President's suggestion, he also recollected something of the sort being advanced. It was true that with a strongly alkaline pyro developer, where the silver was most acted upon there the film was toughened most. This accounted for the relief frequently observed in negatives. He did not, however, think that this could be utilised in the direction proposed. The second half of the evening was devoted to an exposition on lantern-slide making by Mr. H. P. C. Harpur.

MANCHESTER AMATEUR PHOTOGRAPHIC SOCIETY.

Mr. Charles J. Harrison gave a lecture and demonstration on "Enlarged Negatives," in the Society's Rooms, Market Street. The lecturer expressed his conviction that the whole routine of enlarged negative making was simplicity itself, there seemed no possible pitfalls for anyone sufficiently advanced to make a fair technical negative by direct methods, and once obtained, the chances of getting a good result through the medium of a large negative was distinctly more favourable than the chance of getting a good bromide enlargement. Turning to the practical side of the question, he said the first operation was to make a transparency or positive from the negative to be enlarged. This was usually done by putting the negative into a printing frame and placing a dry plate in contact with it in the same way that one would put in a piece of bromide paper. It is then exposed to the light and developed. All the success of the operations depended upon this positive, and he was convinced that the best results were obtained from a positive low in contrasts. To describe the type, he would say that a positive which looked like a thin, washy lantern slide made the best large negative. Any attempt at brilliance or strong contrasts must be avoided or the large negative would suffer. He believed the carbon process gave the ideal positive. In the first place they knew that they had got a true positive, nothing had been sacrificed in development through over or under exposure, and, above all, these transparencies were comparatively soft and low in their scale of gradation. Some workers advocated the use of plates with lantern-slide emulsion, and others process plates for the production of the transparency; but, personally he always used a rapid plate, as there was less chance of getting a contrasty positive. In making the exposure on to the dry plate give full, but not over-exposure, and develop with a dilute developer—a normal developer with quite twice its bulk of added water. The transparency must develop a certain length of time, say not less than seven or eight minutes, or the gradations of the positive would not correspond with those of the negative. To enable them to form some sort of a prior judgment of the exposure to be given he pointed out that an ordinary slow plate was about three times the speed of rapid bromide paper, and a rapid plate about three times as fast as an ordinary. Another method of making transparencies was by projection either through one's own camera by daylight or through an ordinary enlarging lantern in the dark room. If the former is chosen, as it might be through the convenience of being able to do it at home, then it was necessary to fix up the negative either in a window so that the clear sky was transmitted through it, or else a reflector was so fitted that an even light was reflected through it. Then the camera was fixed up at the same angle and parallel to the negative, and a plate was exposed in it. When making transparencies in this way he had not found it necessary to exclude the light that came between the negative and the camera. If the transparency was made by artificial light through the enlarging lantern, then it was only necessary to proceed as if making a bromide print, except that for the piece of bromide paper a dry plate should be substituted. The focussing, of course, should also be done on an old dry plate. Mr. Harrison also described a method of printing in the clouds. First, make a transparency of the foreground. Wash and dry it, then roughly cover up on the glass side of the transparency, either with black paint or a paper mask, the whole of the foreground, leaving only the bare outlines showing. Then put the cloud negative in the enlarging lantern, focus it to the correct size, and fix on the screen a dry plate, in front of which place the transparency of the foreground, film to film, keeping it fixed there until the cloud exposure was made. Obviously the cloud must fit the foreground, and they only needed binding together in register. In conclusion, the lecturer advised the use of backed plates, both for the transparency and the final large negative.

PHOTOGRAPHIC CLUB.—Meeting held October 4, Mr. H. Snowden Ward in the chair. Mr. R. R. Beard read a paper on a "Cinematographs, Past and Present." He referred to Beale's chorentoscope as the predecessor of the film kinetograph: it contained the Geneva stop action present in the modern instruments. The patents of Friesse, Greene, and Evans in 1889 embodied the first practical methods of animated projection. The machine was capable of showing moving pictures at the rate of ten or more per second. In 1895 Lumière's instrument was shown in Paris, and in that year and the following the cinematograph boom might be said to have commenced. The machine of Birt Acres appeared about the same time as Lumière's. Mr. Beard illustrated the essential features of these and other machines, and explained the so-called "dog" motion used in the Bioscope and other instruments. He finally exhibited a working model of an improved projector of his own construction, in which the operator can bring a film into the correct position on the stage while the machine is running. A number of films taken by Mr. Martin Duncan were exhibited in the machine. On the motion of Mr. F. A. Bridge, a vote of thanks was passed to Mr. Beard.

ABERDEEN PHOTOGRAPHIC ASSOCIATION.—The annual general meeting of this association was held in the rooms, No. 54, St. Nicholas Street, on Friday last. The secretary's report was very satisfactory, and the treasurer's report showed that while still adding apparatus to the already extensive outfit, there was a balance on the right side. The election of office-bearers resulted as follows:—President, A. S. Anderson; vice-presidents, J. Main and G. Robertson; committee, W. Main, J. Milne, W. Milne, J. Milne, J. A. Masson, P. Wilkie, Bearsley, G. R. Ford, and G. H. Henderson; lanternist, W. T. Borthwick; treasurer, James Dunn; secretary, A. Gray, 18, South Mount Street; and correspondent, Mr. Deans, 204, King Street.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the White Swan, Tudor Street, E.C., on October 19, at 8 p.m., Mr. C. Dalgarno will give a lecture, "Through Dalmatia and Bosnia." Visitors are especially invited.

ROTTERHAM PHOTOGRAPHIC SOCIETY.—The annual meeting was held on Tuesday evening of last week at the Town Hall Assembly Rooms, Rotherham. The report of the year's work recorded progress, and the financial statement showed a balance in hand of £14. The officers for the coming year were elected as follows:—President, E. F. Hubbard; vice-presidents, J. Leadbeater, W. Firth, and J. W. Stamp; treasurer, F. Oldham; secretary, H. C. Hemingway; assistant secretary, C. E. Davis; auditor, W. B. Davison; curator, F. Sergeant; and an executive committee was appointed. A lecture on "Stereoscopic Photography" was afterwards delivered.

NORWICH PHOTOGRAPHIC SOCIETY.—At the annual meeting of this society, on October 2, the following were elected office-holders for the ensuing year:—President, A. E. Coe; vice-president and chairman, E. Peake; vice-chairman, B. Bullen; committee, H. Butcher, S. Taylor, A. Robinson, C. S. Tungate, W. Hume, and A. Brown; hon. treasurer, H. C. Laycock; hon. secretary, J. T. Tanner.

BRENTFORD PHOTOGRAPHIC SOCIETY.—The annual general meeting of this society was held on Tuesday evening last, October 3. A satisfactory report and balance-sheet were presented. The president, Rev. T. Eland, M.A., F.R.G.S., was again unanimously re-elected, and Mr. Hilton Grundy, who recently resigned the hon. secretaryship, was elected as chairman. Mr. Frank H. Read was elected as hon. secretary and treasurer, and will be glad to forward particulars of membership. An interesting syllabus has been arranged for the ensuing season, and meetings will be held on first and third Tuesday evenings in each month. The society now possess most comfortable headquarters at the Brentford Public Library, and a photographic library in connection with the society is in course of formation. The hon. secretary will be pleased to receive any publications of interest

in this direction. A record and survey section of the district is also being formed under the guidance of Mr. Fred Turner, F.R.Hist.Soc.

BOLTON AMATEUR PHOTOGRAPHIC SOCIETY.—The annual general meeting of this society was held on Thursday, 5th inst., at its headquarters, Corporation Chambers, Corporation Street, Bolton. From the reports of the secretary and treasurer it appeared that the last session had been on the whole very satisfactory. Amongst features of the coming season's syllabus to which special attention is to be devoted is the "open night" and short demonstrations to be given by some of the members themselves. The society extends an invitation to all photographically inclined who are not members to the meeting on Thursday, October 26, at 8 p.m., when, amongst other matters, several systems of storing and registering negatives will be under discussion. The secretary, Mr. T. W. Cross, of 27, Lytham Street, Bolton, will be pleased to answer any inquiries as to membership, etc.

The Wandsworth Camera Club opened their winter session on Monday evening, the 2nd inst., with a demonstration by a representative of the Autotype Company on "Carbon Tissue and Auto-Pastel." The lecturer's manipulation of auto-pastel came as a revelation to many present, especially the way in which the butt end of the brush was used to give the high-lights greater prominence.

The Chelsea and District Photographic Society held the opening of their third winter season at the South-Western Polytechnic on October 5. Some Swiss slides were shown by Mr. J. H. Grafton.

FIXTURE LISTS RECEIVED.

This week we have received from the following societies their programmes of fixtures for the winter session, and in each case we are pleased to note the variety of the fare provided for the members. These fixtures will be noted week by week in the list published on p. 815, and we hope that the hon. secs. or reporters of these societies will send us accounts of the lectures and demonstrations as suggested by our contributor "Hon. Sec." a few weeks ago.

Bishop Auckland Photographic Society.
Heaton and District Camera Club.
Dewsbury Photographic Society.
St. Helens Camera Club.
Hackney Photographic Society.
Tring Camera Club.
Holmfirth Photographic Society.
Colne Camera Club.
Leicester Lit. and Phil. Society, Photographic Section.
Coventry Photographic Club.
Birmingham Photographic Society.
Cricklewood Photographic Society.
Nelson Photographic Society.
Croydon Camera Club.
Widnes Photographic Society.
Rodley, Farsley and Calverley Photographic Society.
Southport Photographic Society.
South Essex Camera Club.
Balham Camera Club.
Sunderland Camera Club.
North Middlesex Photographic Society.
Liverpool Amateur Photographic Society.

New Book.

"Rezepte und Tabellen." By T. M. Eder. Halle a/S: Wilhelm Knapp. M 2.50.

The first edition of this work, published in 1889, formed the second section of "Eder's Jahrbuch," but with the growth of the latter it was published as a separate volume, and this one is the sixth edition. It is divided into two sections, the one containing formulae for practice, which are those employed in the Viennese school of which the author is the Director, and the other various physical, optical, and chemical tables of occasional usefulness. The work covers every branch of photography.

News and Notes.

LECTURES at the R.P.S. Exhibition.—The following lectures will be given at the New Gallery, Regent Street, during the ensuing week:—Saturday, October 14: "A French Wonderland and the Devil's City," by James A. Sinclair, F.R.P.S. Monday, October 16: "Some Unfamiliar Denizens of Rivers, Lakes, and Ponds," by J. Martin Duncan. Thursday, October 19: "A Mighty Marshland Minister," by E. W. Harper Piper.

MYSTERIOUS Photographs.—We reproduce herewith one of the mysterious photographs referred to in our issue of September 29. Mr.



J. Street, the photographer, can offer no explanation of it. He states that the plates used came out of a freshly-opened box, and the explanation of a double exposure appears to him an impossible one.

METROPOLITAN Photographic Federation.—At a meeting held in the club-room of the Forest Gate M.M. Camera Club, at which seven societies were represented (the chair being taken by Walter D. Welford, F.R.P.S., President of the South Essex C.C.) it was resolved to form this federation for the promotion of the social side of photographic society life and for mutual assistance. A committee was elected to draft out rules, etc. These will be sent for consideration to the societies interested in the movement, and to such other societies as may apply for them. The suggestions received from societies deciding to join the movement will be considered by the Committee, the final draft to be presented for confirmation to a later meeting of delegates. The Hon. Secretary (pro. tem.) is T. Michell. Hon. Sec. South Essex C.C., 180, Browning Road, Manor Park, E.

THE Recording Eye.—The old belief that the last optical impressions of a dying person were recorded indelibly on the coating of the

eyes has been revived by an amateur photographer, who has written to the "Daily Telegraph," and suggests that an impression of the murderer of Miss Money would have been found on her retinas. The suggestion is, however, completely scouted by Dr. Geo. Lindsay Johnson, who thoroughly elucidates the matter. He says:—"As this idea seems to be very widely prevalent, it might be as well if the real facts of the case were clearly stated. The trace of truth underlying the story is based upon some experiments made by the late Professor Kuelme, of Heidelberg, which were founded upon the previous discovery of Professor Boll, of Vienna. The latter discovered that the layer of pigment cells immediately behind the rods and cones of the retina secreted a pinkish purple colouring-matter which spread between the ends of the rods. He called this *Sehpurpur* (visual purple) and found that it became rapidly bleached by light. Kuelme succeeded in taking a photograph, or "optogram," as he called it, of a window showing the panes on a rabbit's eye, and fixing it in a solution of alum. The experiment is extremely difficult to perform, and requires the utmost care and precautions. To succeed in obtaining a portrait of anyone on the eye of a person suddenly killed, the following conditions are necessary, and the failure of any one would probably prevent any portrait being formed at all. The victim would have to be chloroformed and fixed immovably in a dentist's chair, the eyelids held apart by an instrument, and the pupil dilated with a mydriatic. The murderer, in the same way, would have to have his face kept immovable, at a distance previously agreed upon, during the whole of the ten minutes' exposure, while his face was brilliantly illuminated—all extraneous light being carefully excluded. It would also be necessary for the refraction of the victim's eye to have been previously ascertained, and such a spectacle lens placed in front of it as would sharply define the face of the murderer on the victim's retina. The moment the exposure was sufficient the eye would have to be smeared over with lamp black, at once removed from the body in a subdued red-on-actinic light, divided in half, and the back half placed in a solution of alum. If all these directions were implicitly followed the result might yield an image sufficiently distinct to be recognised as a human face, but, in any case, it would be ridiculously small. If, for example, the murderer's face were $9\frac{1}{2}$ in. long and at a distance of one yard from the victim's eye, the size of the face on the retina would be under four millimetres—i.e., a little over an eighth of an inch, nor could it be enlarged, as the light used for that purpose would cause the image to fade." We may, therefore, once dismiss the possibility of any such photographs being formed except in the laboratory and under the conditions above named.

THE SALON SMOKER.—The members of the Linked Ring were "at home" on Tuesday evening last at their Photographic Salon, 5a, Pall Mall East, and at 8.30 the programme of music, recitation, talk, and smoking, to say nothing of drinking, commenced with full house. The new home of the Salon is particularly adapted for a function of this description, and the well-known hospitality of the genial Links found full scope for expansion in their larger quarters. The programme of the evening is usually an artistic production, and this year was no exception. It succinctly states:—"At intervals in the talk, the following gentlemen will amuse and otherwise interest the audience with singing, with piano playing, by comic and tragic reciting, and by other performances. At judicious occasions there will be Scotch whisky and soda water, supported by sandwiches of varied contents." When it is said the "talent" included Mr. Walter Churcher, Mr. Reginald Groome, Mr. George Robins, Mr. Hermann Vezin, and others, to say nothing of "The Odell," the success of the evening can be understood. The gathering included a notable collection of celebrities in the photographic and art world, and needless to say the popular hon. secretary of the Salon, Mr. Reginald Craig, came in for his usual ovation at the termination of the proceedings.

A READER asks:—"Can you give me the address of the Automatic Photoscope and cost of same?" We cannot; but will forward any information to the querist.

THE Multiscope and Film Company, Burlington, Wisconsin, U.S.A., notify us that in addition to manufacturing the "Al. Vista" camera they are makers of the "Badger" plate cameras.

MESSRS. SANDS, HUNTER, AND CO., for many years in Cranbourne Street, Leicester Square, have transferred their business to larger premises at 37, Bedford Street, Strand, London, W.C. Their large stock of high-class second-hand apparatus is more conveniently housed in the new quarters, and the firm begs its customers—some of whom date back to the establishment of the business, more than thirty years ago—to note the new address. Messrs. Sands and Hunter will continue the sale and purchase of reputable second-hand apparatus as the staple features of their trading, but the new premises will give them the opportunity of serving their clients also in other ways.

THE death is announced of Mr. De Lan, Bridge End, Tweedmouth, Berwick-on-Tweed.

Commercial & Legal Intelligence

A DEFECTIVE ROOF.—A photographer named Walter Harry Cox, at the Cardiff County Court recently, sued the landlord of the premises he occupied for damage to his stock of negatives in consequence of the defective condition of the building. The evidence was that plaintiff took a house in Westbourne Crescent from Mr. J. J. Lewis on a seven years' lease. In the attic he stored a large number of negatives kept for repeat orders, and as a result of water entering the attic, 1,111 were destroyed or seriously damaged. He estimated that the value of his repeat orders for the last three years was £196. The defence was that plaintiff did not complain of the condition of the attic until February last, that there was contributory negligence, and that the value of the negatives was greatly exaggerated. Judgment was given for plaintiff for £60, with costs.

FRAUD BY A TRAVELLING PHOTOGRAPHER.—On Monday last at Stroud, Joshua William Humphreys, of Orchard Street, Blandford, Dorset, was charged with having, on August 22, obtained from Edward Shelton, a Stroud tradesman, £7 by false pretences. He was further charged with having, on August 23, obtained £2 from David Mason Lodge, bookseller, of Brinscombe, near Stroud, by a similar false pretence. Prisoner solicited orders for picture postcards, but in neither case had orders or part been executed. He carried a photographic apparatus with him, and offered to take photographs of the district and supply the picture postcards at £7 odd for 4,000. Mr. Shelton said he was induced to part with the cheque which he gave prisoner in view of the extraordinary value of the cards and what he said about his business. Superintendent Biggs said he visited prisoner's house, a small cottage, and there was no sign indicating that any business was carried on there. There were nine other cases against prisoner, the total money obtained by him being £28. Prisoner admitted that he had not supplied any of the orders for which money had been drawn. He pleaded "guilty under extenuating circumstances," and was sentenced to four months' hard labour.

THEFT OF CAMERAS.—Ebenezer James Faulkner, of Green Street, Whalley Range, Manchester, was charged, on remand, at the Guildhall with stealing a number of hand cameras, tripods, microscopic slides and lenses, camera slides and parts, etc., value about £44, from R. J. Beck and Co. (Limited), Cornhill. The prisoner was sentenced to six months' in the second division.

Correspondence.

* * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * * We do not undertake responsibility for the opinions expressed by our correspondents

THE INVENTION OF PIGMENT PRINTING.

To the Editors.

Gentlemen,—Being deeply interested in the early history of photography, I have followed closely the weekly notes by "Historicus" in the B.J.P., and am greatly indebted for many points of importance, told, too, with just that personal touch that one misses in the ordinary text-book.

I will be very grateful if you can give me any further information (or references to details already in print) with regard to the following point, which has long puzzled me:—

I gather that when Ponton discovered the method of printing on bichromatised paper he got no further than proving that light darkened the salt. Had he no conception that even in his paper prints the reaction was probably more complex than the darkening of the bichromate? And is it literally the case that no investigations were made—i.e., which were recorded—of the infinitely more important results of light on bichromate when mixed with colloids until Fox Talbot took the matter in hand?

I had always looked upon Ponton as the founder (unconscious, perhaps) of photo-mechanical work, but unless Fox Talbot was directly induced to try the result of mixing bichromate and gelatine, by what he knew of Ponton's work it certainly seems that Talbot is fully entitled to all the credit in this branch of photography.

Talbot was doubtless at work on the problem between 1839, and his first publication of his photogravure process. Is there any evidence as to when and for what reason he came to take it up?

And did he certainly hit on the insolubilisation of bichromatised gelatine before Poitevin, in which case, I suppose, one may fairly look upon the latter's work as lineally descended from Talbot's?

I am ashamed to ask your contributor so many questions on a point which, it may be, I ought to be able to work out for myself from the books that are available, but I had far rather have the deliberate opinion of a careful observer with an unusually good memory, than the statements (too often perfunctorily copied from other books) of the ordinary text-book writer.—Yours truly,

WALTER S. CORDER.

4, Rosella Place, North Shields, October 2, 1905.

[Our correspondent's enquiries are dealt with by "Historicus" on another page.—Eds., B.J.P.]

THE TITLE OF A PICTURE.

To the Editors.

Gentlemen,—I am writing to ask if you would assist me to correct the title of my study, now hung in the "Royal." I sent in two pictures—one "Bereaved" and the other "Betrayed." The authorities have hung "Betrayed" and called it "Bereaved," and, of course, the title does not fit the picture; consequently I did not get a good criticism in your journal. It has been reproduced in the "Illustrated London News" as "Bereaved," and they have taken the title from the catalogue—hence another mistake. The secretary has written expressing regret. I have had several letters from friends asking why I had spoilt my study by giving it an inappropriate title.—Apologising for thus troubling you, and thanking you in anticipation, I am, sir, yours faithfully,

EDWIN H. HAZELL.

Linden Road Studios, Clevedon, October 7, 1905.

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- *.* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- E. F. Bostock, 24, Moorgate Street, Nottingham. *Photograph of Mr. and Mrs. Rodkinson.*
- W. C. Silence, 7, Bank Buildings, Weybridge, Surrey. *Photograph of the Saxon Curfew Bell from the Abbey, Chertsey.*
- J. B. Mumford, 22, Victoria Road, New Brighton. *Three Photographs of Rough Sea at New Brighton.*
- G. A. Dean, 14, High Street, Rugby. *Photograph of Child with "Daily Mail."*
- H. Johnstone, Rockstone Place, Castle-Douglas, Scotland. *Photograph of the Castle-Douglas Bowling Club, 1905.*
- S. H. Greenway, Abington Street, Northampton. *Photograph of the New Zealand and Northampton Rugby Football Teams.*
- H. V. Southgate, 2, Station Road, Maidenhead, Berks. *Photograph of Mary Isabel Horsfield Feeding Parrot, entitled "Pretty Poll."*
- Rev. J. Hill, Holy Rood Rectory, George Street, Barnsley. *Two Photographs of Ceremony of Opening the New Church of the Holy Rood, Barnsley.*
- Miss C. Osborne, 454, Stratford Road, Sparkhill, Birmingham. *Photograph of Child Partially Dressed, Supporting Itself by both Arms on Cushion, Head held up, Baby Laughing.*
- A. Webster, Barnack, Stamford. *Two Photographs of Deeping St. James.*

BOOK ON RETOUCHING.—I shall be much obliged to you if you will mention in your valuable journal: (1) the best book of retouching negatives with knife; (2) where to procure same.—M. BARNARTT.

As good as any is "Retouching," by Arthur Whiting. (Dawbarn and Ward, Limited.) 1s.

C. H. LAWS.—There are lamps on the market serving the same purpose, but we should think there is a certain business to be done, though not a very large one. We should say it would be worth your while to take out provisional protection.

TRADE NAME.—Will you kindly give me an answer to the following? I am about to start a portrait supply, and wish to name it as follows: "G— Fine Art Society." Have I to register it in any way? There is no one in the business but myself; I class myself as manager. But, having it named under a society, I thought I should have to do so. Would "Fine Art Association" come under the same rules.—FINE ART.

You will not have to register the name. Do not you think naming the affair a "society" is a mistake? Would it not be better to call it a company, with yourself as manager, if you do not wish it to be thought the business is your own?

COPYRIGHT.—I shall be greatly obliged if you will inform me whether the enclosed photograph is copyright or not. It is of William Morris, poet and author, who died 1896.—ENQUIRER.

The only way for you to ascertain is by search at Stationers' Hall, London, E.C., but we should say the copyright in the photograph has been registered, in all probability.

H. J. H. asks:—Will you please oblige us with the address of the Executors or the gentleman who has taken over the photographic business of the late Mr. W. King, photographer, of Goldhawk Road, Shepherd's Bush? We wish to obtain some of his negatives.

You probably refer to Mr. Horatio Nelson King. Unless we are mistaken, a letter addressed to his son will bring you the information.

PRIMULINE PROCESS.—In the "Almanac" published by you for 1904,

on page 691, is described a process for printing on woven fabric having for its basis "primuline." May I ask your assistance in letting me know what this primuline is, or where it can be obtained? I should like to try the process, but the local photographic material people can give me no information about the material.

PARTICK.

Primuline is a diazo dye. If you write to Merck, Jewell Street, London, E.C., you will be able to obtain it.

A QUESTION OF RIGHT.—I am anxious to obtain photographs of new Roman Catholic Church that faces up to the public street both interior and exterior, the opening of which takes place on Sunday next. I am asked to photograph the church and give donation to the fund in return for full copyright powers of same from the priest in charge, otherwise he will prohibit my selling same on the grounds that the church does not belong to the State but a private community. I shall be glad to know if the priest has any power to prevent me from selling photographs of the exterior, if taken without his permission?

AN ENGLISHMAN.

You have the right to do anything you like with the photographs.

"WANT TO KNOW," AND OTHERS.—In our next.

TONING BROMIDES.—1. What is the best toning bath for bromide for obtaining a rich brown-sepia colour? 2. I have been using a sulphide bath, bleaching with potass. bichromate and hydrochloric acid (carefully washing out all stain caused by bichromate, but generally tones have a yellowish tinge. Is this caused by metol-hydroquinone developer, and would ortol be an improvement? 3. Is potass. ferricyanide and amm. bromide of any use? If so, please give formula.—BROMIDE TONER.

1. The ferricyanide-bromide formula is about the best, and certainly the most convenient for commercial work. 2. We think the developer has little to do with the stain. Bichromate needs a weak bath of metabisulphite after it to discharge the stain. 3. Yes. See article on another page of this issue.

KINO.—Walter Carson and Sons, Grove Works, Lombard Road, Battersea, S.W.

CERAMIC PHOTOGRAPHY.—I should be glad if you could enlighten me as to the method of producing ceramic enamels, and if the carbon process is used in same, and, if so, how the transfer is effected on to the copper, as it seems to me the firing would dissolve the tissue. Is there any book issued on the process?—H. O. K.

Ceramic photographs have been done by the carbon process, but a special tissue is necessary, and it is not a commercial article. The process almost universally employed for ceramic photography is the powder process. A book on the subject by W. Ethelbert Henry and H. Snowden Ward is published by Dawbarn and Ward, Farringdon Avenue, at 1s. 6d.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. The editorial article will deal very completely with the important subject of

PHOTOGRAPHIC COPYRIGHT,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and wherever practicable new features of an informative nature will be added.

The text and advertisement pages of the ALMANAC are now in the printers' hands, and our publishers ask us to state that proofs of all matter are being despatched day by day, and should be returned with all convenient rapidity.

EX CATHEDRA.

Developed Prints on P.O.P.

The enfeebled light of the past few weeks has been sufficient to remind those who produce prints by any of the direct printing methods that still worse must be expected as the winter advances. A goodly number of photographers do not seem to be aware that P.O.P. prints which have had but a brief exposure in the printing-frame can be developed and, by this means, many times the number of pictures can be produced in a given time than would be the case if they were printed fully out in the first instance. The paper by Dr. Blacklock on another page describes a method of working which may be adopted for trial by those taking up the process, but we may add one or two comments suggested by his contribution. Of course, this method will not compete with bromide printing when time alone is the chief consideration. But there is a characteristic about a direct print on glossy paper that is not possessed by a developed bromide, and which a certain section of the public decidedly prefer. If this same character can be secured in a P.O.P. that has been but partially printed, and subsequently developed, it should be a great aid to professional photographers during the winter months. That the system is not very generally followed will be readily admitted, but there is no reason why it should not be, provided more attention were given to it than has hitherto been the case. It is really little, if any, more trouble than working in the ordinary way, as it is not absolutely necessary that the prints be toned. Certain agreeable colours are obtained by development alone, the precise "tone" being governed by the exposure the print receives in the printing. The more deeply the paper is printed, the warmer will be the tones; and, conversely the slighter the exposure to light the darker will be the tones, because more silver will be reduced upon the image by the longer development. It is scarcely necessary to say that the principle involved in the development of a P.O.P. print is entirely different from that of a bromide one. In the latter there is no free nitrate of silver present, in the former there is, and therefore an alkaline developer cannot be used for it; an acid one must be employed or universal blackening will result. Practically, the development of a P.O.P. is analogous to that of a collodion negative—the free nitrate of silver is reduced to the metallic state, and deposits on the parts acted on by light.

* * *

A Formula for P.O.P. Developer.

It is not our intention to recommend any particular brand of paper, or any particular developer for the work. Different papers behave differently, and so, in a marked manner, do

different developers so far as the tones are concerned at different stages, but we may say that with all the papers and different developers we have experimented with we have got satisfactory results, although the tones may have differed. Here is a typical developer that has answered well in our hands:—

Metol	...	...	...	5 grains.
Pyrogallol acid	...	...	...	5 grains.
Glacial acetic acid	...	...	...	2 drachms.
Water	...	...	...	10 ounces.

In place of the acetic acid citric may be used, and yields, with most papers, a colder tone. The prints must not be washed before development, as to do so would remove the free silver necessary to form, or rather strengthen, the image. In some of the directions for the development of P.O.P. prints it is recommended that the prints be transferred direct from the developer into the fixing bath, without previously washing them. This we look upon as being a mistake, as then the pictures will go into the hyposulphite in a strongly acid condition, and sulphur will be liberated in the paper. The reason why this method is advised is that the developing action would go on in the washing water, and the prints would turn out darker than was intended. But if the prints be put into a solution of salt and water all developing action is at once arrested, and the washing can be done at leisure when the batch has been developed. The fixing and washing of developed P.O.P. prints is precisely the same as if they had been fully printed in the ordinary way.

* * *

A Showcase Dispute.

A case of some little interest to photographers came before the Judge of the Wigan County Court one day last week, in which a photographer sued his superior landlord for £5, as damages for the alleged illegal removal of his show-cases from the entrance to the premises. It appears that the plaintiff took the business from another who had a lease of the premises, or such portion of them as was used for photography. In the lease there was no clause allowing show-cases to be put out, but the landlord gave verbal permission for that to be done. This permission seems to have been withdrawn from the plaintiff, who appears to be the tenant of the one who sold the business—the original lessee, and not the actual owner of the building. In the end judgment was given for the defendant, with costs. This case illustrates the necessity of persons, when taking premises, or taking over a business, to look carefully into the terms of the original lease when a sub-lease is granted, or an agreement made based upon it. In this case there was nothing mentioned about show-cases at the entrance in the original lease, only a verbal permission being given. In cases where show-cases are desired, they and their position and sizes should be specified in the lease; then there can be no disputes about rights. Such a clause usually exists in all leases where the tenant does not rent the whole of the premises.

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Prices for Special Work.

We are frequently asked by photographers whose business experience is presumably limited to certain classes of work, what should be charged for some special or unusual work which has been placed in their hands. This question is always a difficult one to answer, as we can hardly ever be in possession of all the facts. The points, among others, requiring consideration are, how far will the work upset the general routine of business? What special expense must be incurred to do it properly? what is the

financial position of the client, and will he pay cheerfully, or will he complain if even a modest charge is made? As a rule, unless one specialises very distinctly it is not good business to decline a commission, but if there is plenty of the ordinary portrait work about, a price may be asked which if accepted, will pay the worker well. If the work is unusual or specially difficult there are other aspects. It may detrimentally affect one's business to decline a special commission under ordinary circumstances, for the inquirer will be likely to lessen his estimate of the photographer's ability; but, on the other hand, to accept and then indifferently execute such a commission has a very bad effect. There is, and can be no "usual charge," just as there is no uniform practice among surgeons to always ask the same fee for the same operation.

* * *

Preparing for Winter Business.

The dealers are now busy in introducing new designs for Christmas and New Year greeting cards to their customers, and very excellent some, indeed most, of them are. It not infrequently happens that photographers delay ordering their stock until the dealers have sold out the best designs. Those who intend to make a feature of these cards this winter will do well to secure what they require without delay. In this connection it is a little surprising that photographers rely so much upon the mount makers for the designs they use. Why do they not make original designs for their own pictures and print them with the portraits? The matter would be very simple to anyone with taste and a little skill as a draughtsman. The designs and lettering, ornamental or otherwise, could be made on cardboard, and then negatives taken of suitable size from them and used for double printing. The double printing, it is true, involves a little extra trouble, though not much, and the finished picture would be a departure from the "usual thing," and command a higher price. Will the portrait picture postcard, which has had such a run during the present year, and is being done at such a ridiculously low price, affect the Christmas portrait card business, and the prices obtained for them? We fear it will, to some extent, unless something in the shape of distinct novelty is forthcoming. An ornamental border got up by the photographer himself on the lines indicated would be a step in that direction, and no doubt prove a means of getting enhanced prices for the pictures, instead of only five or six shillings a dozen. The hint may be of service to some of our professional readers.

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Children as Sitters.

The old order changeth. Twenty-five years ago the poor little mortal who was taken to the photographers was fixed in a chair of weird construction, and an iron head-rest pushed against his head, while many stern instructions as to keeping still and not spoiling plates were dealt out. Small wonder that the expression usually registered on the plate was such as may be seen in most family albums. How differently is the child handled now in some of the sumptuous palaces of photography. Yet we think the point is one of importance hardly sufficiently grasped by very many workers. Some photographers are, of course, quite unfitted by temperament for sympathetically handling children, and as a consequence do not get many to handle. Others have such a distinctive perception of the special methods necessary in any case, that children are always at their ease in the studio, and good portraits almost invariably result. The photographer needs to bear in mind several points as a basis of successful work. The modern child is usually more sensitive and highly strung, an inheritance largely the result of the greater tension required

in life nowadays. Rough treatment may be effective in keeping such children quiet, but the expression will inevitably indicate the treatment used. Then children of to-day have much more latitude allowed them. Three decades ago the rising generation were taught that they were to be seen and not heard; now, having brought up their parents better, they must earlier take a place in the table talk and the councils of the family. This undoubtedly produces a feeling of independence which must be reckoned with. Another most important point is to estimate the mental power of the little sitter. No one is more ready to resent an insult to the intelligence. Special care should be taken to guard against undue familiarity of treatment, a rather dignified courtesy, if kindly, being much more effective than anything in the nature of "gush."

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Disputes as to Payment.

The recent case heard at the Westminster County Court, in which Mr. Kubelik's manager was sued by a poster artist for £25, the value of a poster design—the amount claimed was awarded to the plaintiff—is an interesting one for photographers. While we should strongly advise meeting clients as far as possible, professional photographers undoubtedly find a number of people whom nobody can satisfy, and who will, on the slightest pretext, refuse payment. We make no comment whatever on the Kubelik case, but the decision of the jury, who were, no doubt, instructed in the various points of law involved, and who applied ordinary business common-sense to the case, clearly goes to show that where an order for artistic work is given, payment in due course must be made, whether the result is considered perfection or not. If it can be shown that the artist, whether photographic or other, has reasonably carried out the expressed wishes of his client, the contract will usually be regarded as fulfilled. It is manifestly impossible to submit an exact sample in cases where an original artistic work is being produced in the same way that a sample of a manufactured article may be shown. The purchaser exercises his discretion in selecting the man to whom he goes. In the case referred to the question of likeness was raised, and here, of course, uncertainty often arises. It is a matter of every-day experience that portraits are produced which some of the sitter's friends think excellent likenesses, while others equally intimate with the sitter regard them as poor. Another point—where a photographer advertises "satisfaction guaranteed" he has little or no claim to his money in case of dispute, and it will, we think, be found that where these words occur in circulars or price lists, "cash at time of sitting" is a fairly rigid rule, thus making it necessary for the initiative in any County Court proceedings to be taken by the dissatisfied customer.

* * *

Temperature of the Dark-room.

In our last issue various methods of heating the studio were referred to, but an equally important point, during the winter months, is the warming of the dark-room. Unless its temperature is maintained the comfort of working, and the results obtained, will suffer. If the temperature of the room falls much below 50 deg. F. the negatives will develop slowly, much as if they had received but insufficient exposure, and there may be a difficulty in obtaining sufficient density or vigour in them. It is true that the solutions, as well as the dishes, may be warmed, but that is only a partial relief, inasmuch as they quickly cool down again when used in an abnormally cold place. Therefore it is best to have the means of artificially warming the

dark-room during the winter months, alike by day and by night. Dark-rooms being usually by no means large, a very small amount of heat will suffice to keep them at a proper working temperature. A small gas stove would suffice, if it were furnished with a flue to carry the products of combustion outside, for to allow them to escape inside would be very injurious to the health of the worker, and further, as we said last week in reference to heating the studio with gas, much of the heat is wasted.

* * *

Paraffin Stoves for the Dark-room.

On the whole, perhaps, the best and most economical method of warming the dark-room is by means of paraffin stoves. They cost but three or four shillings, and one with a three to four and a half inch wick will serve to keep an ordinary dark-room at a suitable heat throughout the day, provided the door is not left open more than is necessary. If placed on the floor the light from it should cause no inconvenience, and the heat will be pretty equally diffused throughout the apartment. A common paraffin lamp, with a three-quarter or an inch wick, left burning, will suffice to preserve the room and its contents warm throughout the night, and prevent water in the taps from freezing. It is surprising to those who are not aware of the fact that a small source of heat is required to keep a small room warm when the door is kept continually shut. An objection may be raised to paraffin as a source of heat on account of smell. But there need be little, or no, smell from paraffin stoves, or lamps, if the parts be kept clean and the wicks properly trimmed. If these points be neglected, the lamp is liable to give off unpleasant fumes, but unpleasant as they may be, they are unlike the emanations from burning gas in their injurious effect on health or photographic operations.

THE CAPABILITIES OF MODERN LENSES.

PHOTOGRAPHERS who have a good deal of landscape, group, and architectural work to do in addition to the usual portrait sittings in the studio are now buying the modern type of anastigmatic lens for the purpose, and in several cases which have recently come under our notice have expressed disappointment after a few trials with the instrument. In every case this has arisen from a failure to appreciate the special points wherein the anastigmatic lens with a flat field differs from its forerunner, the rectilinear, or symmetrical. To put the whole matter in a nutshell, speed is the only point gained by using the modern lens. A good symmetrical or even a cheap French R.R., costing, say, a sovereign for a whole-plate size, will give a picture with critical definition if it is stopped down to perhaps $f/22$ or $f/32$. The anastigmat will give equal sharpness at its open aperture of $f/6$ for all objects situated in the one plane. Suppose a photograph is required of a bill-poster's hoarding. The camera is set up exactly opposite and the image focussed with an R.R. lens at $f/8$. The image on the centre of the focussing screen can be got sharp, but the original image will be more or less blurred owing to astigmatism and curvature of field. To secure sharpness the lens is stopped down, the diaphragm correcting the blurring, but only by reducing it, and of course at the expense of speed in exposure. If the R.R. be now replaced by an anastigmat and focussing is performed at the open aperture, it will be

found that the whole of the image of the hoarding is sharp both in the centre and on the margins of the plate, and no stopping down will be necessary. The flat hoarding constitutes an object all in one plane. In group work we have a close approximation to the same thing, the figures being all nearly the same distance from the camera. Here the flat-field lens will often enable an exposure of a quarter-second at $f/8$ to be given instead of the two seconds required by an R.R. stopped down to $f/22$ to secure sharpness of the outside figures. All photographers who do much group-photography will at once recognise that this constitutes a great advantage. So in architectural work, the main portion of the view may be a building which alone is the important object. Other more distant objects are not essential, and the effect will be better if they are diffused in the photograph instead of being sharply defined. An R.R. must be stopped down until marginal definition of the main object is secured (for exactly the same reasons as in the case of the hoarding), and then it frequently happens that this stopping down gives the distance sharper than is desired. The anastigmat may perhaps need the second stop to give enough depth of field to include the main object from its nearest to its furthest point, but at that aperture the more distant objects will generally remain softly defined.

Turning now to the cause of dissatisfaction, let us assume a landscape with objects as near the camera as 30 ft. and as distant as half a mile, all of which are required quite or approximately sharp. Let us further assume that the images of both the near and the distant

object fall about the centre of the ground glass. Focus the near object, with the R.R. lens, at an aperture of $f/8$, and it can be got sharp. So also, by racking the lens a little nearer to the ground glass, the image of the distant object can be obtained sharp. But in no position of the focussing screen will both objects be really sharp at one and the same time. Replace the R.R. lens by an anastigmat of equal focal length, and precisely the same result will be noticed. In this respect there is absolutely no difference between the one and the other. If near and distant objects are required sharp at the same time the lens must be stopped down, and the greater the focal length the smaller must be the relative aperture used for such subjects as the one we have just assumed. It is ignorance on this point which leads to so many complaints as to the performance of magnificent lenses, and probably to a good deal of the dissatisfaction which is expressed.

It should be noted that, although we have said that no lens will sharply define objects 30 ft. and half a mile distant from the camera at the same time, in actual practice small lenses of, say, 4 in. focal length would give images so nearly sharp as to be considered sharp enough for all practical purposes. In hand-cameras provided with lenses of 4-in. or $4\frac{1}{2}$ -in. focus it is possible to secure negatives with all objects beyond about 20 ft. sufficiently sharp. In the case of lenses of greater length of focus the difference in definition is very apparent, as the worker soon finds out when commencing to use a 15 by 12 camera after being accustomed to a quarter-plate or half-plate instrument.

THE WEEK IN HISTORY

Daguerre and Niepce.

THE partnership between Niepce and Daguerre was approaching actuality in October 1829. It came to pass on December 14 of that year, but we get a glimpse of the preliminary state of things from a letter of Niepce to Lemaitre dated October 25. It shows his first disposition to part with his knowledge to Daguerre, and proves also his reversion from a photo-engraving to a photographic process, using these terms in their modern significance.

"You are under the impression that my plate is engraved. It is not. It is only blackened, without using acid, by a process, my own unskilfulness in the use of which has given me little success, the black depositing on the least pronounced parts of the print. Hence I have been obliged to remove it as well as I could with very soft linen. My object was to obtain all the gradations of black and white on this silver plate, and I think that with greater care and skill I shall be able to make good use of this process. You were right in attributing one of its striking defects to its long exposure. Unfortunately, it is impossible to avoid this. . . . In order to obtain success the exposure must be short, i.e., the image must be sharp and brilliant. For this a camera as perfect as M. Daguerre's is necessary, and without it I fear that I shall be only partly successful.

I am, therefore, anxious to reply to his proposals, and to invite him to co-operate with me in the perfection of my heliographic processes, and to share in the benefits which will spring from our complete success. I have told him that by making the same offer to yourself I should like to find an additional guarantee of success in the utilisation of your "good talents."

To this Lemaitre replied that Daguerre had greatly improved the camera and mode of using it, and that no one could better co-operate with him in the development of heliography. Daguerre,

he said, did not favour the idea of working for an engraving process, but was anxious for Niepce to devote himself to the perfection of the process apart from this.

The First Negative Albumen Process on Glass.

One of the classics in the early history of photography is the paper by Niepce de St. Victor, read before the Paris Academy of Sciences exactly 58 years ago. On October 25, 1847, he described the process by which he applied the sensitising processes of Talbot to glass plates by the aid of a film of albumen. He was a follower of Sir John Herschel in the matter of using a rigid glass plate instead of paper as a support of the sensitive film, but he modified Talbot's procedures in giving effect to his ideas. His albumen process on glass marks the divergence of the stream of progress into a new channel. From that time forth the current of work was towards glass as a support for the negative, although it must not therefore be assumed that then or in any period of the history of photography the sworn adherents of paper or other flexible negatives have been non-existent.

Niepce de St. Victor prepared his sensitive film by beating up albumen with potassium iodide, potassium bromide, and common salt. This mixture he poured on his glass plate, which he heated until the albumen hardened and became insoluble. He then sensitised the plate in silver nitrate, and exposed it either wet or dry. Development followed in a solution of gallic acid. The process was in general practice in England up till 1850, and perhaps the fine architectural work done by Ross and Thomson of Edinburgh may be within the knowledge of some of my readers. In fact, I believe Levy, of Paris, the successor of Ferrier, still employs a modified form of it for his exquisite lantern transparencies.

HISTORICUS.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

VI.

Members' Lantern Evenings.

In the last article (page 786) mention was made of the lantern shows that figure so prominently in the winter programmes of most societies. In many instances these lantern nights are nothing more or less than what have been described as "peep-shows." Series of slides are projected on to the screen—sometimes accompanied by brief remarks and sometimes in silence broken only by the whispered comments of the assembled members. This type of evening should be abolished. No good purpose is served, especially when only the titles of the slides are read out, and the proceedings are generally very tame and uninteresting. They should be made both interesting and instructive, and this can be achieved by announcing that criticism both from the artistic and technical standpoint will accompany each slide. This criticism should be supplied by the members themselves or at least by a few who are qualified to criticise. Technical data concerning the method of a slide will probably interest a much greater portion of the members at this time of year than a long description of the place portrayed. Particulars of exposure, development, toning, etc., should always be given when available, and this can easily be obtained if the slides are by members. A discussion regarding the merits and faults in composition or technique, and suggestions for remedies, while the slide on the screen will prove of great advantage to everybody concerned, and, moreover, can be more easily accomplished than criticising a print which only one or two can inspect at a time. Lantern evenings of this description should therefore, whenever possible, take the place of the lantern show where the slides are simply jerked through the lantern with little or no comment, and will amply repay any extra trouble taken in organising them.

Lantern Lectures.

A certain amount of preparation is always necessary to make a lantern evening a success apart from the subject of the lecture and the personality of the lecturer. Nothing is more disconcerting to the average lecturer, no matter whether he is a member of the society or a visitor, than to arrive on the scene and find a goodly audience, but no preparations made for his comfort. The capable secretary should ascertain beforehand if the lecturer requires any special appliances, and in addition should always have ready a reading desk and shaded lamp, which may sometimes be necessary when the lecturer has notes. A reliable method of signalling between lanternist and lecturer should also be arranged, as nothing is more irritating to an audience than a knock on the table or floor or other noisy signal to change the slide. A small clicking instrument sold for the purpose is better, and an electric communication with muffled gong is best. Failing this, however, a signal by means of a small red light in the back of the reading-lamp, placed so that it can be easily seen by the lanternist, is satisfactory and silent. Every society should, nevertheless, if many lantern lectures are to be included in the programme, invest in one of the electric signals. They are not expensive, and their utility is unquestionable. The lantern, too, should always be in readiness, and a slide focussed before the advent of the audience. Matters will go much more smoothly if this precaution is seen to. The arrangement of the chairs on visitors' nights, when a lantern lecture is on, is a duty that devolves on the "stewards" previously mentioned. It is a small matter, but one that receives very little attention as a rule. The front chairs should not be placed too near the screen, especially if a large picture is projected, as such close proximity is not good for the comfort of those in the front row, or for the enlarged

slide, which will not appear to best advantage under such conditions. A central gangway should always be kept, and the lantern itself should be isolated; and lastly, when arranging a lantern lecture, see that it is not too long, or the audience will become wearied, no matter how good the material may be.

Interchange of Lectures

When it is found that a member is capable of giving a good lecture or demonstration, his consent should be obtained, and the secretary should endeavour to arrange an exchange of lectures with other societies who may also have "show men." This is one of the chief attractions of the various federations and unions in different parts of the country, and is, of course, also one of the principal features of the R.P.S. Affiliation. In addition to sending out "ready-made" lectures, the Affiliation publishes a list of society members who are willing to lecture at other affiliated societies in exchange for lectures for their own club. This interchange of lectures should therefore be worked as much as possible, as it not only brings in new and interesting lectures and lecturers, but also indirectly serves as an advertisement for the society.

The Portfolio Section.

Every go-ahead society should have a portfolio section. This should be conducted on the lines of the well-known postal camera clubs. Every member who is capable of producing a print, and takes any interest in the progress of photography and the society, should be inveigled into joining the section and circulating his pictures. The mistake is frequently made in large societies of having a "beginners'" and an advanced portfolio. This should not be so, as the beginner is the very individual who should be encouraged, and who is most likely to profit by seeing the work and having the criticisms of the more advanced members. True, the advanced member may possibly object to having his work criticised by the beginner, which is very likely to happen, but even then, a wrinkle is occasionally gleaned from some such outspoken remark, and, moreover, the member who thinks his efforts too "big" to be included in a mere society portfolio is far better out of it. Care should be taken, however, by the secretary—or portfolio secretary—to watch the criticisms and at once suppress any tendency to personalities. This form of comment has killed more than one promising endeavour of the kind. The example of good criticism by a strong worker in the club will "set the pace," and do much to indicate the lines on which the criticism should be given. A note-book is also a useful part of the circulating portfolio, and in it photographic matters of technique can be discussed, or a subject for discussion can be started for each round. The members' opinions can thus often be sounded better than at the open meetings. It may be argued that in societies with a large membership—of which more than, say, thirty, will participate in the circulation of the portfolio—the matter becomes unwieldy on account of its size. Each member will want to keep the book at least a couple of days to observe and criticise the prints before sending on to the next member, and this means, with thirty members, a space of three months before a contributor will see the remarks made on his work. This difficulty can be met by having several portfolios running concurrently, each with a membership of, say, twenty, and each in charge of an advanced worker. If these circulate with regularity—and punctuality is essential for the success of the scheme—as many as a dozen folios can be circulating at one time, and each member can depend on seeing at least one a week. The interest is thus not allowed to flag, and if, in addition, the books are brought by the members to every meeting where there is a

possibility of displaying them, a lot of healthy rivalry will be engendered and better work result.

Survey and Record Sections.

Apart from the pictorial and technical members of a society, there are usually to be found a few who are interested in survey and record work. The secretary should endeavour, if he can excite the interest and enthusiasm of these few, to form a section devoted to this speciality. A sub-committee should be formed to map out a district to be systematically photographed and the photographs preserved. The curator of the local museum will probably afford much useful information, and every item of archaeological interest in the district or locality decided upon should be carefully marked down for attention.

The neighbourhood can be either divided into sections, and each member who is willing allotted a section, or each member can be asked to undertake certain subjects—such as the churches, landmarks, old houses, local customs, etc. At all events, the formation of a survey section will afford many members of the society an object to work for, and as the undertaking will usually never be entirely completed, the interest can be sustained indefinitely. If arrangements are made to exhibit the record and survey photographs, permanently display them in the local museum, or hand them over to the National Record Association for storing in the British Museum, a good and educational purpose is being achieved, and a lasting advertisement made for the society.

"HON. SEC."

RAPID PRINTING AND DEVELOPMENT OF P.O.P.

[The following paper, read before the Gateshead Camera Club, on Wednesday in last week, touches a branch of work which usually obtains prominence at this season of the year. Though the method of developing faintly printed P.O.P. is by no means new, satisfactory formulæ are not numerous, and judging from the prints sent to us by the author of the present communication, Dr. Woolsey Blacklock, the process recommended by him should repay a serious trial.—Eds., B.J.P.]

GELATINO-CHLORIDE paper, commonly known as P.O.P., is probably used by more workers, and in greater quantity than all the other photographic printing papers put together. The makers would be justified in adding another P. to the name, making it P.P.O.P., or popular printing-out paper. It is the easiest to use, and the easiest to fail with, and though its price is low, the average cost of each finished print is high. This is due partly to the use of gold in toning, but principally to the large percentage of prints that are wasted in the practice of the ordinary amateur. Over-printing, under-printing, over-toning, under-toning, double-toning, and high-lights that are bright yellow, pink, or brown, instead of being white, are some of the many causes that lead to the filling of the waste-paper basket with spoiled prints, each of which has cost as much for time, trouble, and material as the most successful prize-winner of the lot. The process I am about to describe is free from most of these difficulties. The time of exposure is considerably reduced, and the question of over-exposure or under-exposure rendered unimportant; no gold is used, therefore the cost of that expensive metal is saved, and the numerous evils that accompany its use are thus avoided. The principal advantage of this process is that it enables the worker to produce a series of uniform prints with rapidity, certainty, and the minimum of waste.

The saving in time is very great, one-sixtieth of the usual exposure being quite sufficient. This is shown by exposing strips of P.O.P. to light for gradually lengthening periods, and comparing the results before and after development. The experiment may be described thus:—A piece of P.O.P. $4\frac{1}{4}$ in. by $3\frac{1}{4}$ in., is taken from the packet, and a strip $\frac{1}{2}$ in. wide at one end of it is covered with a piece of card, and the remainder exposed to daylight for 30 sec. Another $\frac{1}{2}$ in. is then covered, and the rest is again exposed for 30 sec. A third $\frac{1}{2}$ in. is covered, and another exposure of 1 min. given; then a fourth $\frac{1}{2}$ in. is covered, and the remainder exposed for 2 min. A fifth $\frac{1}{2}$ in. is covered, and an exposure of 4 min. given. Then, after covering the sixth $\frac{1}{2}$ in. an exposure of 8 min. is given, and lastly, the seventh $\frac{1}{2}$ in. is shielded and an exposure of 16 min. given to the eighth. The first $\frac{1}{2}$ in. has not been exposed to light, while the others have received exposures of 30 sec., 1 min., 2 min., 4 min., 8 min., 16 min., and 32 min. respectively. The sheet is then cut in halves lengthways, and one half developed and fixed. On comparing them it will be found that the second space on the developed half, which had been exposed for 30 sec., is as dark as the last strip on the other, which had been exposed for 32 min. This gives a proportion of 1 to 64, and shows the saving in time resulting from using the developer. This increase in sensitiveness

involves scrupulous care not to expose the paper to light when placing it in or removing it from the printing-frame, or when examining it to ascertain the depth to which it has been printed; any error in this respect will be shown by a corresponding darkening under the influence of the developer. Therefore it is better to develop by artificial light, such as ordinary gaslight; a yellow screen is not necessary.

The developer is made in two solutions:—

A.

Pyrogallie acid	32 grains.
Tartaric acid	32 grains.
Water	16 ounces.

This solution will keep for three or four weeks.

B.

Potass bichromate	1-16 grains.
Water	16 ounces.

This solution will keep for several months. The easiest way of making it is to make a stock solution, 1 gr. to 1 oz., and add $\frac{1}{2}$ drachm of it to 16 oz. of water.

Equal parts of A and B are mixed immediately before use, and will develop two or three prints in succession before becoming discoloured.

The prints are immersed dry, just as they come from the printing-frame, care being taken to see that the surface is uniformly wetted, and that there are no air-bubbles. Development begins in about a minute, and is allowed to continue until the print is about as dark as the finished print is wished to be. It is then removed, washed quickly in water and placed in the fixing bath. No time must be wasted in doing this, as the print darkens with increasing rapidity. Fixing bath: Hypo, 1 ounce; acetate of lead, 60 grains; water, 6 ounces. The prints lose very little in this bath, and are of a fine sepia tint. The depth to which they should be printed in the frame may vary within wide limits. A faint image, showing only the deepest shadows, is sufficient, as the developer will bring out the rest of the picture. If printing is carried farther there is less for the developer to do. It has appeared to me that the printed part of the picture loses more in fixing than the developed part, therefore I prefer a faint print to start with. Bichromate of potassium was mentioned as an accelerator in "The British Journal Photographic Almanac" about ten or fifteen years ago, but the solution recommended discoloured very rapidly, and stained the prints. Acetic acid prevented this, but made the gelatine too soft. Tartaric acid was found to be more suitable.

A. WOOLSEY BLACKLOCK.

LETTERS TO A MIDDLE-CLASS PROFESSIONAL.

IV.

OBVIOUSLY, an absolutely plain board is not calculated to make a pleasing mount, so the next item on the programme is the description and surrounding for the print—whether it is to be plate mark, and, if so, of what description; a paste-down tint, and, if so, of what colour; a litho'd border from block, decorated or otherwise; or a ruling in colour. In spite of all that has been said against the plate mark (slavish imitation, etc.), I believe strongly in it, for certainly it is the least obtrusive and most generally useful surround, for if we introduce paste-down tints, coloured borders, etc., to mounts we are further curtailing the adaptability of that mount to varying circumstances. Moreover, one of the greatest booms of the plate mark appears to be overlooked, for, when well sunk, the raised border protects the sunk print from scrubs and scratches of other prints placed upon it.

The paste-down centre appears to have outlived its previous popularity, though I should not be surprised if it once more comes into vogue, since it strongly resembles the multiple paper mount. A general rule for the tints of paste-down can hardly be given, though, perhaps, it may be taken that either the mount or paste-down should harmonise with the print, or the paste-down centre with the mount. These centres in the past have usually been applied to white mounts. The latter being practically neutral, the centre should follow the general rules of harmony or contrast laid down in my last—we use grey on white for plats, and brown on white for warmed-toned prints. These mounts, you will observe, have all the defects of a plain white mount without their adaptability for numerous coloured photographs; for this reason I do not advise you to use them.

Plain rulings round the print are very good, especially if care be exercised in the choice of inks. Of course, I do not advise the old red ruling of the Oxford mounts, but for grey mounts a single or double line, either in black or white, is very effective. Not many makers have the blocks, but if you wish to get away from the old plate mark, and plate marks are not good on dark mounts, it would be worth while to get them specially made. A set for four cabinet shapes in brass costs about £2. To deviate a little, the name and address should be in black when using the black rule, and in white when using the white line; the edges in the latter case should be white, and in the former white, or same grey as mount, or black. For plate mark it is usually advisable to have the lettering blind blocked (plain stamped), and the edges same tone as mount.

The position for the print on the mount must now be considered. Very few prints look well when placed in dead centre, a dropped appearance being apparent, as if the print was below centre of mount. It is therefore advisable invariably to have the print well above the centre. In the case of 11 by 8 board with ordinary cabinet centre, an inch more margin at bottom than top will not be too much. About the same measurement will do for the other shapes, allowing even more at bottom for the circular cabinet. It is better, however, to keep the margin at sides equal, though not necessarily

equal to space above print. In very few cases do prints look better with more space at one side, and it is certainly not worth while stocking for them. Of course, with this greater space at foot of mount, for horizontal or "view" pictures another mount is necessary. The mount is usually also "view" way, and the rule for space at bottom again holds good. Some of the newer mounts, however, have the plate mark view way, but retain the upright type of mount. There is a great deal of space at bottom, less at top, and little at the sides. This gives an individual, but not an eccentric mount.

As I said above, the exact place for plate mark or other centre is important, and working drawings of your idea should be supplied.

I have already touched lightly on the name and address, which may be in the various types or in signature form from a block. I strongly advise you to stick to a signature form of name, and use it on all memos, letter heads, mounts, and ads. It gets known, and is distinctive. To quote a case you probably know well is to speak of the enormous use made by Boots, the chemists, of their signature. An alternative method is to have the name lithographed. When this is done the name and address are usually placed at foot of the plate mark or paste-down centre. For grey prints have black ink, for warm tones brown, or, in case of veillums, red may be used. Blind blocking is, however, the most useful method of attaching the name, and cannot help but be suitable, except, perhaps, with the line 'mounts mentioned above.

The position for the signature block when used should be decided with care. Never place dead in the centre of mount. Either to right or left hand side. The right is the more usual place for signing a picture. When there is much space below the print the signature serves to break it up, and is useful for balancing the whole.

We at length come to the last item, the edges—whether plain cut, plain bevelled, or colour bevelled. All this is a matter of taste. For white mounts either of the first two methods are indicated, and not the last. Plain cut is cheapest, and the only method necessary or desirable if the mount is to go in a folder. Cream mounts seldom want the edges colouring. Dark mounts may either be coloured same tint as board or of a colour to suit the name stamping on centre surround of print.

To conclude this letter, my latest thing is a six-sheet cream or white board, plain plate-marked, plain blocked, and plain cut edges, placed either in a grey or, in the case of cream mounts, a brown folder (same colour as prints). These folders have the name stamped in ink of the same colour, but of a lighter tint than themselves.

The great convenience of a universal outside size is greatly felt, and much time hitherto spent in finding right size folder is now saved.

I would mention that I purchase my folder covers and mounts separately, slipping in myself, not being dependent on the ready-made folders that are generally supplied.—Yours, STUDIOSUS.

FOREIGN NOTES AND NEWS.

A Word of Acknowledgment.

EDER's "Jahrbuch," reviewed recently, is the source from which the notes on this page are quoted, with the exception of the last paragraph, which appears in several Continental journals.

New Focussing Rules for Hand-Camera Work.

Prof. Pfundler, after treating of the subject from a mathematical point of view, gives the following two simple rules for focussing, which may be useful to hand-camera workers:—1. (Applicable when

the background is not very distant) Focus on a distance equal to twice the product of the greatest and shortest distance, divided by their sum. Example.—Suppose the subject to be a street scene, with a house front twenty yards away and a man five yards away, and that both are required sharp, then $(5 \times 20) \div (5 + 20) \times 2 = 8$ yards, the required point to focus on. 2. (Applicable when the background is infinity) Focus on a point just double the distance of the nearest point. Example.—Again assuming that the nearest

point is five yards, then $2 \times 5 = 10$ yards the point to focus on. To find what stops must be used to give an error of confusion not exceeding 1-250th of an inch, the rule is: Multiply the allowable error by the focus and divide by the distance focussed on minus the focus, all measurements to be in inches.

Rapid Chloride Emulsion.

Lüppo-Cramer has endeavoured to obtain silver chloride emulsions as rapid as bromide. Finding that the usual method with ammonia caused fog, he used the following formula:—

Gelatine	10 gms.
Salt	7 gms.
Hydrochloric acid (sp. gr. 1.9)	10 c.cs.
Water	160 c.cs.

Heat to 176 deg. F., and add

Silver nitrate	10 gms.
Water	100 c.cs.

also heated to the same temperature. The emulsion was boiled for a quarter of an hour, and then treated as usual. A homogeneous emulsion of fairly fine grain was obtained, and the speed was about three times that of the commercial chloro-bromide emulsions.

More About the New Cyanines.

Von Hübl has examined the absorption and sensitising spectra of the old and new cyanines, and comes to the following conclusions:—
1. Aqueous and alcoholic solutions of the cyanines contain the dyes in a different form. They can be distinguished by their colour, for the aqueous solutions are always more reddish than the alcoholic, and, further, aqueous solutions will run almost colourless through a filter. The different colour of the solutions is not due to difference in dispersion of the solvent, for both solutions show the same absorption bands in exactly the same places, but their intensities are different. The difference is noticeable when the dyes are in solid media, and it is possible to distinguish whether they have been precipitated from aqueous or alcoholic solution.
2. The sensitising powers of the cyanines correspond to their absorption spectra in the solid state. As in gelatine plates, the β -band predominates, the minimum between this and the individual sensitiveness of the plate is smaller than with collodion. The displacement of the two bands by about 100 Angstrom's units can be explained either by screening action, or one must assume that the dye reacts chemically with the silver bromide, and that a coloured substance with another absorption spectrum is formed.
3. The disappearance or lag in sensitiveness corresponding to the α -band appears to be connected with the absorption spectrum of the dye adhering to the silver bromide. With reference to the "bands" mentioned above, it is as well to point out that von Hübl finds that in aqueous solution the cyanines

show absorption bands, the strongest of which lies about λ 560. This he calls the β band, whilst in alcohol the strongest absorption lies nearer the red by a few wave lengths, and this he calls the α band.

Dicyanine.

Von Hübl has examined a new dye, just prepared by Meister Lucius and Bruning, which presents some distinctly new features. It has hitherto always been assumed that chinoline was necessary to form cyanine, but this new dye possesses no chinoline ring, but two lepidine rings, and has been named as above by Dr. König on this account. In alcohol the dye gives a dirty-blue solution, in water a dirty-red solution. The absorption in alcohol shows two bands— A_1 maximum at λ 600, A_2 maximum at λ 560 and in water one band with the maximum at λ 520. The sensitising of this dye extends from F right beyond α in the infra red of the spectrum. This is the most energetic red sensitiser yet known.

The Action of Bichromates on Gelatine.

Since the classic researches of Eder on the action of the chromates on colloid matters in the presence of light, practically no work has been done on this subject, but the subject has recently been taken up by MM. Lumière and Seyewetz. A paper by them was read at the International Congress of Photography, held at Liège from July 19-24, but has only, at this belated hour, made its appearance. It is unnecessary to follow the experiments throughout, but the conclusions come to are as follows:—
1. Bichromated gelatine rendered insoluble by the action of light contains chromium sesquioxide ($Cr_2 O_3$) and caustic potash. The latter forms, with the excess of bichromate, the less sensitive neutral chromate.
2. This gelatine differs considerably in its composition from that which is tanned by the chromium oxide salts. The oxide of chromium, which it contains, appears to consist of two portions—the one portion is constant, and corresponds to 3.5 per cent. of the chromated gelatine. It is comparable with the oxide, which the gelatine, rendered insoluble by the chromium oxide salts, retains. The other portion varies with the duration of the exposure, and is produced by the reduction of the bichromate by the organic substance in light.
3. The quantity of the chromium oxide, which is retained by the insoluble gelatine, increases with the duration of exposure, but not in proportion. This increase becomes weaker and weaker in proportion as the quantity of the neutral chromate increases.
4. The decomposition of the excess of bichromate by the chromium sesquioxide appears to be only partial, as stated by Eder. On account of the instability of this substance, an analysis can give no accurate conclusion as to its composition.

HOW A STUDIO WAS ADVERTISED.

[The following article, describing the scheme of management of a New York portrait studio, whereby prices were doubled and business raised to large proportions, appears in a recent issue of our advertising contemporary, "Printers' Ink." In reprinting it, we may recommend a careful perusal of the lines on which the Benedict studio was brought before the public. The booklet method which was employed is a form of advertisement which cannot be indiscriminately applied to any and every business, but there are some other suggestions in the article which may be of profit to professional photographers in this country. We shall take the liberty of reprinting in an early issue the article by which the organisers of the Benedict business were led to speak of their methods.—EDS., B.J.P.]

FOR a number of years the Siegel-Cooper store, New York City, has had a photograph gallery upon its top floor, but until three years ago it had always been conducted on the bargain principle. The average price of cabinet pictures was \$1.50. Three years ago a change of management was made and the gallery put in charge of James L. Acker, who had been with Frederick and Dupont, well-known New York photographic portraitists. Mr. Acker set to work to raise the character of the gallery's patronage, and in a few months by means of advertising and a general bettering of standards, had increased the average price of its product to \$3 per dozen,

while portraits costing as much as \$10 are now made in what was formerly a department store adjunct.

In "Printer's Ink" for May 24 appeared an article on "Advertising for the Photographer," containing general principles so sound, in Mr. Acker's opinion, that he submitted specimens of his own advertising and consented to tell something about his methods in a field that has heretofore been singularly dormant in publicity.

The Advertisement Which Costs Nothing.

"A" photographer has one great advertising medium that costs him nothing at all," he began; "that is the privilege of putting his

name and address on every picture he makes. A dozen photographs will ordinarily be distributed among at least eleven families. They will be preserved for years, and when their possessor wants photographs a common proceeding is to examine the pictures in his collection and take the address of the man whose work is most impressive. To use this advertising medium to the best advantage the photographer must do good work, first, and after that endeavour to attract the best class of trade, so his work and name will be known among the people who have the most money to spend.

"This gallery was formerly known as the Siegel-Cooper gallery, and the store's imprint appeared on all work. We adopted the name 'The Benedict Studios,' giving the gallery an independent standing. It is entirely separated from the store proper. A cheap class of work had formerly been sought, and this we set about to change also.

Avoid Cheapness as an Inducement.

"It is a strange tendency that leads photographers into price competition when they advertise. Nothing could be more unfortunate than price competition in this business. For years and years the crayon enlargement man has travelled from door to door lowering the artistic tone of photographic portraiture. Frequently his function has been assumed by the downright swindler who collects a nominal advance payment from unsuspecting persons and disappears with a valued photograph. Competition has always been the advertising resort of cheap photographers. A favourite method is that of distributing coupons which entitle the possessor to a discount on a dozen portraits, or to a large portrait free. Methods of this character have lowered photographic advertising to a level where out prices or the price appeal stand for cheap work. So the thing to avoid first of all is the bargain argument.

The Wording of a Booklet.

"I wanted to reach a good class of people in advertising the Benedict Studios. I knew that artistic portraits could be made at \$3 a dozen. Newspaper advertising in New York City covers too wide a field for my purpose, so the mailing list was adopted. Our first piece of literature was a booklet on 'Photography as a Fine Art.' This gave half-tone examples of good portraiture and dealt with the personal equation in photography. This excerpt gives an inkling of its style:—

"In portrait photography it is, of course, highly necessary that all conditions be favourable—modern cameras, properly arranged skylights, and ample studios, and all the other various photographic paraphernalia play an important part in the final result. Yet, behind and above all this, is the skill of the artist. The artistic value of a photograph, its power to portray a likeness, to make you see, not only requires all the modern mechanical means, the greatest skill and experience, but those subtle, intangible qualities that lie down deep in a man's make-up and which we conveniently term the "artistic sense."

"Many folks look upon the camera as a mechanical device which is simply to be "snapped" and that will always produce the same sort of picture. But how different will be two portraits made by the same camera but by different operators? One merely a picture—cold, flat, lifeless; the other glowing with a personality, suggestive in pose, or with possibly some pleasing and familiar emphasis of feature—a masterly use of light and shadow; in short, such a true "characterisation" of the individual that under the recognition of your friendly eye it seems fairly to take life. And this is photography—photography as a fine art."

"Views of the gallery, reception and dressing rooms were also printed, with something about enlargements and harmonious frames. Fifteen thousand copies were mailed to names taken from the Elite Directory and telephone book. In the former I selected names of people who would not be likely to patronise the more expensive

famous galleries in New York, and in the telephone book those of people living in the suburbs. The returns were excellent. People came and brought children to be photographed, and when they were once in the gallery we made portraits of the mothers and all the children, depending on artistic work to sell several times the number of pictures that were wanted. This is where the value of advertising lies in the photographic field, for the photographer's chief difficulty is to get people into his gallery. Once under the skylight, with a skilled, tactful operator, it is easy to secure orders for several dozen portraits—provided, of course, the bargain-hunting element has been eliminated. Last week, for example, a mother brought a baby in to have a single picture made to be sent to Europe. One of our operators photographed two older children while the mother was in the dressing-room, then photographed the baby and herself. The result was an order for five dozen pictures. The advertising photographer should never limit the number of exposures if he knows his business.

Children are the Photographer's Business Bringers.

"Children are the key to the whole family in photographic advertising. Get a child into the gallery and the family follows. For this reason our second booklet was entitled 'Photographs of Childhood.' It gave examples of portraiture in this branch of work, and dealt almost wholly with the elements of personality, sympathy with the little sitters and the need for portraits at a time of life when children are growing and changing. Here are some selections:—

"It might be said that the successful photographer of children, like the poet, must be born. Certain it is that no amount of technical training can take the place of that natural sympathy that must exist between the man and the child, if the highest ideals of portraiture are to be realised. Children act by impulse and intuition, and are alike quick to repel and respond to the influence of the photographer. A child knows intuitively those who like him, and to them only will he be himself.

"The aim of the photographer should be first to make a portrait. And a portrait may be defined as a picture which portrays those fleeting and subtle qualities of expression, gesture, and pose so true to life—that you forget the picture and see, instead, the real child.

"The twinkle of the eye, the wistful shyness, wholly of babyland, the droll pucker of the mouth, the smile, the thoughtful brow, the sweet gravity—such as no other child shows in just the same way—one or all, call out instant recognition of the heart as well as the eye.

"Children's photographs are really a record of their lives. The years go fleeting away so fast that even a mother cannot carry in her memory the changes that take place in her boys or girls. What a joy to feel that one may look upon them in after years as they were in babyhood or boyhood."

"Ten thousand of these booklets have been sent out this summer to names similar to those on the first mailing list. It was designed partly to stimulate business in the quieter summer months, but chiefly to bring fall and winter work. Results have already become noticeable, though the mailing was finished only three weeks ago.

A Portrait Exhibition.

"Another valuable bit of advertising was our portrait exhibition, held last September. I sent to about fifty famous photographers in this country and Europe, asking for specimens of their work for exhibition. Some fine portraits were loaned by American and Canadian photographers, while in London, Paris, Rome, Berlin, and other Continental cities pictures were purchased outright. We made a specialty of portraits of famous persons, such as the King and Queen of England, the Kaiser, Emperor of Austria, Madame Bernhardt, Ellen Terry, President Loubet, Queen Wilhelmina and others. With this work were exhibited about as many portraits of

our own. There were five hundred altogether. Invitations were mailed and the exhibition lasted two weeks. Concerts were given in the gallery daily, and the show brought us a number of good notices from New York dailies. Perhaps nothing that we have done has been so effective in giving the Benedict Studios an artistic standing, demonstrating that good work could be done in a department store gallery, and at reasonable prices.

The Advertising Value of an Exhibition.

"The exhibition attracted the attention of a photographer in Scranton, Pa., and he asked for the loan of our pictures. Those by European men were sent, and he secured other portraits from American photographers. His exhibition, he told me, was perhaps even more successful than ours, because he does business in a smaller community. I can readily see how such a show would make a more permanent impression in a smaller city. But even in New York, with its endless distractions, the effect was by no means temporary. Visitors remembered it, and we trace work to the exhibition every day. This invitation will be useful to anyone who gets up something similar:—

An International Exhibit of Portrait Photography.

"You are cordially invited to attend the International Exhibition of Portrait Photography, which will be open at the Benedict Studios (7th floor Siegel-Cooper Building), Monday, September 26th, and continue for two weeks. At this novel and interesting exhibition will be shown the best examples of camera portraiture, by the leading photographers of Europe and America. Not only will an opportunity be afforded to view the work of celebrated photographers from nearly every part of the world, but the collection of portraits, in themselves, will be noteworthy. More than four hundred portraits of famous people will be exhibited, including members of the Royal families, as well as distinguished Americans.

"Music daily."

"On inside pages of this invitation were given lists of exhibitors and portraits of famous people." I believe that an exhibition confined to one's own work is as effective, and even better advertising, though the work of the best men in the photographic world has a drawing power that is very desirable. Then, when a photographer is not afraid to let his own work stand side by side with the best product of America and Europe, he assures his own artistic standing.

The Woman Operator.

"One mistake common to photographers is that of having barn-like operating and dressing rooms. The average operating-room is seldom carpeted, though carpeting in green or red is essential to give warmth and cheeriness and a homelike atmosphere that puts the sitter at ease. Another valuable form of indirect advertising is the woman operator for children and women sitters. Dozens of persons come to our studios and ask for Mrs. Bundy, our operator, who is not only a specialist in children's portraits, but has also been very successful in photographing men. Women have a certain confidence in the woman operator, especially where children are to be photographed, because children yield themselves to a sympathetic woman and better portraits result.

"Men might as well be left out of the photographer's advertising plans altogether. A man visits the gallery in charge of his wife, or because he was sent by her. If your advertising brings the mother and children the father will follow in course of time. I hope it is not necessary to add that by far the greater proportion of our booklets and invitations to exhibitions go to women.

Do Your Best for a Select Clientele.

"Newspaper advertising might be handled on the lines of our booklets—that is, educative talks about artistic portraiture. It would pay in smaller cities, I think. Here in New York I have

always thought that newspaper advertising would necessitate special prices, and have not gone into that medium. The booklets bring us all the work we can handle comfortably. One important point for the advertising photographer is to limit his business, so that his studio will never be crowded. The aim should be to attract the best class of patronage and always have leisure for each sitter."

JAS. H. COLLINS.

Photo-Mechanical Notes.

A New Red Sensitiser.

DR. KONIG, the introducer of Pinachrome and Orthochrome T, has recently invented two new dyes, one of which is particularly interesting to the photo-mechanical worker, as it specially sensitises for the red. Hitherto the best dye I have been able to obtain to sensitise for the red was ethyl violet. While this is difficult to use for dry plates, it is very satisfactory for collodion emulsion, and is now practically universally used for the red exposure in three-colour work with collodion emulsion. I therefore tested a sample of the new dye, "Pinacyanol," that Dr. Konig was good enough to give me, in collodion emulsion, and the result has proved it to be very much better even than ethyl violet used under the same conditions. The solid dye was made up in 1 in 1000 solution in 90 per cent. alcohol, and 4 c.c. of this solution added to 100 c.c. of Albert's emulsion, and with this a photograph of the spectrum of the arc light was taken, which is shown herewith:



From this it will be seen that the sensibility extends easily to wave length 6,800 A.U., whereas under the same conditions the ethyl violet-sensitised emulsion had nothing at all beyond 6,400, and up to there the density was not nearly so great, although exactly the same raw emulsion was used, the same developer, and time of development. In practical work this means that emulsion sensitised with "Pinacyanol" is much faster than ethyl violet emulsion under the normal red filter, and that it will record deep reds that would never be recorded by the ordinary red-sensitive plate, unless a much deeper red filter was used, and correspondingly long exposure given. The insensibility to green, which is shown by the black gap in the middle of the spectrum photograph, is an advantage, because it enables plates to be worked in great comfort with a green light in the dark-room, and in fact there was no fog when developing in copious green light, but there was instantaneous blackening on the slightest exposure to a very "safe" red light. If the dye be as suitable for dry plates as it is for emulsion, it will meet a need that has been felt for some time in three-colour work.

A. J. NEWTON.

Albumen in Fish-glue Resist.

APROPOS of the note on the enamel resist in last week's B.J., albumen is given in the majority of fish-glue formulae, without any reason whatever being stated as to why it is necessary or even desirable. However, a writer in the "Process Review" for February, 1904, stated that a solution containing albumen adhered better to zinc, than one without it. This has been tested by Mr. Gill, the teacher of the enamel class at the Bolt Court School, who, after repeated experiment, finds that a resist made from a fish-glue solution containing albumen

invariably gives way in the acid bath before the resist which does not contain the egg-white, all other conditions being exactly the same.

Masking for Air-brush Work.

In retouching prints with the air-brush, for the purposes of catalogue illustration, it is usual to cut paper masks to cover over the part of the work that does not require the colour sprayed on, otherwise it would be impossible to keep a sharp outline with this useful tool. Paper masks, however, in the case of intricate outlines are very difficult to cut and to adjust, and, as even the thinnest paper has a perceptible thickness, the colour tends to heap itself up against the paper, sometimes enough even to cast a slight shadow when the mask is removed. A better method is to take celluloid varnish and add to it a little coloured pigment (such as Venetian red), in order to make it easily visible, and then apply this paint over all the work which does not require air-brushing. When the varnish is dry, the colour may be sprayed on freely all over the print. This is then allowed to dry, and then a wad of cotton wool is taken, wetted with amyl acetate and rubbed over the print. This removes the celluloid varnish, carrying with it the unnecessary colour, while it does not touch work which was unvarnished. It will be seen that this affords a rapid and easy method of masking the most intricate work, work which it would occasionally be impossible to do in the usual way. The method serves on all kinds of surfaced photographic prints, but will not do on plain papers or Bristol boards (unless they are first sized), because the varnish soaks in. The odour of celluloid varnish or amyl acetate (which is like "pear-drop" sweets) is rather pungent, but it is probable that other materials could be adapted to the same method, perhaps, for example, plain collodion for the varnish, and mixed ether and alcohol to remove, only this would not serve for collodion printing-out papers.

Spitzertype.

In the current number of the "Photographische Korrespondenz," a somewhat indefinite note appears on a new process which has been discovered by Emanuel Spitzer, a well-known humorous painter of Munich. Any ordinary negative is used, without any crossed line, or irregular grain screen or asphalt dust. It is printed on to a metal plate and sensitised with bichromated gelatine, and then etched. The etching fluid is not stated, though it is said to be the same as in photogravure. The image is broken up in the etching bath by a kind of disintegration of the film. Several good examples are given, which were printed in the usual way with the text, and on examination with a glass the structure has a very similar appearance to a photogravure asphalt grain.

Etching Solution for Aluminium Plates.

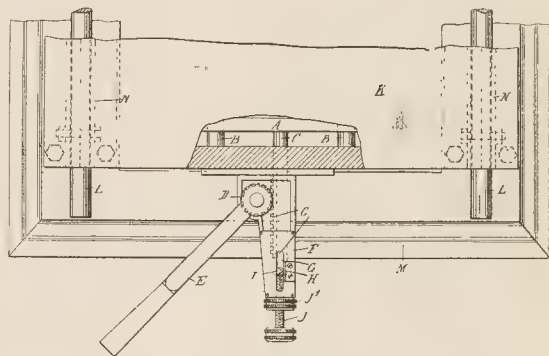
F. W. Plews, writing in "Process Work," gives the following directions for preparations for (1) adding new work, and (2) giving aluminium a cleaning etch:—A good preparation for the plates when new work is to be added is the following: Acetic acid, 3 oz.; nitric acid, 1½ oz.; water, 100 oz. Apply with a brush and allow it to remain on the plate for about three minutes, then wash off and dry the plate, which is then in a condition for additions or touching up, etc., or a weak solution of oxalic acid may be used. For an etching solution to be applied before the work is rolled up, the following can be used: Gum solution 25 per cent., 8 parts; phosphoric acid 20 per cent., 1 part. Apply the phosphoric acid and gum to the plate and allow it to act for about 20 seconds, then wash off and gum up with a thin solution of pure gum, which must not be acid, but quite neutral, fan dry, and we may then proceed to roll up in the usual way.

The Adjustment of the Screen in Process Cameras.

A system of moving the line screen by a rack and toothed wheel and lever, is the subject of a recent patent (No. 24,036, 1904)

taken out by Edgar S. Hunter, Poppins Court, Fleet Street, London, and W. E. Hanchard, 57, British Street, Bow, London. The frame carrying the line screen moves on rigid bars situated within the camera itself. The rack is fixed at one end to the centre line of the frame carrying the line screen, and is rigidly guided in a frame placed outside the camera. The upper portion of the rack frame is provided with a slot and finely graduated scale, and the rack carries at its outer end an indicator which moves along the slot and over or by the scale when the rack is moved. For effecting fine adjustment a screw is arranged to come against the outer end of the rack shaft and slightly displace this latter when fine adjustment is being made, after which the screw is locked by means of a nut.

The construction of the camera will be understood from the accompanying figure:—



A is the frame or inner body carrying the line or other screen which is adapted to move on rigid guide bars B situated within the camera itself and provided with bearings. The frame A carrying the screen is moved by means of a rack C and toothed wheel D and lever E. The rack C is fixed at one end to the centre line of the frame carrying the screen and is rigidly guided in any suitable manner in a frame F located at the exterior of the camera. G is a slot provided at the upper part of the frame F, and H is a finely graduated scale located at the side of the slot G. I is an indicator carried by the outer end of the rack C and adapted to move along the slot G and over or by the scale H when the rack is moved. J is a finely threaded screw which engages with a corresponding screw provided in the frame F, and comes against the rack C, or a part upon which the rack is mounted, and displaces same for the purpose of finely and accurately adjusting the position of the screen with respect to the sensitive plate. L is a nut for locking the screw J in its adjusted position.

By the use of the above described actuating, adjusting, and indicating mechanisms the screen frame can be rapidly moved and fine adjustment rapidly effected whilst movement is imparted in a direct manner to the adjustable parts of the camera.

INTERNATIONAL EXHIBIT OF PHOTO-ENGRAVING.—From Jean Van Overstraeten, secretary, comes the announcement that in February, 1906, there will be held in Brussels an exhibition specially devoted to the photo-engraving processes, with special reference to their application to book illustration and bookbinding. By November 1, 1905, applications for space should be addressed to the President, Brussels Society for Typographical Studies, 51, Marché-au-Charbon, Brussels, Belgium.

Patent News.

Process patents—applications and specifications—are treated in 'Photo-Mechanical Notes.'

The following applications for patents were made between October 2 and 7:—

SELF-TONING PAPER.—No. 19,850.—Improvements in self-toning papers. Carl Soufus Poulsen, 65, Chancery Lane, London, W.C.

DEVELOPMENT.—No. 19,985. Improvements in developing and fixing photographic negatives and positives. William Fraser Claughton Kelly and John Arthur Bentham, 7, Southampton Buildings, Chancery Lane, London.

STORING NEGATIVES.—No. 19,933. Improved cabinet for storing photographic negatives, etc. Houghtons, Limited, and Alfred Sydney Pratt, 88, High Holborn, London.

EXPOSURE METER.—No. 19,962. An improved photographic exposure meter. Ilford, Limited, and Rowland Samuel Potter, 88, Quality Court, Chancery Lane, London.

APPLYING GELATINE EMULSION.—No. 20,148.—Improvements in applying coatings of gelatine, gelatine emulsion, varnish, or other substances, to strips or bands of celluloid, paper, or other material and in apparatus therefor. Henry Rheinlander, St. Leonards, Rodney Road, New Malden, Surrey.

A SEPARATING CASE.—No. 20,204.—A separating case for photographic papers during printing and development and the like. Charles Edward Dodsley, 47, Shrewsbury Road, Birkenhead.

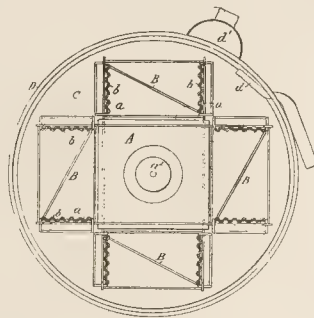
COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

REFLEX CAMERA.—No. 22,698, 1904. The patent is for a movement of the mirror in a reflector camera, by which the mirror recedes from the lens as it moves into the horizontal position. The camera can thus be made shorter and a lens of shorter focal length employed. Within the body or case of the camera is a framework hinged at the base so as to be capable of rocking about a horizontal axis at right angles to the axis to the lens, and to the upper edge of this rocking frame or box is hinged one edge of the mirror so that it also can rock about an axis parallel to the axis upon which the box itself is capable of rocking. The box has sides, but is otherwise open from front to back, and the mirror, along with an auxiliary hinged lower flap, forms a closure for the front of the rocking box when the mirror is in its inclined position. The mirror is operated by engaging pins, which project centrally and laterally from its frame. These pins work in curved slots, the movements being governed by balanced springs, in such manner that when released the mirror automatically moves from its inclined to its horizontal position, and during this movement turns about its hinge on the rocking box. The rocking box allows of the forward and retrograde motion of the mirror, so that the latter in moving from its angular position during its upward movement, recedes away from the lens and again advances as it assumes its horizontal position. Abraham Kershaw, Dorrington Street, Leeds.

A WASHER FOR PLATES AND FILMS.—No. 2,083, 1905.—The apparatus consists of a frame A, formed with the arms *a* from which racks B are suspended and with a bearing *a*¹ adapted to engage a pivot *c* mounted on a base plate C. The racks B are furnished with

corrugated strips *b* for the reception of the plates or films; the strips being preferably perforated and so arranged as to permit the free passage of water between the plates. For washing the plates the apparatus is placed in a tank D furnished with an inlet *d* and an outlet *d*¹, the overflow of the latter being so placed as to maintain a constant level of water in the tank. The inlet *d* is arranged in the tank so that as the water enters it circulates



round the tank and imparts rotation to the frame with the effect that the plates are thoroughly washed. After the plates have been washed the apparatus is removed from the tank and the plates rapidly dried by mechanically rotating the frame A on its pivot; the frame being furnished with a pulley *a*² for this purpose. James Hazell and Albert James Chapman, 107, Mansfield Street, Kingsland Road, London, N.E.

PHONOGRAPH-CINEMATOGRAPH.—No. 413, 1905. The patent claims for the working of a phonograph and cinematograph in conjunction as well as methods of producing this effect. One is a signalling method:—A toothed wheel *c* (fig. 1) meshes with the

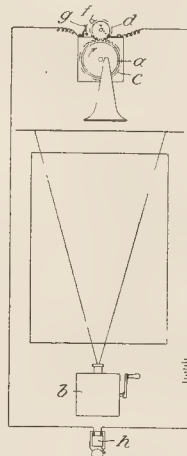


Fig. 1.

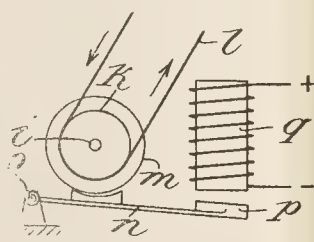


Fig. 2.

operating gear of a phonograph, which by means of a cog-wheel *d* and a contact *f*, *g*, effects the closing of a circuit at each revolution so that an electric bell *h* arranged in the circuit is made to sound at regular intervals. The operator of the cinematograph can turn the handle uniformly by observing the signals,

so that the phonograph and the cinematograph work together. Another method is, apply a brake to the cinematograph from the motor of the phonograph. In fig. 2 *i* denotes the operating shaft for the cinematograph, *k* a pulley, which is operated by a motor through the belt *l*, and *m* a brake disc, *n* is a brake lever rotatively fitted to *o*, the fore end of which lever carries an armature for the electro-magnet *q*. The winding of this magnet, similarly to the electric bell *h* of the previously described device, is situated (fig. 2) in the circuit controlled by the phonograph. By each closing of the circuit by the contact *f g* (fig. 1) the brake lever is moved by the electro-magnet towards the pulley *k* which rotates somewhat too fast. From time to time any "irregularities" are thus approximately corrected and both apparatus caused to turn approximately synchronously. Should there, however, arise too great a difference in the relative speeds the braking is augmented by hand. Oskar Meester, 18, Schiffbauher Avenue, Berlin, N.W.

New Materials.

The "Wellington" Christmas Greeting Postcards. Made by Messrs. Wellington and Ward, Elstree, Herts.

We have received from Messrs. Wellington and Ward samples of their P.O.P., bromide, and S.C.P. (gaslight) postcards. These, needless to say, exhibit all the good qualities possessed by the firm's other productions, and in addition are suitably inscribed to serve the purpose of Christmas cards. Dainty little designs, embodying expressions of goodwill, fill the place on the front of the card usually occupied by the message, and the backs are sensitised with either the well-known P.O.P., bromide, or S.C.P. emulsions. These cards are supplied in 6d. packets, containing six, with full instructions. Messrs. Wellington and Ward have also sent us a box of their lantern plates, and one trial of them has strengthened the good opinion we expressed when reviewing them earlier in the year. The pyro-ammonia formula given with these plates produces a particularly fine warm black tone, that appears suitable for nearly all subjects.

"Chic" Series of Christmas Card Mounts. Made by Kodak, Ltd., Clerkenwell Road, E.C.

This well-known series of Christmas card mounts do not belie their name of "Chic." "Chic" is the word that describes them exactly, and the aesthetic-minded photographer, be he professional or amateur, can desire nothing better wherewith to display the daintiest products of his camera. It is specially claimed for these cards, which are supplied in many varieties, sizes, colours, and styles, that they are British made. This should prove an extra inducement to the patriotic pictorial photographer to at least write Messrs. Kodak for their price list. To this, we can add, from personal inspection, that these charming Christmas card mounts show a most careful selection of suitable tints and designs, and offer ample scope for the choice of mounts to suit every kind of photograph, from "gaslight" to "gum." They range from plain to unobtrusive, yet still artistic, to elaborate colours and designs. Book-form mounts, as well as pretty calendars, with embossed wording, figure in the list at prices ranging from 9d. to 6s. per dozen. Particulars will be sent gladly on application.

Paget Self-toning Paper and Cards. Made by the Paget Prize Plate Company, Limited, Watford.

The Paget Self-toning Papers have long been well known as reliable productions, and their simplicity in working has rendered them among the most popular of modern printing processes. To the previous varieties cream crayon paper and card have been added, and these

should appeal very largely to the photographer who desires to secure an artistic method of producing his prints. The cream crayon surface adds considerably to the beauty of almost every print, and for large work no better vehicle, short of carbon, can be suggested. In fact, many of the specimens we have seen on Paget cream crayon paper would easily pass for first-class carbon prints. In use the paper requires the same treatment necessary for the older varieties. The print is carried a little further than required in the finished picture, and after washing for five minutes is simply fixed in hypo 3 oz., water one pint, for ten minutes. This gives warm brown tones. If colder tones are desired, the prints are placed in a solution of common salt (two ounces to the pint) for five minutes prior to fixing. A final washing is necessary, and that completes the process. To suggest toning a self-toning paper of the quality of the Paget is like painting the lily, but when we find recommended a platinum bath, giving fine olive black tones, and have visual evidence of the beauty of the results, we unhesitatingly recommend it. The toning bath suggested is: Potassium chloroplatinite, 15 grains; sodium chloride, 150 grains; citric acid, 150 grains; water to make 7½ ounces. For use, take one part of this solution and ten parts of water. The prints must first be put into a bath of common salt one ounce, water ten ounces, for five minutes, washed, and then placed in the platinum bath. In five or ten minutes, when all trace of red has disappeared from the prints when looked through, they are washed for five minutes and fixed in hypo three ounces, water one pint. Platinum toning tablets are supplied by the company, ready for use, by simply dissolving in water. The richness and fine qualities of this method of toning are sufficient to make every photographer give it a trial.

Fallowfield's Christmas Mounts. Made by Jonathan Fallowfield, 146, Charing Cross Road, London, W.

Each year as this season approaches we look forward to seeing the selection of dainty Christmas and New Year mounts which Mr. Jonathan Fallowfield has made a feature of his winter trade. The Christmas card, plus a photographic inset, appears never more popular than at the present time, and the selection now sent us by this firm amply proves that the best talent in design and printing has been requisitioned in their production. Slip-in cards, cards for pasting down, folders, motto cards, cards with embossed designs, and expressions of unctuous civility and affection crowd one another in the list, that will be sent free on application. The dealer or photographer will be very hard indeed to please who does not find something to his taste in its pages.

Lantern Slides. Made by Graystone Bird, 38, Milsom Street, Bath.

Mr. Bird's slides have long compelled our admiration for their pictorial quality, as well as for their technical excellence. In recent additions to his series which we have before us we find both these characteristics maintained at a high standard. The "life model" slide, a number of which are included in the selection, is not usually associated with pictorial aims, and probably it serves its professed purpose—the delectation of the Sunday school class—none the worse for that. But Mr. Bird's productions of this class go far to rid the life model slide of reproach, for they are excellent in themselves, apart from the story they illustrate. The supplemental catalogue for the current season will be sent on application.

The "Ensign" Developing Camsters. Made by Houghtons, Ltd., 88 and 89, High Holborn, W.C.

Developers made up to standard formulæ are always popular when put on the market in a way calculated to give the amateur photographer a minimum of trouble. Messrs. Houghtons' improved developing camsters are therefore likely to meet with a cordial reception by not only this class of photographer, but also by the worker who desires to know what he is putting into his developer. The contents of these

tins are constituted according to the formulæ published by the Imperial Dry Plate Company, and there are four kinds—pyro-metol, pyro soda, hydroquinone, and metol-hydroquinone. The chemicals are contained in the canisters in bulk, and only require dissolving in water for use. The trouble and bother of weighing out exact amounts are thus saved, yet at the same time there can be no doubt that the developer is rightly made up. In addition to this, the fact should be noted that the price of these tins is now 1s., as against 1s. 3d. when they were first introduced.

New Books.

"Nicola Perscheid's Photographie in Natürlichen Farben," by Herman Scheidemann. Leipzig: E. Haberland. M.5.

We were somewhat at a loss how to approach this work, because it has been practically repudiated by Perscheid in the German journals. After carefully reading it our attitude is definite.

What the author thinks is also obvious when he says: "In future no one will be satisfied, either in professional studios, or whenever colour is required, without gum printing. It is scarcely possible that within a reasonable time another process of colour photography can be discovered which shall give such successful results as the chromo-gun process worked out by Perscheid, inspired by Lumière's theory. This alone enables one to make an actual paper print in natural colours." Yet but a few pages before this passage he says: "When Perscheid wondered at Lumière's brilliantly-coloured diagrams (The italics are ours.—Eds. B.J.P.) at the Paris Exhibition of 1900, etc." Again, the author says: "Everything which has appeared in book form, in the journals, or in pamphlets, except Hübl's, is useless for the solution of the problem." The work of Du Hauron, Ives, Abney, Vidal, Lumière, etc., is useless! He tells us that Perscheid's process is absolutely original, and that such things as Lumière's transparencies cannot be considered as positive colour pictures. Forty-seven pages of this work are devoted to the theory of three-colour photography and polemic statements, such as we have quoted above. Fourteen pages are assigned to the necessary apparatus, and we learn that Perscheid's filters pass very narrow spectrum bands (which can hardly be said to be in accord with the latest ideas); that he has invented a special shutter (because the ordinary pneumatic shutter is useless), a clockwork arrangement which gives absolutely correct exposures, and a sliding back. The last, of course, has been in use in England for years. Then we come to the printing. Notwithstanding the forty-seven pages of trichromatic theory and polemics, we find it is not a three-colour but a four-colour, or, rather, a four-printing process, or more if you like. It is gum bichromate, and all the materials, which are kept secret, may be obtained from a particular firm. Naturally, the pictorial side of photography is not omitted, and the author ranges from D. O. Hill and H. P. Robinson to Hinton and Steichen. There is a three-colour half-tone frontispiece, after a nature study by Perscheid, that is poor; and, at the end of the book, there are some full-page illustrations from the trade catalogue of the firm supplying the necessary apparatus and materials.

"I Go a-Walking through the Country Lanes" is the title of Part I. of an exquisitely illustrated and printed series of books on nature subjects published by T. N. Foulis, 3, Frederick Street, Edinburgh. This part deals with our feathered friends, and is compiled from "British Birds and Their Haunts," by Rev. C. A. Jones, B.A., F.L.S. The pictures, which are triumphs of the type of work made popular by the Keartons, Oliver G. Pike, and others, are by Charles Reid, of Wishaw. Six parts are promised, and the cost is 6d. each.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Oct.	Name of Society.	Subject.
20	Blackburn Camera Club	"Gun Bichromate Process." Dr. Ivatt.
20	Colne Camera Club	"An Evening with the Phonograph." Mr. A. E. Wilkinson.
21	R.P.S. Exhibition New Gallery	Selections from the St. Louis Exhibition; Slides with Notes by Mr. T. B. Freshwater, F.R.M.S.
23	Dewsbury Photo. Society	"Taste and Selection." Mr. Percy Sheard.
23	Southampton Camera Club	"Lantern Slide Making." Demonstrated. Mr. V. E. Morris.
23	Halifax Camera Club	"Zigo and Carbon" (by permission) Demonstrated. T. Hillingworth & Co., Ltd.
23	Heaton & Dis. Camera Club	"How to Make Enlargements." Mr. Geo. C. Urwin.
23	Cripplegate Photo. Society	"The Camera Process of Photography." Mr. Alex. Mackie.
23	Luton Camera Club	Exhibition of Direct Prints.
23	Barrow Naturalists' Field Club	"Ecclesiastical Architecture." Illustrated. Mr. E. M. Young.
23	R.P.S. Exhibition New Gallery	"Here and there with a Camera for the Press." Mr. S. J. Beckett, F.R.P.S.
23	Oxford Camera Club	"In the Spanish Wilds." Col. Willoughby Verner.
24	St. Helens Camera Club	"Experiences of a Beginner." Mr. J. T. Elliott.
24	Hackney Photographic Society	Amateur Photographer Prize Slides.
24	Bristol Photographic Club	Annual General Meeting.
24	Nelson Photographic Society	Goetz Lecture—"What Can Be Done with a Hand Camera."
24	Darlington Camera Club	"Enlarging Apparatus and Exhibition of Enlargements." Demonstrated.
24	Birmingham Photo. Society	"Tabloid" Photographic Chemicals Demonstrated. Messrs. Burroughes, Wellcome, & Co.
24	Thornton Heath Photo. Society	Lantern Night.
24	Otley & Dis. Cam. & Art. Soc.	"Engelberg and the Bernese Oberland." Mr. G. Middleton.
24	Leeds Photographic Society	"Stratford-on-Avon." Mr. Harold Baker.
24	Gateshead Camera Club	Lecture by Messrs. Ilford, Ltd.
25	Leeds Camera Club	"Development." Demonstrated. Mr. John T. Garbutt.
25	Wallasey Amat. Photo. Soc.	Lantern Lecture with Wednesday Evening Society at Manor Road.
25	North Middlesex Photo. Soc.	Technical Meeting.
25	South Essex Camera Club	"Ozotype." Mr. T. Manley.
25	Edinburgh Photo. Society	"The Camera; and the Optics of Photography." Mr. H. Stewart Wallace, W.S.
25	G.E.R. Mechanics' Institution	"Selection of Subject and the Elements of Composition." Demonstrated. Mr. H. W. Bennett, F.R.P.S.
25	Boro' Poly. Photo. Society	"The Carbon Process." Demonstrated. Mr. Lafosse.
25	Coventry Photo. Club	"Iso Plates and Screens." Mr. E. H. Cooke.
25	Cricklewood Photo. Society	"Toning Bromides." Mr. F. Carter.
25	Croydon Camera Club	"Bromide Paper and Enlarging." Demonstrated. Mr. J. W. Eadie.
25	Tring Camera Club	"Bi-monthly Competition. Subjects: 1, 'Summer Landscape'; 2, 'Seascape'."
25	Huddersfield Nat. and Ph. So.	"Bromide Enlarging, Exposing, Developing, Fixing, Toning, and Mounting." Demonstrated. Mr. H. Crossley, Henderson Award.
26	London and Prov. Photo. Assn.	"Retouching." Demonstrated. Mr. John Way.
26	Harrogate Camera Club	"Focus." Slides, Stories Without Words.
26	Hull Photographic Society	"Toning Gelatino-chloride Prints with Platinum." Demonstrated. Mr. C. P. Proctor.
26	Handsforth Photo. Society	"Carbon Printing." Mr. D. Dunlop.
26	Glasgow Eastern A.P.A.	Last Night for receiving Prints for Federation Portfolio.
26	Balham Camera Club	"Some Slides and their Faults." Mr. J. H. Willie, R.P.S. Members.
26	Darwen Photo. Association	Lantern Night.
26	Liverpool Amateur Ph. Assn.	"Platinotype Printing." Mr. T. Longworth Cooper.
26	Leek and District Photo. Soc.	"Art in Photography, with Special Reference to Figure Studies." Rev. Henry W. Dick.
26		"Making of Lantern Slides. Messrs. Nibsdale, Prince, and Sutton."

WINTER programmes and fixture lists have been received from the Edmonton and District Photographic Society, the Otley and District Camera and Art Society, the Holmfirth Photographic Society, the Harrogate Camera Club, the Wallasey Amateur Photographic Society, and the Darwen Photographic Association.

At the Hove Camera Club, a useful innovation is announced for the winter season. This takes the form of four practical lecture-demonstrations by Mr. J. H. Gear, at the Club Rooms, 55, Western Parade, Hove. Mr. Gear's ability as a lecturer is too well known to need comment, and the Hove Society is to be congratulated on this step in the right direction.

DERBY PHOTOGRAPHIC SOCIETY.—Sir William Abney, K.C.B., F.R.S., and Ald. G. Herbert Strutt, J.P., have been re-elected patrons of this society for the ensuing year, together with Dr. E. Collier Green as president, and Mr. S. T. Lee and Mr. W. R. Bland as vice-presidents.

CROYDON CAMERA CLUB.—In a demonstration on "Transparencies for Enlarged Negatives," by Mr. F. W. Hicks, on October 10, the case of carbon versus dry plates was fully considered. With the former, Mr. Hicks said, a much truer scale throughout no doubt was obtained, and if the negative to be printed from was of a really plucky variety, its employment was almost compulsory. On the other hand, the manipulation of dry plates was familiar to all, and, by adjustment of exposure and development, one could very widely vary results. Printing in skies with the latter was also a comparatively simple operation compared to carbon, and if an error was made, it could quickly and easily be rectified by exposing another plate. He preferred metol as a developer, as having a minimum tendency to block the shadows, and an "ordinary" plate to process or lantern, which generally gave too brilliant positives. In the discussion which followed, Mr. H. P. C. Harpur raised a point concerning the enlarged negative which, he said, might very easily be overlooked. If a trial exposure on a small plate was made, and a standard time for development fixed therefrom, then the same proportionate amount of developer, should be employed for the small test negative as for the large ultimate one. Assuming a proportionate smaller quantity of solution was used for the latter, then a relative greater amount of bromine would be liberated by development per unit volume of solution, and would consequently alter the gradation of the enlarged negative. In actual practice he had found this was so by comparing the two negatives. Mr. E. A. Salt, whilst acknowledging Mr. Harpur had undoubtedly "an eye for the beautiful," denied its capacity for comparing minute differences in plate densities. No doubt a difference would exist in the case stated, but in connection with this, a large plate always appeared to have a different printing value from a small one. The President (Mr. W. H. Smith) confirmed the latter remark, and added that, as a matter of fact, the most experienced printer could never gauge accurately how any particular negative would turn out. What might seem a perfect negative would, on trial, frequently yield an unsatisfactory print, and to some extent vice versa.

ULSTER AMATEUR PHOTOGRAPHIC SOCIETY.—The opening meeting of the twenty-first session of this society was held in the club rooms, the Museum, College Square North, on Monday, October 9. Mr. David Elliott, B.A., T.C.D., presided, and a lecture by Ellis Kelsey on "Night Photography" was delivered.

BRIERLEY HILL CAMERA CLUB.—The annual meeting of this club was held on Wednesday of last week at the Technical Institute. Mr. O. Gibbons was re-elected president, Mr. J. Thomas secretary, and Mr. W. C. Jones treasurer.

The Hull Photographic Society opened its winter session on October 5 with a social evening.

CROOK CAMERA CLUB.—W. Sadler, representing Messrs. J. J. Griffin and Sons, Ltd., gave a demonstration on Velox paper printing, developing, and toning, etc, before the members of this club on October 11.

HARROGATE CAMERA CLUB.—The opening lecture of the session was delivered by Mr. Godfrey Bingley, President of the Yorkshire Photo-

graphic Union, on Friday, October 6. His subject was "Warwickshire, Gloucestershire, and the Wye Valley—Illustrated." On Thursday, October 12, a demonstration on "Enlarged Negatives" was given by F. Rust, of Leeds.

SOUTHAMPTON CAMERA CLUB.—On October 9, Mr. Harvey Piper (Hon. M.S.A.) appeared before this society to deliver the first of his two lectures upon Westminster Abbey.

WANDSWORTH CAMERA CLUB.—At a meeting held on Monday, 16th inst., at the Club-room, 106, High Street, Wandsworth, a lecture by G. T. Harris, F.R.P.S., on landscape photography, illustrated with lantern slides, was read by the hon. sec. It was remarked how little care is bestowed on the important process of fixing. The majority of workers shot an unknown quantity of hypo into an unknown quantity of water, and then worked the bath until saturated with silver. The writer recommended a bath made up of: hypo, 4 oz.; sodium bisulphite, $\frac{1}{2}$ oz.; water, 20 oz.; and a second bath half the above strength. After the plate has been immersed in the first bath until the unconverted bromide in the film has been removed, it is placed in the second bath for ten minutes.

CATALOGUES AND TRADE NOTICES.

"ENLARGING ON Kodak Bromide Papers" is the title of a new Kodak Handbook. It is really an entirely new edition of No. 1 of the series, and is full of interesting and instructive information on bromide paper work and enlarging. The price is 1d. only, and it can be obtained from most dealers, or direct from 57-61, Clerkenwell Road, E.C.

MESSRS. W. BUTCHER AND SONS, Camera House, St. Bride Street, E.C., have now ready a series of catalogues for winter goods, chiefly of lanterns and lantern sundries. A large lantern list is a convenient reference volume for dealers, to whom only it will be sent.

"THE Telephoto Lens" is the subject of a most handsome booklet produced by the firm of C. P. Goerz, 4 and 5, Holborn Circus, London, E.C. It is an elementary treatise on telephotography in reference to the use of the Goerz negative attachment, and is most convincingly illustrated with a large number of reproductions, showing what can be accomplished. The series of photographs is as powerful an argument as can be had in favour of the telephoto principle, and includes examples of landscape, architectural and natural history photography on the telephoto principle. The very handsome book will be sent free.

It may not be generally known that the late Colonel Frank Rhodes was an enthusiastic amateur photographer. Whether he took a hand camera with him when acting as war correspondent our Cape Town informant cannot say, but at the Groote Schuur homestead he manipulated a whole plate outfit. When the Cape-town Photographic Club visited the famous grounds, Miss Rhodes, the sister, told the members to go where they liked, in the house and out of it until refreshments were ready. When Colonel Frank Rhodes received a large body of the Mountain Club, he also photographed them, sending several dozen copies to the secretary for distribution amongst those portrayed.

MESSRS. J. J. GRIFFIN AND SONS, LTD., have arranged to hold a Velox Exhibition at the Chamber of Commerce Rooms, 44, Mosley Street, Manchester, on October 26, 27, and 28. A lecture will be given each evening by Mr. Harry Wade, of Manchester, entitled "Velox and Some New Applications." In addition to this, practical demonstrations on the working of Velox paper will be given. Bona-fide amateur photographers can, however, obtain admission to the exhibition on presentation of visiting card.

News and Notes.

PHOTOGRAPHS for the Press.—The London Studio, of 20-22, St. Bride Street, Ludgate Circus, London, E.C., announces that it has opened a special department for the sale of photographs for the illustrated press. The advantages to a photographer of thus dealing through such an agent are that his picture can be offered to a number of papers, that the most likely papers can be approached, and that the engraver-agent is already in touch with the newspapers through his own business of supplying blocks. It may also happen that a photograph, which would otherwise be declined, will be accepted if the block can be guaranteed in time; such "rushed" work being a special feature of the London Studio business. Further, the London Studio hopes shortly to be able to arrange with a number of papers to let photographers on its lists "cover" all suitable events for the papers. It invites correspondence from photographers as to the districts which they can thus undertake.

MR. RUDOLF EICKEMEYER, JUN., who has for some years been manager of the "Campbell Studio," at 564, Fifth Avenue, New York, and who has won a world-wide reputation for artistic and beautiful work, has purchased a half interest in the studio of Davis and Sandford, and on December 1 the name will be changed to Davis and Eickemeyer. Mr. Sandford's interest in the business ceased nearly four years ago, Mr. Davis becoming sole owner. Mr. Davis and Mr. Eickemeyer, we understand, will both give their personal attention to all patrons.

MONEY in Postcards.—We have often commented on the business openings which the picture postcard craze has created for the photographer, and we have been glad to hear of many cases in which the cultivation of this branch of trade has brought good results. One great factor in postcard publishing being promptitude of issue, we are interested in quoting from a letter from the London Studio, of St. Bride Street, Ludgate Circus, with whom rapid production of postcards has been made a specialty. "Floods occurring at Bray, near Dublin, we received, at 11 o'clock one morning from Mr. Killick, the very well-known photographer there, two capital photographs, with an order for 1,000 postcards from each, and a request to hurry up. We made the blocks, printed and interleaved the postcards, cut up and despatched by 3 o'clock the same day. We enclose you a copy of one of the cards [The specimen is a very good half-tone.—EDS. B.J.P.] to show you what the quality was like, and when we mention that we also got half-a-guinea each for Mr. Killick for use of the photographs in the 'Daily Mirror' and 'Daily Graphic,' you will see that we can claim some little credit for looking after our customers' interests."

PLATINOTYPE as it is Worked.—Overheard at the Platinotype stall at the R.P.S. Exhibition:—Visitor to Demonstrator: "I like your process, but the paper rots so." Demonstrator: "Rots! I don't understand." V.: "Yes, rots all to pieces, although I work exactly according to your instructions." D.: "What method of development do you use?" V.: "The hot bath." D.: "And then?" V.: "Then I place it in the three hot acid baths." D.: "Hot acid baths? But our instructions don't say you should heat the acid baths." V.: "Well, they don't say you *shouldn't*. And I read in all the text books that all solutions should be of approximately the same temperature when developing in order to avoid blisters." Demonstrator collapses for a moment, and then goes on politely to explain why blisters need not be feared with platinotype.

A SELECTION of current postcards in black and colours reaches us from the British Photo-Engraving Company, Coventry, one of the earliest firms to go into the business of supplying photographers with

postcards. The company is able to show some extremely attractive work, and we are glad to hear from them that photographers have done good business, not only in postcards of local views and events, but in those from negatives or photographs of their own customers.

A PHOTOGRAPHIC exhibition is announced for May 15 to 17 in connection with the Clevedon Art Classes. The hon. secretary is the Rev. E. A. Sandford, 18, Hallam Road, Clevedon.

A PHOTOGRAPHIC Society for North London.—As a result of the recent successful exhibition at Highbury, a preliminary meeting will be held on Thursday next, the 26th inst., at 8 p.m., at Highbury Vale Mission Hall, Myrtle Street, Blackstock Road, N., to discuss the formation of a photographic society for the Highbury and Finsbury Park districts. All North London photographers are invited to attend.

THE death is announced of Mr. Richard Hedges. The deceased had retired from business as proprietor of the London and Coventry Photographic Company, Jesson Street, some time ago, and his death took place at Croydon, where he had gone to reside.

THE Edinburgh Photographic Society's annual exhibition will be held at the Society's Hall, 38, Castle Street, Edinburgh, from Saturday, February 24, to Saturday, March 10, 1906. The judges are J. Craig Annan, W. S. MacGeorge, A.R.S.A., and Arch. Cochran. Handsome plaques are offered in the open class, and full particulars will be supplied by the Hon. Secretary, J. S. McCulloch, 3a, North Street, David Street, Edinburgh. Entry forms are now ready.

THE Leeds Camera Club Syllabus and Exposure Note Book is a bulky publication, and does credit to the secretary, Mr. F. G. Issott, who so ably managed the last Northern Exhibition at Leeds. Members passes, notes on exposure and other useful information is included in addition to spaces for exposure notes and formulae.

A PHOTOGRAPHIC union for Lancashire and Cheshire was formed on October 9. Delegates from the Lancashire and Cheshire Societies attended the first meeting at the rooms of the Liverpool Amateur Photographic Society, 9, Eberle Street, Liverpool. Dr. Thurston Holland, of the Liverpool A.P.S., and Mr. W. Tansley, 22, Chapel Place, Liverpool, of the Everton Camera Club, were appointed chairman and secretary respectively (pro tem). A meeting will be held for election of officers, etc., as soon as a return is to hand of delegates appointed by the societies joining.

POPULAR ASTRONOMY.—At the Great Queen Street Theatre an entertainment of a novel character has been given during the week. Aided by a series of astronomical photographs, a large number of them being well-known Lick and Weinek photographs, Professor Gerhart Heltman discusses in a popular manner many of the most interesting astronomical problems. In presenting a series of photographs of the Martian Canals, he discussed the views of Mr. Percival Lowell on the question of the character of the canals, and the inferences which he draws respecting a hypothetical population of Mars.

CLOSING DAYS OF R.P.S. EXHIBITION AND SALON.—Our readers are reminded that the exhibition of the R.P.S. at the New Gallery, Regent Street, closes on Saturday, October 28. Miss Acland will repeat her lecture entitled "A Visit to Gibraltar" in the evening. The Photographic Salon at 5a, Pall Mall East, S.W., will close on Saturday, October 21, at 6 p.m.

THE TELL-TALE FLASHLIGHT.—We read in a morning paper that on the occasion of a recent "first night" at a West-End theatre a flashlight photograph of the audience was taken between the acts. Permission was first asked of the audience by the leading actor, and then the camera was produced and the flashlight made. We read, however, that the most curious part of the proceedings

was supplied by the audience as soon as the announcement was made. Ladies promptly produced small mirrors and arranged their hair and flowers in their dresses, etc., but the commotion caused by members of the audience who did not want their photographs taken at all gives most occasion for thought. Our contemporary suggests these individuals were probably guilty young men and certain husbands, who had gone to the theatre under conditions they did not desire to be known to all the world. The invitation "not to move" by the photographer was passed unheeded. Fans were put up in front of certain feminine faces, and some of the men made grimaces analogous to those made by the clients of M. Bertillon when he levels the anthropometric engines on them.

LECTURES AT THE R.P.S. EXHIBITION.—The following lectures will be given at the New Gallery, Regent Street, during the ensuing week: Saturday, October 21, Selections from the St. Louis Exhibition; slides with notes by T. E. Freshwater, F.R.M.S. Monday, October 23, Here and there with a Camera for the Press, by S. J. Beckett, F.R.P.S. Thursday, October 26, Daily Life in Japan, by Satori Kato, illustrated with slides made and coloured by Japanese artists. Saturday, October 28, "A Visit to Gibraltar," by Miss Adland, F.R.P.S.

The Annual Traill Taylor Memorial Lecture will be given on October 24, at the meeting of the Royal Photographic Society, in the New Gallery, 121, Regent Street, W., at 8 p.m., by Mr. Chapman Jones, F.I.C., F.C.S. Subject: "Photography the Servant of Science." Admission by tickets, available on application to the Secretary of the Royal Photographic Society, 66, Russell Square, London, W.C.

The members of the Photographic Club have arranged to hold their "Second Sumptuous Social Supper" in their club room (Red Cross Hotel, Paternoster Square), on Wednesday evening, November 15, for members and friends.

The entry form and prospectus of the third annual Scottish National Salon have been sent us. This year the Salon promoted by the Scottish Photographic Federation will be held at the Victoria Art Galleries, Dundee, opening on Saturday, January 13, 1906, and closing Saturday, February 3. There are no awards and no entry fees, and the pictures submitted will pass a board of selection. Entries close December 30, and all communications should be addressed to the hon. sec., V. C. Baird, Broughty Ferry.

PARTICULARS of the Hove Camera Club's tenth annual exhibition have been sent us, and, as previously announced, this forms one of the trio of societies that have for the past few years identified themselves with photographic activities in the south of England. In addition to a special plaque awarded by each of the three societies (Southampton, Hove, and Southsea), a special joint award is offered every year to the exhibitor at all three exhibitions whose collective exhibits shall be judged to be of the highest merit. This year it takes the form of a handsome bronze salver measuring 11½ inches in diameter. It is a copy (by Messrs. Elkington and Co.) of a silver salver in Rosenberg (Castle, Copenhagen). The Hove plaque is also worthy of mention. It is a miniature in bronze of "L'Angelus," by G. Dupré, and fourteen copies are offered in the open classes. The judges will be Messrs. C. Job, J. C. S. Mummery, and J. H. Sussex Hall, and the last day for entries is November 21. Entry forms and full particulars can now be obtained from the hon. secretary, A. R. Sargeant, 55, The Drive, Hove.

A PHOTOGRAPHIC section of the Plymouth Exhibition is announced. Special awards are offered, and there are no less than fourteen open classes with medals for each. The judges are H. Snowden Ward and H. S. Hill. Entry forms are obtainable from the secretary, A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.

Commercial & Legal Intelligence

R. PERRY AND SON, LIMITED.—This company has been registered with a capital of £1,000 in £1 shares. Object, to acquire the business of a chemist and druggist lately carried on by H. N. Perry, at 73, High Street, Gravesend, as R. Perry and Son, to adopt an agreement between Miss Mary W. Perry and Miss Agatha A. C. Perry, and to carry on the above business and that of dealers in photographic apparatus and accessories, etc. No initial public issue. The first directors (to number not less than three nor more than four) are Miss Mary W. Perry, Miss Agatha A. C. Perry, G. E. Clay (chairman), and G. Curry. Qualification, £10. Remuneration, £2 per annum, divisible. Registered office, 73, High Street, Gravesend.

UP-TO-DATE ARTS AND INVENTIONS, LIMITED (86,104).—Registered Oct. 10. Capital £3,000 in £1 shares. Object, to carry on the business of photographers, photo and general engravers and printers, dealers in photographic apparatus and materials. D. C. Dallas is permanent managing director, with £182 per annum, and A. B. Snell is assistant-manager and assistant-superintendent of the art department. Registered office: 8, Theobald's Road, W.C.

ALLEGED BOGUS CANVASSEER.—Ernest Hopper, 28, described as a traveller, living at 79, Limerston Street, Chelsea, was charged on a warrant at the West London Police Court, before Mr. Lane, K.C., on Monday, with obtaining 7s. 6d. by false pretences from Miss Jean Williams, a young lady living at 40, Kensington Park Gardens. Miss Williams stated that on September 29, the prisoner, who gave his name as Davies, called at the house and showed her and her sister some photographs. He wanted to know if they would give him an order. Witness said she did not want to be photographed, but she handed him a group, and told him to make an enlargement of one of the figures in the group. He said he was canvasser for a Mr. Mallia, a photographer, of Oxford Street, and he promised to get the enlargement done. She paid him 7s. 6d. and he gave her a receipt for 8s. telling her he was allowing her 6d. as discount. He went away and she never saw him again, nor did she receive the enlarged photograph or the group she had lent him. John Mallia, photographer, of 285, Oxford Street, said he did not know the prisoner. He believed he saw him once in July, when he came to try and get a camera by pretending that he came from a friend of his (Mallia's). Witness had never given him any orders nor received any orders for execution. A man named Davies used to be in his employment, but he never saw the prisoner. Prisoner: I was engaged by Davies to get orders, and I sent him a number. "I always signed for the payments in the name of Davies. I have not seen Davies for some time, and I suppose he has been carrying on systematic frauds and dragged me into them. Mr. Mallia said he had received many complaints about these frauds, and, after Miss Williams' letter to him, he communicated with the police. Det.-Sergt. Burnie stated that he arrested the prisoner in New King's Road. When the warrant was read to him he said, "Yes, I left the group on an omnibus and lost it." In answer to the magistrate the officer said he believed there was a real Davies, and the warrant was made out against Davies; as the prisoner called himself Davies witness arrested him. A remand was granted.

RE JOHN WILLIAM CALVERT, photographer, 58, Stonefall Avenue, Starbeck, and Chapel Street, Harrogate.—The first meeting of the creditors interested under this failure was held at the offices of the Official Receiver for the York district. The summary of accounts showed liabilities expected to rank for dividend amounting

to £104 16s. 10d., and assets estimated to produce £13 14s. 7d., thus showing a deficiency of £91 12s. 3d. The causes of failure were stated to be heavy rents and rates, falling off in trade, and bad debts.

At the Wigan County Court on Tuesday in last week, before his Honour Judge Bradbury, Alphonsus J. Smith, trading as A. J. Smith and Co., photographer, Moot Hall Chambers, Wigan, claimed £5 from Mr. Jas. Marsden, J.P., as damages for illegal removal of two show cases. Plaintiff conducted his own case, Mr. A. Ellis (Messrs. Peace and Ellis) appearing for the defendant. Plaintiff said that he took the business over from Messrs. A. G. Taylor and Co. Mr. Marsden's agent, Mr. Cook, had agreed with Mr. Taylor that two show cases should be exhibited at the entrance to the chambers, as was usual with a photographer's business. That was in 1903. He took the business over on March 9 this year, and wrote a letter to Mr. Crook, and also saw Mr. Marsden. Mr. Ellis remarked that the plaintiff was not their tenant. They had a lease with Mr. Taylor. There was no clause in the lease allowing him to put show cases out, but Mr. Marsden gave him verbal permission to put two show cases on the bottom floor. On August 10 that permission was withdrawn for certain reasons, and he produced the letter withdrawing it. They then took down the show cases and placed them in plaintiff's studio. They were put up again and taken down again, and, altogether, that happened three times. When they found that plaintiff would not take them back they took the show cases to defendant's warehouse, and wrote to him informing him that he could have them if he applied for them. If the plaintiff claimed to be tenant he must be a trespasser. He had no right at all. Plaintiff said he notified them that he was going there, and Mr. Crook came up on several occasions during the three months and said nothing at all to him. He naturally concluded, knowing his references were satisfactory, that he was the tenant. Mr. Ellis: Have you paid rent to Mr. Marsden?—To Mr. Taylor, by arrangement. Mr. Ellis: Did Mr. Crook tell you to pay the rent to Mr. Taylor?—They told me to get Mr. Taylor's solicitor to transfer the lease to me. On August 10 did Mr. Crook come to you and show you a letter he was sending to Mr. Taylor?—He showed me a letter addressed to Mr. Geo. Taylor, but as I was not Mr. George Taylor I told him to send it on to him, and anything he had to say to me, to say it. Mr. Ellis read the letter: "I hereby give you notice that I withdraw the verbal consent given to the exhibition of two show cases at the entrance to Moot Hall Buildings, and request you not to hang them at the entrance any more after this date." His Honour: Plaintiff has no case, because you admit you were told after the first removal that the show cases would not be allowed to be there. You were told they would not be allowed to be there, but after that you chose to put them up again. They removed them, and they have them in their possession. If you wanted to obtain them you could have had them. You have no right, and Mr. Taylor cannot give you any right to put them there except you got permission from defendant. Therefore there is judgment for defendant, with the usual costs.

ANOTHER case in which Messrs. A. J. Smith and Co. were the defendants also came before the Wigan Court. Action was brought by Messrs. Prescott and Bold, architects, occupying premises in Moot Hall Buildings, below those of Messrs. Smith, for compensation in respect of damage done to drawings through the negligence of the defendants. The plaintiffs' case was that a tap in the defendant's room had been left running one night, and that the water had done the damage. For the defence it was stated that the sink had been choked up through a caretaker throwing dirty water down it. Verdict for the plaintiffs for £16 10s. and costs.

Correspondence.

*** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*** We do not undertake responsibility for the opinions expressed by our correspondents*

FRATERNITY IN PRACTICE.

To the Editors.

Gentlemen,—Perhaps the view of an onlooker may be of some interest when it is on a matter which forces itself upon his notice. Of course my experience with the British professional is limited, but my visit to England this summer re-impressed me with the feeling that there are comparatively few close intimacies—at any rate they are not so apparent as many we have in the States. For example, Strauss of St. Louis, Stein of Milwaukee, Rinehart of Omaha, Benjamin of Cincinnati, Steffens of Chicago, and Clark of Detroit, make a business of meeting every two months at the studio of one or the other of the set for a couple of days' communion. They ransack the place from cellar to attic, they discover whatever is unusual and good in the man's methods and procedure, and when they get home they apply it to their establishments, and if the man has a faulty method, they correct it then and there and get the new scheme into working order before they leave—whether it be in the skylight or dark-room, or printing shop.

The business department is gone over minutely, and in the same way is commented upon and criticised; the ways of interesting new customers, of re-interesting old ones, advertising, handling of accounts, etc., etc., are each taken up with a generosity and wholesomely frank feeling that makes for the good of the visitors and the man visited. When you consider that the distance from Omaha to Detroit is greater than from Land's End to the uttermost part of Caithness, you can understand that they must consider these intimacies of real value.

"But," you say, "we in Britain are so much closer geographically that to invite intimacies of this kind would be dangerous; we are none of us so far apart but that we are competitors." I would add that not a month passes but that some committee of the Metropolitan Section of the Professional Photographers' Society of New York holds a meeting for one purpose or another in some of the New York studios, and the good that each man gets is balanced by the good he gives. Pictures are brought out and shown—not hidden—and often result in a couple of hours hearty discussion. Truly, I think this feeling is one of the strengths of the professional in the "States."

PRIE MACDONALD.

141, Broadway, New York,
October 3, 1905.

LEAKY ROOFS.

To the Editors.

Gentlemen.—The following experience may be of some use to our fellow professionals re leaking roofs. I was greatly bothered with the same, though my studio is a new one. We tried everything—white lead by the cwt.—but with no avail. After much thought, I hit upon a plan which has acted like a charm. I got a cabinet-maker to run down each side of the sash beams in the roof cabinet-makers' moulding, first coating the beams and the moulding thickly with white lead. The moulding acts as a gutter under all the top glass, and carries all the water and moisture from the glass out under the eaves. I got the whole job done for some 20s., and am not now at all bothered with leaking roofs.

I trust this explanation is intelligible, but should anyone like to

see my studio roof, or wish for further particulars, I shall be happy to do all I can to help them in this most serious difficulty.—Yours faithfully,

JAMES CLARK.

1, Hanger Lane, Ealing, W.,
October 13, 1905.

A REPLY TO CRITICISM.

To the Editors.

Gentlemen,—With reference to your notice re the Land of Nod, it is easy enough to act the critic without knowing particulars. May I point out, in self justification, that we unfortunate professional photographers have frequently to give in to the ideas of children's parents? The picture I do not in the least defend, but I may add it is an order for ten 24 by 18 carbons at £5 each, on the understanding it is exhibited.—Yours truly,

JAMES CLARK.

1, Hanger Lane, Ealing, W.,
October 13, 1905.

WARMING THE STUDIO.

To the Editors.

Gentlemen,—Anent your remarks in to-day's B.J.P. re heating of studio by pipe stoves and the objection caused by the dust from the fine ash produced by these, may I mention a system I have adopted which obviates this difficulty, and has some other merits? Under my studio is an apartment of similar size used for toning, washing, mounting, etc., in which I have a close stove, enclosed on three sides by 4½ in. brickwork to the ceiling. On the other side is a hinged sheet-iron flap, and in the floor above is an iron grating. During that part of the day in which the studio is in use the grating is kept uncovered, the heat from the stove ascending and warming the studio. At dusk the grating is covered with a rug, and the sheet-iron flap in work-room opened, whereby the heat is directed to this lower apartment. All the stoking and clearing out is done independently of the studio, and a large cast-iron boiler on the top of the stove, with a tap, provides a supply of many gallons of boiling water in the course of the day. Having had this system in use in three different studios since 1878, I have never regretted adopting it.—Yours faithfully,

WM. SALMON.

The Studio, 103, High Street, Bedford,
October 13, 1905.

THE REMOVAL OF BLACK MARKINGS FROM BROMIDE PRINTS.

To the Editors.

Gentlemen,—Having like many other people suffered much from the black markings so commonly found on glossy bromide prints, I venture to send you a remedy which I have found much quicker and more efficacious in removing them than the methylated spirit often recommended. It is, briefly, soap and warm water. I find that if a piece of cotton wool be well soaked with warm (not hot) water, then thoroughly soaped and rubbed on the prints, that it not only quickly removes the markings, but also improves the appearance of the print materially. It is well to treat the prints with alum before rubbing, and after so doing I find there is no risk of abrasion to the surface if reasonable care be exercised. If it is required to squeeze the prints, care must be taken to thoroughly wash them after the treatment with soap. I do not know of anyone who has tried this method; but it is quite possible that many of your readers know of it, and I only venture to send these few particulars thinking that possibly it might be of use to some.—Yours faithfully,

MURIEL DARTON.

6, Ribblesdale Road, Hornsey, N., October 16, 1905.

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
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PHOTOGRAPHS REGISTERED:—

F. Maudsley, 73, Queen's Park Road, Blackburn, Lancashire. Photograph of Master T. Morris and Photograph of D. Morris, both in Swimming Costume.
A. Lamb, Gowthorpe, Selby, Yorkshire. Photograph of J. O. Andrews, M. Scott, and Luke White, M.P. Photograph of G. L. Fox and Lieut.-Colonel T. Hardon.
W. Dainly, 119, Turtton Road, Bromley Cross, near Bolton, Lancashire. Photograph of the Blair's Hospital Convalescent Home, Bromley Cross.
J. H. Moody, High Street, Aberavon, Port Talbot, Glamorgan. Photograph (Combination) of a Placed Group of the Aberavon and Port Talbot Football Team, 1905-6, in a Frame.
W. Jubb, The Lodge, Harden Moss, Holmfirth. Photograph, Harden Clough, Meltham.

J. C.—We have no such intention.

INFRINGEMENT OF COPYRIGHT.—A firm of publishers has made use of the enclosed copyright photographs for reproduction. Kindly inform me as to the amount of damages I could claim, and how I should proceed in the matter. Also state if it be necessary to mark print copyright?—J. W.

It is not necessary that the print be marked "copyright." If you are a member of the Professional Photographers' Association, we should recommend you to put the matter in their hands to act for you. Failing that, you should entrust the matter to a solicitor, with instructions to take action for penalties and damages. It is possible, however, if you write to the firm of publishers telling them that they have infringed your copyright, they will come to reasonable terms with you, and thus avoid law proceedings. We cannot say what damages you should claim, as we can have no idea what damage you have sustained by the piracy. You can judge that better than anyone else.

E. B. AND SON.—The copyright in both negatives belongs to those who paid you for taking the picture, and not to you, and you had no right to use it for purposes of your own. We do not reply to correspondents by post (see notice to that effect at the heading of this column). At your request we have not published your letter.

COLOURS FOR MINIATURES.—Could you give me the address of firms who supply dyes for colouring miniatures for trade purposes, as per enclosed sample?—H. COMER.

The colours are supplied by all the large dealers, such as Fallowfield, Marion, Houghton, and others; Mawson and Swan also supply dyes for the work.

THE EYES IN PORTRAITURE.—In the "B.J." report of Mr. C. H. Hewitt's lecture to the London and Provincial P.A. on portraiture, it is stated that for correcting defects the "larger eye should be placed nearer the camera." I should be greatly obliged if Mr. Hewitt, or someone, would kindly say why—because I should have thought the reverse would have been better, for the nearer to the camera the larger an object appears. Would it not tend to equalise the eyes if the small eye was near to the camera and enlarged, and the large eye farther from and reduced?—G. H.

Mr. Hewitt writes:—"With the average size of head and

focus of lens the difference between the distance of the nearer and further eye is so slight that the actual diminishing effect of distance does not come into play. But, unconsciously, the mind associates diminution of size with greater distance, and so feels that the eye is smaller because it is further away. It is also possible that as the more distant eye will frequently be the one in shadow, its lesser size will, on that account, be less apparent.

SPOTS.—We cannot satisfactorily account for the spots, but should strongly advise you to increase the strength of the hypo bath to 3 oz. to 1 pint, and add to every pint $\frac{1}{4}$ oz. of sodium sulphite and $\frac{1}{4}$ oz. of salt. Immerse your prints before toning in a 10 per cent. solution of common salt, then wash for ten minutes, and tone with gold. Then wash for ten minutes, tone with platinum, immerse in a fresh salt bath, wash thirty minutes, and then fix. We do not think that the prints would be more permanent toned with platinum alone, and, provided your starch paste is freshly made, we should advise no change.

STRIPPING.—1. I shall be glad if you can help me. I have tried to employ the method given on July 28 last, "B.J.," p. 589, for "Saving Broken Negatives." Of course, I get all right up to putting the paper on, but I find that the film shows no tendency to stick to the paper or leave the glass, although I have well rubbed it down and kept it under pressure for some time. Of course, when dry, the paper and film and glass are closely stuck together. Nor can I raise a corner of the film as directed; my film appears quite rotten, and, if touched, comes off in small pieces. I have two broken plates which I am anxious to transfer, and any advice will be acceptable. Can the fact that my negatives are fixed in an acid bath with some chrome alum have any bearing on the matter? 2. Also, "B.J.," October 13, p. 804. Can you say what is a saturated solution of sod. sulphide? This is not given in the table in the "Almanac."—C. E. F. N.

If the film has been strongly toughened beforehand it will not be so easy to make it adhere. We have usually found a thin solution of gum, applied to the plates and the latter dried, quite sufficient. No pressure should be necessary, the film must stick of its own accord. Our stripping solution is:—Methylated spirit, 25 oz.; water, 1 oz.; glycerine, 1 oz.; to each ounce of which from 6 to 30 drops of hydrofluoric acid is added. This solution is simply spread over the dry negative, and, after a minute or two, the freedom of the film tested by running a thread of silk stretched on a cane bow. 2. The sulphide is very soluble, but we do not know of accurate figures. We should think 1 part in 2 parts of warm water will give a saturated solution on cooling.

DRY MOUNTING.—I should like to know where I can buy the dry mounting machine (French patent). I should like to know the address in French (Paris).—J. VANDER DYK (Rotterdam).

Derepas Freres, 99 and 101, Rue St. Honoré, Paris.

H. P. (Denmark Park).—Thank you, but we are unable to use.

WORKING-UP CARBON MINIATURES.—1. I should be glad to know what powder can be used to work down too heavy shadows of the carbon on ivory before commencing to work-up in water colours. 2. Also if there is any preparation to fix the colours when the miniature is finished.—WANT-TO-KNOW.

1. An artist's scapel (a retoucher's knife) is an efficient instrument, and, if skilfully used, superior to any rubbing-down method, unless the parts to be reduced are eye or mouth shadows. For rubbing-down use absolute alcohol and tripoli powder, applied with a pledget of cotton wool; or, if very small portions have to be lightened, use a flat-pointed stick

covered with two thicknesses of lint at the end. A more rapid, but less safe, method is to use cuttle-fish powder in place of tripoli. 2. If a slight enamel-like finish is not objected to, use a varnish composed of celluloid (clean film clippings) 1 drachm; amyl acetate, 8 oz. Otherwise, use same varnish one-quarter strength. Apply thinly and rapidly in one direction only with a rather large, soft brush. A second coat may be applied when the first is dry if desired.

KOHINOOR PAPER.—Can you give me the name of the firm supplying this matt paper?—GEORGE FRANKS.

We are unable to say.

T. H. DUNN AND OTHERS.—In our next.

OLD CROW.—We should call indian ink a brown-black. If you find that the m-phenylenediamine bath gives you brown-blacks we should advise a short immersion in a combined toning and fixing bath. We have never obtained blue-blacks with it, and think that if you immersed the prints in salt and water prior to toning you would get pure blacks.

L. AXWORTHY.—There is no doubt that the stains are due to the prints having been touched with hypo-contaminated fingers; in fact, so distinct are these marks that you might almost determine at once whose fault it was by comparing the "stains" with the finger prints of those who handled the prints.

CHARLES MARSHALL.—There is little to choose between the two. The maker of the former would adjust a filter to any particular plate.

J. WILLIAMS.—Usually considered 1 oz. in water to a total bulk of 9 ozs. This is equivalent to 1 gr. in 10 minims.

S. M.—We should say that the party who commissioned you to attend and photograph the group is responsible for payment. Surely you know who this was.

PERMISSION TO PHOTOGRAPH.—Should esteem it a favour if you would tell me where permission can be obtained for the photographing of Nelson relics at Greenwich.—J. J.

The Secretary of the Nelson Centenary Exhibition, now open at the Royal United Service Institution, Whitehall, will probably be able to give you full information.

DEXTRINE PASTE.—Some weeks ago you published a recipe from your correspondent "Derbyshire" for a dextrine paste. I have made it up exactly in quantities named, and found it would not keep more than about a week. I should be glad if you would kindly inform me of some more sure method.—E. J. P.

Are you quite sure you used the right materials? We have had no difficulty in keeping a paste made to this formula, for six months or more. It has to be very well boiled before setting to cool.

BURTON.—We believe the plates are still obtainable from the large dealers, such as Fallowfield. Almost any of the commercial "iso" will give similar results.

***** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

A Misnomer. What is the fading of a photograph? Is the question unnecessary? Are we not all too familiar with the "fading" of photographs? A photograph which has undergone any change whatever is said to have faded, whereas there is really no fading at all in the true sense of the term. Many gelatine prints, owing to improper washing or fixing, become yellow in the lights, yet the image itself is really as vigorous as at first. That cannot be classed as fading. Platinotypes that, from careless manipulation, have had some of the iron salts left in the paper turn yellow in the lights, and, again, they are said to have faded. They have really not done so; the image is all there in its pristine vigour, and it is only necessary to dissolve out the iron, and the picture is as good as at first. Take, again, the case of a Daguerreotype. When the image has become partially obliterated with tarnish it is usually said to have faded, while it has done nothing of the kind. The silver plate upon which it is has simply become tarnished, and if the tarnish be cleaned off, the image will be found as it was when the picture was first taken. Indeed, a Daguerreotype is the most permanent of all silver pictures. One frequently sees at railway stations and other places, where they have long been exposed to strong light, photographs that have darkened by the action of the light. The lights have become of a pale purple tint, and the image generally considerably darker than it was at first. This is often called fading, though the picture is really much darker than it was originally.

* * *

A Caution to Retouchers. We think of Mr. Henry Arthur Jones's housekeeper, who told "the absolute and entire truth—under the circumstances," when we look at many examples of the retouched portrait. In the use of the pencil and knife, the photographer is thoroughness itself. No doubt he will tell you he is obliged to be; but we prefer to think there are signs that the old ideas as to a perfect portrait being that from which all signs of age or suffering have been obliterated, are undergoing a change. One does not usually look in the ladies' columns in the daily papers for guidance in such matters photographic, yet the extract which we quote from the "Globe" of last week may have its lesson for the portrait photographer:—"Once I was shown a woman who had got rid of wrinkles—how no one knew—and a most pathetic sight she was. Her face looked old, but that wasn't the sad part: it looked flabby and characterless, and the eyes seemed as if in a mask. After all, nature is a past mistress in her own line, and the women do most wisely who trust her. If she puts a wrinkle in the face of a brave, bright woman it means

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

The forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. The editorial article will deal very completely with the important subject of

PHOTOGRAPHIC COPYRIGHT,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and wherever practicable new features of an informative nature will be added.

The text and advertisement pages of the ALMANAC are now in the printers' hands, and our publishers ask us to state that proofs of all matter are being despatched day by day, and should be returned with all convenient rapidity.

something, and its artificial eradication leaves a vacuum which nature abhors inwardly and outwardly." We know we shall be told that over-retouching, if a fault at all, is a good one, and that to tell the truth in a photograph of a sitter beyond middle life is the way to drive customers from a studio. Yet we would rather take the point of view of the person who does not prefer a life-like picture "with all his imperfections on him" to the smooth nothingness of the portrait as retouched. We speak of extremes, though we know there are intermediate degrees which, without being gross violations of the truth, are not unpleasing to the sitter. We would wish to see the tendency towards a minimum of retouching grow stronger in every rank of professional portraiture.

* * *

A Show-case Hint.

One thing which seems to be much neglected in this country is the seasonableness of the specimens exhibited in show-cases. The weather we have had during the last week or two has been sufficient to remind us that winter is at hand, and it seems a little incongruous to see show-cases filled with pictures of persons clad in light summer costumes. We recently saw some large show-cases filled with really good pictures; but the whole of them were persons in summer garb, while those who stopped to look at them were clad in furs, or quite winter clothing. The specimens, good as they were, seemed quite out of keeping with the season. Had they been in autumn or winter costumes, such as people are now wearing, they would, doubtless, have attracted far more attention. Those who exhibit specimens in show-cases and shop windows will do well, just now, to replace any of the description just alluded to, by others in winter attire. Furs, and winter clothing generally, lend themselves well to photography, and favour the production of a good winter specimen case.

* * *

The Responsibilities of Owners of Photographic Premises.

A case which was briefly reported in our last issue serves to illustrate the responsibilities of those who occupy the upper portions of premises. It seems that a tap in one of the defendant's rooms was left running, while the outlet pipe from the sink was choked up, and, as a consequence, the floor below became flooded, and much damage was done. For this the photographer was sued in the County Court, and had to pay some sixteen or seventeen pounds by way of damages, and costs in addition. For the defence it was urged that the stoppage of the sink pipe was caused by the act of a caretaker who emptied some dirty water in the sink. That defence did not, of course, avail, as the tenant of the rooms is responsible for what occurs in them. It is no defence to say that the owner is only liable for what he or his employees may do, he is also responsible for what anyone else, to whom he gives access to his rooms, may do, and it is right that such should be the case. The owner is responsible for anything that may be done in his premises, and it is his business to see that nothing in the shape of injury is done to the property of those living underneath. For example, if the roof of the studio is in such a leaky condition that the water comes through, and does injury in the floor below he is liable to make the damage good. It is his business to see that his part of the premises causes no injury to others. Those whose workrooms are situated at the top of the house should see that the outlets from the sinks are always clear when water is left running for any length of time, or flooding and other troubles may arise. Where prints are left unattended in running water it is well to have a wire-guard over the waste pipe so as to prevent a print

that may float out getting over the opening, and by blocking it up cause an overflow.

* * *

Cold Weather and Imperfect Fixation.

We were recently shown some prints, with yellow stains, in patches, which the producer could in no way account for though they were clearly due to imperfect fixation. It was said that the prints were left the usual time in the fixing bath, and there was no doubt that was the case, but evidently the temperature of the solution had not been taken into account. Fortunately in the fixing of negatives there is a safe guide as to the course of fixation. If the plate be left in the bath as long again as it took for the bromide to disappear, however long that may be, it may be assumed that the negative is properly fixed. With prints we have no such guide, and therefore greater care and judgment is necessary in cold weather than in warm. When hyposulphite of soda is dissolved the solution is very many degrees colder than the water used in its solution. Even if that is warmed it very soon cools down when used in a cold room, a fact which is not always taken into consideration. In weather such as we are now experiencing a much longer time must be allowed to ensure the perfect fixation of prints. In the case of weak baths, double the time given in summer will be none too long, and the prints should be kept moving all the time. When the work is entrusted to young lads or girls and the solution is unpleasantly cold, the prints are not always kept turning about, the result is yellow patches such as those on the prints which suggested this note.

* * *

Glittering Accessories.

The difficulty of keeping furniture used as an accessory in a portrait from attracting more attention than it ought to do is very frequently felt, especially by the less-experienced workers. A great deal depends on the class of furniture used and its condition. Highly polished mahogany or walnut chairs are sure to reflect the bright light used in a studio, and to produce a multitude of sparkling catch lights. Upholstery of a light colour or containing patches of light or of blue, will frequently give resulting photographs which are spotty from a pictorial point of view. The late Valentine Blanchard used to go round the studio each week, after the charwoman had beeswaxed all the furniture, and with a piece of fine sandpaper dull the polish. This suggests that furniture for a studio might be ordered unpolished, or the woodwork merely oiled and slightly waxed. Not only will there be an absence of spotty brilliant high lights, but the furniture will photograph better, roundness and detail being more easily secured. It will be within the experience of most of our readers that the effect obtained with highly-polished furniture is similar to that got when photographing polished silver articles. Such objects present the utmost contrast of light and shade. With regard not only to the upholstering of studio chairs, but also to any fabrics employed, care should be exercised in their selection, bearing in mind the photographic value of the various colours.

* * *

Photographing Furniture.

The points touched upon in the preceding paragraph naturally lead to the question of producing photographs of furniture either for advertising or catalogue purposes, or, in the case of antique furniture of special value, for record work. Where single articles or suites are photographed for illustrating catalogues, a thing frequently done nowadays, it is much better to get the manufacturer to leave the goods unfinished until the pictures are taken. If this

cannot be arranged, or if, as in the case of antique furniture, it is impossible, the most satisfactory results will usually be obtained by photographing out of doors in a rather dull light. Any strong reflections will be no brighter than they would be if the work were done in a room or studio, and the shadows will be much better illuminated by the open light. The use of orthochromatic plates is hardly necessary unless the colours of the upholstery are such as to require it. In some cases, as where furniture is inlaid with satinwood, box, or kingwood the yellow colour of the wood may need a colour sensitive plate and a light filter; but for rosewood, mahogany, and so on, the ordinary plate will answer all purposes. It may be well to point out that with wood of a very figury nature, such as the speckled and burr walnut veneer used on many pianos, the adequate rendering of the figure of the veneer is important. This figure rarely shows so well before polishing as afterwards, and the work should, at all events, be oiled or commenced polishing before the photograph is taken. The slight polish, often called wax polish, however, is sufficient to bring up the grain or the figure without producing bright reflections.

* * *

Three-colour Work and "Irradiation." The address of Mr. Howard Farmer, partially reported on another page, and to be completed in our next issue, has the laudable object of bringing the three-colour process into a state by which it may be regularly worked in the ordinary way of business. Mr. Farmer's view is that this will be done by introducing "the irradiation system" of working. If this prove to be correct we should be glad to know from Mr. Farmer, or anybody else, precisely what is meant by "working by irradiation," and precisely how this method safeguards the processes of making three-colour negatives from inaccuracy. All we can discover on the subject is the paper by Messrs. Farmer and Symons in "The Photographic Journal" of August in last year, and we must confess that in the description there given of the process for the making of screen negatives for half-tone work, we cannot discern the possibilities which appear to impress Mr. Farmer so deeply in their application to negative for tri-colour pigment printing. In half-tone work, at any rate, we have yet to be convinced that "irradiation" will do more than the well-known system of the "optical V," or is more amenable to obtaining a predetermined result.

THE ASPECT OF THE RECEPTION-ROOM.

PHOTOGRAPHY as a profession depends for success on many different factors, ranging between the two essentials of good work under the skylight, and good business management throughout. Of these—heretical though it may seem to say it—the second essential appears to be the more vital one, for while many men capable of doing high-class work have come to grief over business mismanagement, there are more than a few men who have achieved undoubted success in spite of the fact that they turn out an inferior grade of work. We do not advance this condition of things in any advocacy of a low standard of work, but rather in order to emphasise the vital necessity of a good business organisation. To those who have not experienced the benefits of a thorough business training, and many photographers unfortunately come in this category, there is something formidable in the very words "system" or "business." Such men fail to grasp the simple fact that a business system is adopted merely for the simplifying and checking of work, and not in order to

add to its difficulties. In no department of the studio is this business capacity more essential than in the reception-room, for it is here that customers receive their first impressions, and where they decide the extent and value of their orders. The photographer himself may see to the ordering of supplies, and keep a careful check against any "leakage" in plates or chemicals, but the every-day work of the reception-room must be deputed; and the man is fortunate who can place it in good hands. An interesting object lesson has recently come under our notice in the studio of a friend who used to patronise our advertising columns with an offer of a permanency to a reception-room lady who could undertake spotting and retouching. He had a constant succession of ladies, with none of whom he could agree; either they were hopelessly incompetent (his statement) or they wanted too much money, or—well there was always some reason for a break, and the advertisement was sure to reappear. Twelve months ago he grasped the fact that he was not likely to get what he wanted unless he paid fair wages; of course, he might easily have paid a good price and yet not have met with the right girl, but as luck would have it he got exactly what he required at the first attempt. She began by managing her reception-room, and gradually and quietly extended her influence until it was felt in the furthest corner of the dark room, and among the printing frames; for one of her first lessons was promptness. She saw that people were often anxious to see their proofs as soon as possible, and she promised them for some early and specific date. Some photographers like to promise for "next week," but she usually sent out rough proofs on the second day, and always did so if they were promised. Her desk was a model of neatness, and everything except the matter in hand was put away. If the books were in use they, and nothing else, were on the desk, and they always were put away before the spotting materials came from their drawer. These important matters are in a measure minor matters; the real test is the amount of cash which accrues from orders. Many of the customers who come to the studio have a fairly clear idea of what they want, but some of them come without having arrived at a decision, and in all of them there are chances of larger or smaller orders according to the manner they are dealt with. A tactful receptionist does not discriminate unpleasantly between the working woman and the woman of wealth, but is equally considerate and attentive to all. The poor person who wants six cartes, silver-prints, ought, if she cannot afford more, or more expensive prints, to go away feeling that her choice is the best one that she could possibly have made, and not with a feeling that the work which is beyond her purse is better. Even where people can afford the higher priced work it is sometimes good policy to first show them the cheaper work, and from it work up to the platinotype or carbon. Many people who cannot afford the more expensive processes may be persuaded to pay an extra price for fancy mounts, which are usually good value, and have the advantage of giving good appearance for their cost. It is easy for people to drift into a studio and decide that they like the work and will call again to arrange a sitting, but such callers have a knack of forgetting; and so the smart receptionist always endeavours to book an order and arrange for a sitting at the time. Wherever it is possible—and always in the case of a stranger—she secures the cash with the order. A vexed question is the one of resittings, for some photographers hold somewhat strong views on it. Some customers are unreasonable, but there are many reasonable people who honestly think that the proofs submitted to them are unsatisfactory. It is often both pleasanter and better business to please the customer

with a resitting rather than to alienate support by standing up for rights too rigidly. We have based these remarks on a specific reception-room, and they should be read as suggestive rather than absolute, but enough has been said to emphasise the importance of a too often neglected side of business. In a future article we will

probably return to the business aspect of photography more particularly the question of needless waste; for the present we have achieved our purpose if we have clearly pointed out that business may be either helped or hindered in the reception-room, before ever the sitter gets under the skylight.

A METHOD OF COMBINING SEVERAL FIGURES IN ONE NEGATIVE.

PROFESSIONAL photographers are asked to do some strange things at times, and one of them is to take a head or figure from one negative and put it in another. It is not so impossible as it may seem at first. But a great deal depends on whether the figures are the same size and lighting. Sometimes when several plates are exposed on a family group, in each negative there is sure to be one figure, or face, not so good as in one of the other negatives, and the client will say, "Now if you could only take the head of that child and put it into the other photograph, it would be so much better." Or perhaps it is desired to introduce the photograph of a member of the family who is on the other side of the world, into a group, and a print is supplied. Even this can be done, but it is a little more complicated. Or, perhaps in a wedding group one important figure may have moved, and must be replaced, perhaps from another negative, or perhaps a special negative has to be made. If so, great care must be taken to get the size and lighting to correspond with the other figures in the group.

The Old "Cut Out Print" Method.

The old method of introducing another figure was by combination printing, but few printers would be found nowadays who could do this work, and as bromide and carbon printing is practised so largely, in which there is no visible image, combination printing would be impossible without some elaborate method of registration. Enlargements may also have to be made from such groups, and for such things a single negative containing all the figures would be necessary. The simplest method would be to make silver prints from the negatives and mount the large group and then paste the head, or figure, to be added in it, place on the large print, and then cover the whole. Such a method is best when a large number of figures (as a composite group) has to be dealt with, and it is often used in some of the so-called "comic papers"; but, for the average portrait photograph it is not so suitable. The resulting negative produces prints that are seen at once to be copies of a composite print, while the method I am about to describe, if neatly carried out, gives prints which show no signs of any manipulation, and may be enlarged or printed in any process.

A Negative Method via Stripping.

It is, briefly, removing the head, or figure, from one negative and putting in the other. The first thing to be done is to make a good transparency from each negative to be manipulated lest anything should go wrong; then all varnish and retouching medium must be carefully removed from both negatives, and it may be advisable to toughen the film with alum—chrome alum is more effective than the common potash alum. We will call the negative to which the figure is to be added No. 1, and the negative from which the figure is to be taken No. 2, and we will suppose that the head of a child has to be changed. We take No. 1, and, with a sharp knife, cut a line round the head and neck, taking advantage of the lines at the top of the dress to conceal the joins; the film *within* the line must then be scraped away till the glass is quite clear: then a little pure thin gum is taken on a small brush and painted over the patch of clean glass, and the negative is put aside for a few minutes to dry. Now place it in a retouching desk and lay

negative No. 2 over it, so that the clear patch of No. 1 is exactly under the part of No. 2 that is to be transferred. Next cut a clean line with the sharp knife through the film of No. 2 to exactly fit the bare patch of No. 1, and scrape away the film *outside* the cut, to isolate the piece to be removed. Then mix some methylated spirit, three parts, with water, one part, and into an ebonite or guttapercha cup put a few drops, say, three or four, of hydrofluoric acid, and pour into it about half an ounce of the mixture of spirit and water. Lay negative No. 2 on a fairly flat surface, and with three small slips of wood, tapered to wedges, level the negative, and pour some of the dilute acid upon the part to be stripped.

Points in Manipulation.

In a few minutes the edges of the film may be tried with a thin slip of wood—a match shaved thin at one end will do very well. If the edges are free from the glass the film may be folded over towards the centre and laid flat again all round to ascertain whether the piece of film is quite free. If quite loose, some of the spirit should be poured over to moisten it and to wash away the acid, and a piece of thin white paper, such as foreign notepaper, is laid on the film and gently pressed upon it, and then carefully raised, when the piece of film should adhere to the paper. If it does not, the paper should be again gently pressed down and lifted at the edge again until the edge of the film can be seen. Now, a little touch of the thin slip of wood will raise a bit of the film from the glass and make it stick to the paper, which should be raised very slowly bringing the film with it. The paper with film attached is now laid down on negative No. 1, so that that piece of film fills the gap prepared for it. The top of the paper is moistened with the spirit and water and carefully raised so that the piece of film is left sticking in its place on the negative. It may need a little coaxing with the slip of wood to do this. In ten minutes the composite negative is ready for the joins to be touched up, where necessary, with scraper and spotting brush. It is important that the two negatives should be equal in printing density, but slight differences can be adjusted with matt varnish, etc.

In handling hydrofluoric acid, even when diluted, it should on no account be allowed to touch the skin, especially the tips of the fingers, because, though no pain or discomfort may be felt at the time, in a few hours the finger nails are attacked by a most horrible aching, which lasts for hours, and which nothing seems to relieve, and bad ulcers may form under the nails. The strong acid will produce very bad sores.

On one occasion I had to take a group of four generations, but the eldest member was in Australia, and only a silver print was available. I therefore arranged the other three so that a space was left for the fourth, and I then copied the print to the necessary size, and introduced the figure by the method described; but, unfortunately, the composite negative was accidentally cracked. I then stripped the whole from the glass and laid it down on a fresh one, but, unfortunately, the film refused to dry flat, and wrinkled all over in the most horrible manner. It was again stripped, and again would not go flat, so I prepared a large glass and soaked the film off in

water and floated it on to the new glass. Fortunately the gap in the film expanded to the same extent as the piece to fill it, which was coaxed into its place by the aid of small brushes, and a successful result at last attained after so many accidents. This method, of course, needs great care and exactness in

fitting the parts, and it would be a good plan to gain a little experience on waste negatives. I have seen a panoramic view made in this way, from two 15 by 12 negatives, so successfully that the joins could not be detected in the print.

HAROLD BAKER.

THE EXPOSURE IN ENLARGING.

The practical enlarger is well aware that there is scarcely any other branch of photographic work in which correct exposure is of so great importance. There is very little power of modification during development, but upon the correctness or otherwise of the interval between removing and replacing the orange cap depends the final character of the enlargement—whether it is to be flat, grey, and washed out; hard and chalky, with excessive and glaring contrasts; or, what the enlarger fervently desires, but does not invariably obtain, a vigorous and effective picture, with velvety blacks, pure whites and soft, full gradation.

Daylight Enlarging.

Enlarging by daylight has been much maligned, on the score that the continual changing of the light gives rise to great inconvenience and difficulty in estimating the exposure. The writer can at least claim to have experienced this objection at its very worst, having for a long time been obliged to use for the purpose a window where the sun shines during the greater part of the day, so that every passing cloud and temporary emergence or disappearance of the solar luminary gives rise to the most startling variations in the light. And yet, by the uniform use of an actinometer, no real trouble has been experienced in securing satisfactory results, while one marked advantage has been found, namely, the great rapidity of exposure and the ease with which even the densest negatives can be worked. The plan usually recommended, of having an inclined white reflector outside the window, was in this case, of course, impracticable. Instead, a sheet of white tissue paper, free from creases, was attached by the edges to the aperture in the window shutter, by which means a well-diffused and even light was readily obtained. The paper must be several inches away from the negative, so that no grain or fibre is focussed. Wherever the light is sufficiently strong, this, or a sheet of fine ground glass, may be strongly recommended as a great improvement on the inclined reflector, which is awkward to keep clean, and frequently gives uneven lighting.

Factors Affecting Exposure.

As a little consideration will show, there are six factors by which the exposure is regulated—the amount of light available, the character of the negative, the aperture of the lens, the size of the enlargement, the rapidity of the paper, and the constitution of the developer. By keeping the last two constant they may be eliminated as disturbing factors, although it is very easy to ascertain the relative rapidities of various makes of paper and the different peculiarities of developers, so as to allow for a change in these whenever necessary. The aperture of the lens, too, may be kept uniform as far as possible, excepting when a very thin or very dense negative seems to call for a lesser or greater amount of stopping-down, since this is practically the only means of regulating the light in daylight enlarging, unless, indeed, extra thicknesses of tissue paper are interposed between the negative and the window aperture—a plan which cannot be advised.

Testing the Light.

The great point in daylight enlarging is to be constantly testing the light, doing this also while making the actual exposure. For this purpose an actinometer is required; the watch form, with a couple of small standard tints placed against an opening in the dial, under which fresh paper can be drawn as

desired, being the most suitable. The best method of using this is to have an extra aperture in the shutter, provided with a hinged lid or sliding door. Over this is fixed a projecting bracket about a foot long, with a hook or wire arranged so that the actinometer may hang level with the aperture. The latter must be screened or curtained to prevent any light reaching the enlarging bench or easel, but in such a manner that the actinometer can be readily watched by the worker from within the room. To use this arrangement, a fresh piece of paper is brought under the opening of the actinometer, and, the sliding door of the small aperture being drawn up, the time taken by the paper to match the full tint is carefully noted. We will suppose this to be 20 sec. At or about the same time, a test strip of bromide paper is being exposed for the enlargement, and the section which gives the best result on development is, let us say, that which has received an exposure of 30 sec. When we come to exposing the actual enlargement the light has perhaps changed, but by making a fresh actinometer test, simultaneously with starting the exposure for the enlargement, no difficulty will be found in allowing for this. The actinometer this time, for instance, takes 40 sec. to reach the full tint; a simple proportion sum, therefore, gives us

$$20 : 40 :: 30 : 60 = 1 \text{ min.}$$

as the correct exposure now necessary. It is much more convenient if the enlarging objective is fitted with a pneumatic shutter and bulb, since the bulb can then be held in the hand while watching the actinometer, and the exposure given simultaneously, or instantly after. When the light is dull, the quarter-tint may be used instead of the full tint, making the necessary allowance in calculating.

Character of the Negative.

The practical worker will habitually remove many otherwise unavoidable complications from his path by classifying all his negatives, according to their destiny and other characteristics. This is readily done by testing the printing time of each with one of the simple print meters now obtainable. The information so gained should be written on the margin of the negative, or on an envelope. When enlarging, directly the correct exposure has been noted for a given negative, a reference to the "print meter number" of any other negative will at once give the exposure required for it, under the same conditions of light, tested by the actinometer as previously described. Another useful method of ascertaining the character of the negative is to make a contact print on bromide paper, preferably of the same make and rapidity as that on which the enlargement will be made. This should be done by some standard artificial light. The exposure necessary to secure a satisfactory print is carefully noted, and affords at once, by comparison with that required by other negatives, an indication of the time which must be given in making the enlargement, the calculation being arrived at as before stated. The exposure for the contact print may be conveniently called the "bromide print factor."

Size of Enlargement.

There is a very common fallacy regarding the ratio in which the exposure must be varied for different sizes of enlargement. Many workers fancy that an enlargement four times the size of the original—i.e., twice its linear dimensions—will require four times the exposure needed for a copy

of only the same size, on the theory that the light is spread over four times the area, and is consequently only one-quarter as strong. This method of reasoning, however, takes no account of the fact that the value of the lens aperture alters according to the camera extension and the distance of the easel from the objective, and is necessarily quite inaccurate. The rule for finding the relative exposures for different sizes of enlargement is as follows:—Add 1 to the number of times of enlargement (linear), and square the product. Thus, for a copy the same size as the original the figures would be $(1 + 1)^2 = 2^2 = 4$; while for an enlargement of twice the linear dimensions of the original—for example, quarter-plate to whole plate—the calculation is $(2 + 1)^2 = 3^2 = 9$. The relative exposure, therefore, for the two-times enlargement is as $9:4=2\frac{1}{4}$; that is to say, $2\frac{1}{4}$ times the exposure required for a copy the same size will be necessary. (A useful table based on this formula will be found in "The British Journal Photographic Almanac.")

Influence of Developer on Exposure.

The exposure required for an enlargement will vary with different developers; that requisite with ferrous-oxalate, for example, being considerably more than with amidol or metol and hydroquinone. It is therefore indispensable in adopting any scientific system of exposure calculation, to adhere to the same description and composition of developer, only diverging from this under exceptional circumstances and for special reasons. It will, however, be distinctly useful to make a few experiments with various developers, keeping the negatives and other conditions the same, in order to ascertain the different exposures necessary, and the ratio which these bear to each other.

Enlarging with Artificial Light.

A very large proportion of trade enlarging is done by artificial light, which is preferred on account of its greater constancy. The factors affecting exposure are here somewhat different. In the first place, great care must be taken to keep the

illuminant, whatever it may be, as far as possible at a fixed brilliancy—and this is by no means so easy as might be thought. With the arc light, it is a question of properly regulating the carbons; with incandescent gas, of replacing worn-out or broken mantles, and trying to secure a regular pressure; with paraffin of turning the wicks to a given height and seeing that they are periodically trimmed and cleaned. The Nernst-Paul electric lamp, the mercury vapour light, acetylene, spirit, limelight, and other forms of artificial illumination have all their special characteristics, which must be thoroughly studied and understood, in order to avoid any difficulties in exposure calculations, which would inevitably arise through any great variations in the strength or actinic quality of the light. It is worth while mentioning that the exposure with an incandescent gas mantle will differ good deal according to the blueness or yellowness of the light given by the latter—a matter which should be seen to in chasing. It must be borne in mind that if a condenser is used the diaphragm will no longer have the same effect in reducing the illumination, as in daylight enlarging, but may or may not cut off part of the image, according to the position of the point where the converging rays from the condenser cross and spread out again.

Testing Artificial Light.

In conclusion, it may be remarked that the actinic strength of any artificial light may be tested, without removing it from the lantern, by opening the door and making a contact print in bromide from a standard negative, which must be kept for the purpose, at a given distance from the light; keeping the paper and developer constant. The print is exposed in sections and the time of exposure for the best-exposed portion noted. By doing this every time the lantern is lighted up, using the same negative, distance, etc., the information obtained from the resulting sectional print, compared with that first made, will show if the light is above or below the standard, and a suitable allowance may be made accordingly.

A. LOCKETT.

THE WEEK IN HISTORY.

Talbot's Photographic Engraving.

It is exactly fifty-three years ago that Fox-Talbot applied for the patent (No. 565) in his process of photo-engraving. His specification is of historical importance because, as I pointed out a week or two ago, it is apparently the first published statement of the behaviour of gelatine when exposed to light with bichromate. Talbot's patent claim is for the above as a new process, although he does not appear to have discerned the importance of the reaction in other directions. His photo-engraving process was practically the modern photogravure. He coated a steel plate with gelatine and potassium bichromate, exposed it under a positive, and after development and drying etched the plate with bichloride of potassium. An important part of his process was the breaking up of the image into a grain with a piece of crape or gauze, exposing the plate behind this latter before or after the usual printing from the object. He also mentions the laying on the plate of an aquatint ground with resin powder.

The Last Phase in Carbon Printing.

I have already chronicled in these notes the two important steps in the carbon process following the early work of Poitevin, and one or two others, the first phase was inaugurated by Sir Joseph Swan, whose patented process of 1862 ("The Week in History," February 24, page 146) provided for the development of the tissue from the back by transferring the print to paper coated with indiarubber, the collodionised surface of the tissue itself having been likewise rubber-coated.

Phase 2.—In 1869 Mr. J. R. Johnson ("The Week in History," February 3, page 86) found that the cementing with rubber was unnecessary. If the wetted tissue were laid on a glass or paper support, it sticks of itself and permits the soluble part to be removed by development in hot water. But the picture was thus inevitably reversed, and hence Phase 3, which commenced exactly thirty-one years ago on Sunday next, when Mr. J. R. Sawyer patented his "temporary support" to which the print was transferred for development, and from which it was afterwards transferred, unreversed, to its final support of glass, paper, etc.

The essential feature of Mr. Sawyer's temporary support was the combination of insoluble gelatine with lac and similar substances to form a bed on which the detail of the picture was held whilst in a moist condition and during development.

Mr. Sawyer's method of preparing the flexible support, as described in his specification, is as follows:—A solution of French gelatine is made, 5 per cent. or less for matt, 10 per cent. or more for a highly glazed surface. To this solution chrome alum is added as largely as possible, short of the gelatine becoming ropy, and the mixture coated on to paper by floating or from a machine. After drying and, preferably, hydraulic pressing, the gelatinised paper is coated with a solution of lac (the best button lac) in soda carbonate solution and again dried. It is lastly rubbed over with a preparation to make its surface repellent of water—viz., a solution of resin and white wax in turpentine.

HISTORICUS.

A NOTE ON ORTHOCHROMATIC PLATES FOR ASTRONOMICAL WORK.*

The usual spectrographic tests made for the purpose of determining the sensitiveness of "orthochromatic" plates are in general very much in error, owing to the means adopted for obtaining the negatives. The prismatic spectrum is altogether unsuited as a "standard"; first, because of the selective absorption in the ultra-violet (and even in the visible violet) when prisms of dense flint, or direct vision spectroscopes, are used; while, second, the irrationality of the particular prism employed must be determined before any correct comparative estimate of the spectrograms can be made.

In the use of reflection gratings there is likewise an element of uncertainty on account of the selective absorption—no two gratings

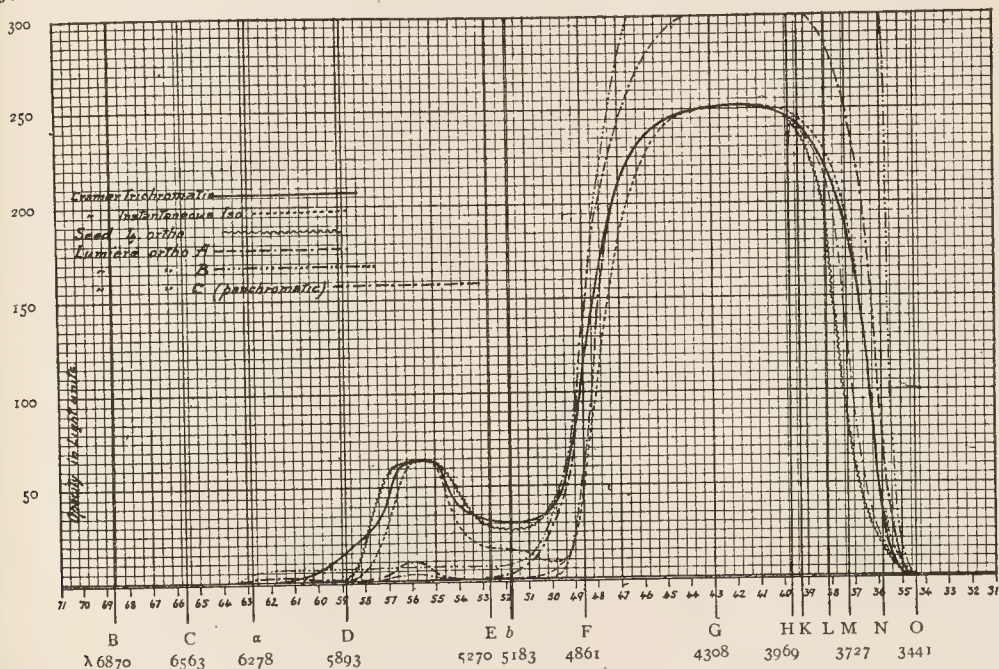
for which the plate has been specially sensitised. Consequently, there exists a considerable discrepancy in the curve of sensitiveness (even of the same plate) by different observers, no due allowance having been made for the increase in density towards the red, and decrease in the violet, consequent upon the prismatic irrationality already mentioned. It is, therefore, obvious that if the opacity of the red or yellow region be increased, while that in the violet be weakened, then due consideration must be given to this effect.

In the "sensitiveness-curves" appended to this paper, use was made of a transparent replica grating and the spectrum of the first order utilised. By means of a plate-holder furnished with rack and

Light-Units

1575

1024



giving spectra directly comparable with one another in so far as luminosity is concerned—and it is this point which chiefly concerns the photographic plate.

Prism and Grating Spectrum Tests.

The conditions governing a "standard" dispersion-piece are easily met by the adoption of a transparent diffraction grating manufactured as described by the writer [Mr. Wallace sends us this paper, which we shall shortly reprint.—Eds., B.J.P.], which is obviously free from abnormality due to differences in the material of which it is formed, or to the process employed in its preparation.

Estimates based upon the negatives of the prismatic spectrum are very misleading on account of the crowding together of the colours in the red end and the elongation in the violet, thereby giving an apparently greater proportionate action in the least refrangible hues,

pinion consecutive exposures were made upon various plates with duration as follows:—2, 5, 15, 30 seconds, 1, 2, 4, 8, and 16 minutes.

In some cases a supplementary exposure of 25 to 30 minutes was given in order that the action of prolonged exposure might also be noted. A reproduction of one such plate is shown herewith.

The Method of Plotting the Results.

In plotting the sensitiveness-curve a print was first made on Solio paper from one of the plates and that exposure selected which represented the highest allowable printing opacity—that is to say, that spectrum which was so opaque in the region of greatest sensitiveness that it was only with difficulty that the Fraunhofer lines would show on the print. This opacity was found to be represented by a light action of 256 units on a negative obtained from exposure behind a revolving Hurter and Driffield sector-disc, on the same plate, developed for the same length of time. On every other plate, therefore, that spectrum was selected for estimation whose greatest region of

* This paper from the "Astro-Physical Journal" reaches us, as a reprint, from the author, who holds the position of photo-physicist in the Yerkes Observatory.—Eds. B.J.P.

opacity corresponded to 256 light units on a similar plate exposed by disk. The curve was then plotted on squared paper, where the ordinates represent amount of light action (in units), and the abscissæ, wave-lengths; the variations in opacity throughout the length of the spectrum being estimated by small patches isolated by an opaque screen and in juxtaposition with the various opacities of the sector negative, the aperture ratio of which is accurately known.

Comparative Values of "Selective Sensitiveness."

It will be noted that two of the curves rise above the limit of the squared field. This was rendered necessary owing to the very slight action in the red end of the spectrum as compared with normal exposure in the blue-violet. The heights of the blue-violet curves in these cases were estimated simply by the ratio between that spectrum whose exposure time equalled normal exposure (= 256 light units) and the time of the one selected for plotting, the opacity being much too intense for measurement.

It should be understood that these curves are representative only of

"selective sensitiveness," no consideration whatever being given to the relative speeds. Tests were made from the standpoint of the "Schwelenwerth" as being best suited to astronomical needs, where the principal point is to obtain developable action with the smallest light value. These tests for the plates plotted may be tabulated in the following results:—

Cramer "Instantaneous Isochromatic" ..	= 1
Seed "Landscape Orthochromatic"	= 3 per cent. less.
Lumière "Ortho A" }	= 7 per cent. less.
Lumière "Ortho C" }	
Lumière "Ortho B"	= 14 per cent. less.
Cramer "Trichromatic"	= 40 per cent. less.

Acknowledgments are due to Mr. H. B. Lemon for able assistance in this work, and also to Messrs. Lumière, Cramer, and Seed, who kindly furnished the necessary plates.

ROBERT JAMES WALLACE, F.R.A.P.

THE ABSORPTION SPECTRUM AND FLUORESCENCE OF MERCURY VAPOUR.

[A Paper communicated to the Royal Society, and printed in the "Chemical News."]

HAVING undertaken the investigation of the absorption spectra of metals in a state of vapour, the first substance examined was mercury, and as the results are interesting I have deemed it advisable to make them a separate communication to the Society. F. P. le Roux describes the vapour of mercury as having a bluish colour ("Comptes Rendus," 1860, vol. li., p. 171), and, according to R. J. Strutt, it transmits a feeble steel-blue colour, but the absorption coefficient is small ("Phil. Mag.," 1902, [6], vol. iv., p. 596; and 1903, vol. vi., p. 76).

Experimental.

The substance to be volatilised was contained in a flask of Heraeus' quartz-glass, with a side tube to the neck from which the metal may be distilled and condensed. To the side tube a water-jacket is fitted, through which a constant stream of water may be passed if necessary. The rays from the condensed spark of a pair of lead-cadmium and tin-cadmium electrodes were passed through the flask and on to a cylindrical condensing lens of quartz which focussed the rays on to the slit of a quartz spectrograph.

The mercury to be used was first purified by distillation. The photographic plates used were various, such as "Rainbow Fast" Warwick plates, Lumière isochromatic yellow-green sensitive, and Cadett and Neall's "Lightning Spectrum" plates. The mercury vapour in the flask was at a pressure of 847 m.m., the barometer standing at 763 m.m., but the vapour was under a pressure of a column of 84 m.m. of mercury above that of the atmosphere. The temperature was about 360 deg. C., the boiling-point at 760 m.m. being 357 deg. The volume of the vapour was 31 c.c., and its weight was calculated to be 0.133 grm. The thickness of the layer of vapour was 37 m.m.

Several photographs were taken and particular care was exercised so as to have both ends of the spectrum as well as the central part in accurate focus. The developer used was imogen sulphite.

The Absorption Spectrum.

The whole rays were transmitted from the red to a point in the ultra-violet where there is a tin-line at λ 2571.67. From there to λ 2526.8 there is a very sharply defined and intense absorption band, somewhat degraded on the side towards the red; beyond that the rays are transmitted with full intensity to a wave-length about 2000.

The Fluorescence.

When the mercury was boiling briskly the whole side of the flask nearest to the spark was lighted up with a green fluorescence; this penetrated about one-third of the space within the flask, and lighted up the interior. The quartz-glass itself was not fluorescent in the slightest degree.

When all the liquid mercury had become converted into vapour, the temperature no doubt rose above that of the boiling mercury, the vapour was quiescent, and the fluorescence ceased. The interior of the flask was then quite dark. By shaking some of the condensed cold mercury down into the flask, the fluorescence was resumed directly the liquid boiled again, but the dropping of cold mercury into the heated vapour caused condensation, and only after the flask had again become filled with the mercury vapour was the fluorescence fully displayed.

When the vapour was rising from the boiling globule of mercury after the cold metal had condensed all within the flask, the vapour could be seen by its fluorescence to undergo condensation in the upper part of the vessel and descend to the hotter space below.

It occurred to me that the actual fluorescence might be associated with oxidation of the vapour, and that it appeared only when such chemical action was taking place, but subsequent observations showed that this could not be the case, because the temperature was above that when oxidation could occur at the time when the fluorescence was most brilliant, and when it most completely filled the vessel, and also when the mercury vapour had expelled all the air. When the temperature rose above the boiling-point of mercury and excess of liquid mercury and vapour had been expelled from the flask, the fluorescence ceased.

This fact leads to the inference that the fluorescence occurs only between a lower and a higher limit of temperature. What these small differences really are I had no means of determining. Having established the fact that the property of selective absorption is possessed by small quantities of mercury vapour, it was resolved to ascertain whether the band showed itself in solutions of mercury compounds. As a rule the absorption spectra of compounds differ from those of the elements entering into their composition entirely, as in the case of the halogen compounds of the alkali metals; sometimes it is a question of degree, as in the case of the compounds

of the rare earth metals, in which similar bands are observed in different salts of the same metal, but in different positions, which vary with the molecular weight of the salts; and there are, still further, other instances where the absorption bands of the solutions are distinctly the properties of the salts, as in the case of the chlorides, bromides, and iodides of cobalt. The salt chosen for examination, because it is the most definite and most soluble, was mercuric chloride. It was examined in cells of 40 m.m. thick, diminishing to 1 m.m. in thickness. The solution contained in the same volume ten times as much mercury as the vapour which filled the flask, or 1.8 grms. of mercuric chloride in 31 c.c. of water; more dilute solutions were examined containing 0.18 grm. and 0.018 grm. No absorption band was visible on any of the spectra photographed, but there was a continuous absorption at the more refrangible end of the spectrum which regularly diminished as the quantity of mercuric chloride in the solution decreased.

Further details are as follows:—

1.8 grms. of mercuric chloride in a cell 40 m.m. thick transmitted all rays to λ 2702, in 1 m.m. to λ 2572; 0.18 grm. in a cell 2 m.m.

thick, transmitted all rays to λ 2265; and 0.018 grm. in similar circumstances transmitted very feebly to λ 2145.

The absorption band in the vapour of mercury belongs to the vapour and is accompanied by strong fluorescence between a certain maximum and minimum of temperature lying very near to the boiling-point.

In studying the fluorescence of solutions of organic compounds I have shown that it is necessary to use the ultra-violet rays and quartz apparatus, as it was found that fluorescence was associated very generally with a powerful absorption of rays in the ultra-violet ("Observations on the Origin of Colour and Fluorescence," "Chem. Soc. Trans.," 1893, vol. lxxiii., p. 245-256). It is a question still undecided whether the rays absorbed by mercury vapour as shown by the band I have measured reappear with a lowered refrangibility as yellowish-green light in accordance with the law of Stokes.

The spectra were photographed with all due care by my assistant, Mr. Douglas Mellon, A.R.C.Sc.I.

W. N. HARTLEY, D.Sc., F.R.S.

A CRITICISM OF THREE-COLOUR PHOTOGRAPHY.

[The following introductory lectures, by Mr. Howard Farmer, on the opening of the twenty-third session of the Polytechnic School of Photography on Tuesday in last week was delivered under the title, "Dots, or Coming Events Cast their Shadows Before." In substituting the description at the head of this page, we have kept still close to the lecturer's intention, which is an indictment of three-colour photographic processes, so far as they are intended for commercial use by professional photographers.—EDS., B.J.P.]

The object of my opening lecture this evening is to put before you certain truths in connection with the problem of photography in natural colours, and in speaking to an audience nearly the whole of whom are professional workers, let me say that the aspects of the subject to which I shall refer are exclusively those from the professional side. Colour photography has been theoretically possible for nearly half a century, and a great deal has also been accomplished from the practical side; but, speaking in the professional sense, which requires the production, with certainty and success, of so many copies of any subject brought to the studio, though many explorers are engaged in the search, they are still in darkness, and success, like a will-o'-the-wisp, continually evades them.

The Simplicity of Reproduction of Movement.

You have just seen, by means of animated pictures, various scenes and incidents as they appear in motion. You know as well as I do that these pictures are ordinary photographs, and that the means by which they become endowed with apparent life consists in taking a number of separate photographs, with very short intervals of time between each, and then projecting them, with similar intervals of time, one over the other and one after the other, upon the screen. Now the actual motions these photographs so admirably reproduce are infinite in their complexity—up and down, to and fro, in and out, round and round—with endless variations of speed and direction the objects move. You look with wonder at these moving and apparently sentient beings, but is not the simplicity of the means which enables them to be reproduced equally wonderful?

Let us examine for a moment the fundamentals on which the success of these reproductions are based. They are two in number:

Firstly, owing to what is called persistence of vision, it is not necessary for us to see every phase of a given motion. If we present to the eye sufficiently close steps or stages of the movement we do not recognise the gaps which are missing, and the motion appears continuous and complete.

Secondly, there is "the accuracy of the photographic image." By suitable mechanism, easy of operation, we can swiftly impress with accurately-timed sequence our thousands of images, in which

all the motionless objects are in absolutely identical drawing, and register with one another; and only the moving objects change, exactly as we see them in nature. I will ask you to fix in your memories for a short period these two things—(1) that the reproductions are possible by comparatively simple means; (2) that an essential element of success is the absolute fidelity, geometrically speaking, of the photographic image.

The Simplicity of Reproduction of Solidity.

Let us take another example. Here is a stereoscope, in which we have the presentation to the eye of solidity and relief—wonderful when first seen. Still more wonderful to me is the simplicity of the means employed. Imagine, if you can, the complexity of the form of a tree, with its leaves—of a cathedral interior with its carvings and mouldings—or of a crowd of people, and how are they reproduced? Simply by taking two photographs, from slightly different positions, and mounting them, so that they are presented to the eye as one picture—an inconceivable thing before you know something of the mechanism of vision—simplicity itself in practice. As in animated photography, there are two fundamentals upon which the success of the stereoscope depends: Firstly, upon binocular vision, which requires only two views, of the most intricate subject, to give it complete shape and solidity; secondly, the accuracy, geometrically speaking, of the photographic image. Again, may I ask you to remember for a short period these two things: (1) That a perfect rendering of relief is possible by means exceedingly simple in comparison with the original; (2) that an essential element of success is the absolute fidelity of the photographic image.

The Simplicity of Reproduction of Sound.

One lovely evening this summer I was sailing with friends up a beautiful river. There still exist on the South Coast one or two rivers practically in their original natural condition—no noise, no dirt, no houses, no traffic, no accessibility even except by water, beautiful forest trees on either bank, rushes, and wild birds. Such a river as this is the Beaulieu River in the New Forest. Imagine yourselves gliding along through such a fairyland of peacefulness, with nothing in sight but trees, water, and sky, and suddenly the

air is suffused with music, from a hundred instruments and with absolute loneliness yet surrounding us, there is the strain of music from the most gifted performers in the kingdom: Nature in her wild state, yet music which we inseparably associate with the highest centres of organisation and culture. Not all the wonders of the fairy tales which you read, in the "Arabian Nights," of your childhood surpass the magic of the effect, and the source of the music, as you already will have guessed, was a phonograph. Wretched thing, musicians will say, but if heard under the conditions I have stated they would also have been enchanted. When first heard we were fully a mile from the instrument, the sound being carried by the water, and we discovered it later on the deck of a large yacht, anchored several windings further up the river. But what has this to do with the subject of this lecture? It is another example showing that the means by which your senses convey to us infinite complexity and variableness may be extremely simple. The phonograph which had been used to record the music of the orchestra had simply cut a groove on a wax cylinder, the depth of which was proportional to the force of impact of the total of the sound waves from all the instruments at any moment. Can you conceive anything more complex than the mass of sound vibration from 100 instruments, with perhaps human voices added, and yet the little wax cylinder, quietly revolving on its spiral thread, allows without resistance the pointer of the vibrating diaphragm to cut a groove, the sinuosities of whose depth record the music? Nothing but a simple line forms a marvellously accurate record, and on reversing the action, by causing the waxed cylinder to itself excite the drum, the music is reproduced. I do not think it would be possible to find a better example illustrating by what simple means the effect of these complex actions can be recorded and reproduced for the gratification of our senses.

The efficiency of the phonograph depends also, like the cinematograph and stereoscope, upon two fundamentals: Firstly, upon the simplicity of the mechanism of the ear; secondly, upon the accuracy of the waxen record. The wax cylinder, soft and inelastic, allows the cutter to perfectly record the vibrations of the drum. The same sound, and position of instrument, *always* the same identical cut; just as with the camera, the *same* object, and position of camera, *always* the same identical image.

E. HOWARD FARMER.

[The conclusion of this paper will appear next week.—Eds. B.J.P.]

CATALOGUES AND TRADE NOTICES.

HARRINGTON'S CATALOGUE, the production of the well-known house of 386, George Street, Sydney, reaches our table as a bulky volume of 340 pages. Messrs. Harrington handle the current apparatus and materials, and their list evidences the inclusiveness of their stocks.

THE RUSSO-JAPANESE WAR.—Messrs. Sanders and Crowhurst, 71, Shaftesbury Avenue, London, W., announce the publication of lantern slides from the unique series of negatives made by Mr. J. Ricalton, for Underwood and Underwood. The set includes 200 subjects, obtainable as plain slides, at 2s. 6d. each.

The Service Photographic Society have extended their premises to include a show room directly on Holborn, immediately adjoining their present show rooms. Their new number is 293, High Holborn. In this show room they will periodically arrange a show of photographic goods. They are now showing during the present week an assortment of seasonable novelties.

"*Fotographia per Dilettanti*," By G. Muffone. An elementary text-book of photography, published by the firm of Ulrico Hoepli, Milan.

Exhibitions.

GRANGEMOUTH.

An exhibition under the auspices of the Grangemouth Amateur Photographic Association was opened last week in the Y.M.C.A. Hall, Grangemouth. The awards were as follows:—Gold medal in championship class—A. W. Hill. In landscape and seascape section, silver medal—James Burns; bronze medal—P. D. Nairn and R. Robinson. In the portraiture and genre work, silver medal—A. W. Hill; bronze medal—Jas. Hamilton. Flowers, architecture, etc., section, silver medal—S. G. Kimber; bronze medal—James Dunlop. In lantern slide section, silver medal—Rev. H. W. Dick; bronze medal—Robert Marshall. The judges were James Patrick, Edinburgh, and Archd. Campbell, Broughty Ferry.

ROTHERHAM PHOTOGRAPHIC SOCIETY.

The sixteenth annual exhibition of the Rotherham Photographic Society was held on Wednesday, Thursday, Friday, and Saturday, October 18-21, and attracted an increased number of entries, and very liberal patronage. In the open classes there were 237 entries. Messrs. C. Barrow, Keene, F.R.P.S., and T. A. Scotton, of Derby, again acted as judges, and made the following awards:—Class A, champion class (any photograph previously medalled in open competition)—silver plaque, William Clayden, "Tugging Home." Class B, portraiture and figure studies—bronze plaque, Thomas Heaps, Keighley, "The Artist"; bronze plaque, William H. Foxall, Tunstall, "A Jovial Monk"; bronze plaque, A. E. Coleman, Plymouth, "Binding the Wheel." Class C, landscape, seascape, and river scenery—silver plaque, John S. Atherton, Todmorden, "June"; bronze plaque, A. W. Cooper, Preston, "Autumn Mist"; bronze plaque, Fred Judge, Hastings, "September." Class D, architecture—bronze plaque, Alfred Roffey, Birmingham, "The Chapter House Entrance"; bronze plaque, J. Dunlop, Motherwell, "Peacefully the Shadows Guard Their Tomb." Class E, flowers, fruit, still-life, or other subject not included in the foregoing classes—bronze plaque, S. G. Kimber, Southampton, "Grasses"; bronze plaque, D. W. Kyle, Glasgow, "Crysanthemums"; bronze plaque, E. Seymour, Watford, "Hops." Class F, lantern slides—silver plaque, Rev. H. W. Dick, Manchester; bronze plaque, F. G. Tryhorn, Wavertree; bronze plaque, W. H. Goy, Battersea Rise; bronze plaque, E. Seymour, Watford. Members' section:—Class G, landscape, seascape, and river scenery—bronze plaque, F. A. Jordan, Doncaster, "On the Don"; bronze plaque, J. C. Cox, Rotherham, "By the Side of the Stream"; bronze plaque, H. C. Hemmingway, Rotherham, "Loch Fad." Class H, architecture—bronze plaque, J. C. Cox, Rotherham, "Beverley Minster"; bronze plaque, W. Firth, Rotherham, "To the Cloisters, Kirkstall." Class J, miscellaneous subjects, not included in the foregoing classes—award withheld. Class K, lantern slides (sets of four)—award withheld. Class L, best board of exhibits—J. C. Cox, Rotherham (withheld); bronze plaque, S. A. Carr, Rotherham. President's silver plaque for best picture by a member (negatives taken during 1905)—Miss Tillotson, Rotherham.

ISLE OF WIGHT PHOTOGRAPHIC SOCIETY.

The third exhibition of the Isle of Wight Photographic Society was opened at the Medina Hall, Newport, on Tuesday of last week. In the absence of the president, Professor Milne, F.R.S., Mr. Michael Maybrick, J.P., of Ryde, presided. The awards in the open classes were as follows:—Open class, landscape, seascape, and

river scenery—gold medal, "A Dusty Day," Arthur Marshall; bronze medal, "Tugging Home," Wm. Claydon; hon. mention, "The Old Parish Church," Fred Judge. Class B, portraiture, figure studies, and animals—silver medal, Dudley Hoyt; bronze medal, Bernard Moore; hon. mention, J. Patrick. Class C, architecture—silver medal, W. A. Clark; bronze medal, Victor E. Morris; hon. mention, S. G. Kimber. Class D (still-life, flowers, and fruit)—silver medal, E. Seymour; bronze medal, R. Burnie; hon. mention, Frank W. Beken. Postcards—bronze medal, Rev. C. T. Clark; hon. mention, A. W. Cooper. Lantern slides—silver medal, H. Wormleighton; bronze medal, V. E. Morris; hon. mention, S. G. Kimber.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes.

The following applications for Patents were made between October 9 to 14:—

CATATYPE PRINTING.—No. 20,372. Improvements in the reproduction of pictures, with aid of catalysis. Neue Photographische Gesellschaft, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

DEVELOPING.—No. 20,502. An improved apparatus for storing and developing photographic plates. Silvius Jean Stefaneson, 79, Frithville Gardens, Shepherd's Bush, London.

FOCAL PLANE SHUTTERS.—No. 20,528. Improvements in focal plane shutters. Magnus Niell, 88, High Holborn, London.

PRINTING FRAMES.—No. 20,563. Improvements in photographic printing frames. Ernest Christopher Alderton, 137, Osbaldeston Road, Stoke Newington, London.

APPARATUS.—No. 20,570. Improvements in photographic apparatus. James William Anderson, 60, Queen Victoria Street, London.

CURVE DRAWING.—No. 20,579. Improvements in photographic curve drawing apparatus. Siemens and Halske, Akt-Ges., Birkbeck Bank Chambers, London.

SHUTTERS.—No. 20,588. Improvements in photographic shutters. A. G. Boulton, 111, Hatton Garden, London, for Gustav Fischer, Germany.

COLOUR PHOTOGRAPHY.—No. 20,662. Improvements in colour photography. John Hutchinson P. wrie, 1, Broad Street Buildings, Liverpool Street, London.

SHUTTER.—No. 20,745. Roller blind shutter, with variable exposure slit, in which one portion of the blind is mounted on the supporting tapes of the other portion of the blind. Carl Sasse, 73, Cheapside, London.

APPARATUS.—No. 20,787. Improvements in photographic apparatus. Thomas Cumming Hinchlough and Harry Charles Moore, 6, Lord Street, Liverpool.

SHUTTERS.—No. 20,800. Improvements in photographic shutters. The Thornton-Pickard Manufacturing Co., Ltd., George Arthur Pickard and Frank Stringer, 5, Bank Street, Manchester.

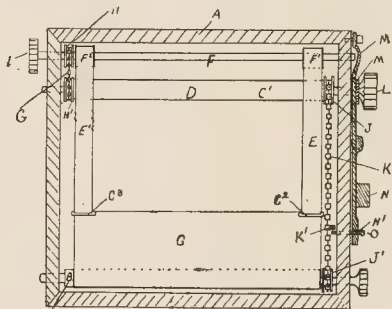
FOCAL PLANE SHUTTERS.—No. 20,835. Improvements in focal plane shutters. Thomas Samuel Meldrum, 51, Deansgate Arcade, Manchester.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

ROLLER BLIND SHUTTERS.—No. 22,134, 1904. The patent is for a system of controlling the width of slit and motion of the blind of the shutter by an endless chain moving over the ends of the blind rollers. The blind is mounted on rollers fitted into

the casing A. Its lower portion, C., is attached to a roller B., which contains a spiral driving spring, and the upper portion C¹. is attached to the roller D. The two parts of the blind are connected by tapes E. and E¹, each of which is secured at one end to the edge of the upper part of the blind C¹, and, after passing through loops, or eyes, C². or C³, provided in the edge of the portion C., is continued on to a third roller F., to which it is fastened at F¹. or F². The rollers D. and F. are made to revolve in unison by means of the chain G., which engages with teeth formed on edges of drums H. and H¹, attached to ends of the rollers. A suitable clutch is fitted between the drum H. and the roller F., and when this is put out of gear with the roller the latter may be revolved by means of the milled head I.,



without at the same time turning roller D. The revolving of the roller F. causes the tapes E. and E¹. to be wound round the roller, and as a consequence draws the lower part C. of the blind nearer to the part C¹. The intervening space between the two portions of the blind may, by winding the tapes on, or off, the roller F., be made as large or as small as desired, and so alter the duration of an exposure. The roller D. is furnished with a toothed wheel or drum J., and a similar wheel J¹. is fitted to the lower roller B., but in such a manner that it may revolve quite freely. An endless chain K., on which are formed stops as K¹, intended to be arrested by another part of the shutter mechanism when it is desired to check the motion of the blind. The shutter is set ready for an exposure by winding, by means of knob L., the blind C¹, and part of the tapes around the roller D. To make the exposure the lever N. is moved about its fulcrum, so as to disengage the pawl M¹. from the ratchet wheel M., and the blind is drawn down by the spring of the roller B., and as it becomes wound round this latter roller causes the opening between the two portions of the blind to pass across the shutter opening, and thus exposing the plate. William Frederick Giles, 15, Bulmers Road, Reading.

FOCAL-PLANE SHUTTER.—No. 22,318, 1904. The claims are for a construction of a focal-plane shutter occupying little space, and made for ready adjustment from the outside. Also for a camera of more compact form. The focal-plane blind or shutter is provided with a compound roller comprising two tubular end sections and a tubular intermediate section, all mounted upon a central longitudinally movable spring-controlled stem furnished with bosses or collars with which the adjacent ends of the tubular sections engage and with which they normally turn, one of the collars having arms with which a spring bolt on the body of the camera is adapted to engage for preventing the intermediate portion of the tubular sections from revolving while the end portions revolve. The mechanism requires reference to the drawings for its proper explanation. Benjamin Joseph Edwards, Wistowe, Hayes.

A DEVELOPING BOX.—No. 22,429, 1904. The claim is for a box provided with window, sleeves, etc., and with an aperture to receive a camera or lens. Development is to be done in the box, which may be made of two hinged compartments like a Gladstone bag. Jethro Marsh, 61, King Edward Road, South Hackney, London.

COATING PAPER, ETC.—No. 1,290, 1905. The claim is for a new medium or vehicle for sensitive silver and other preparations to be used in the place of gelatine for gaslight paper, printing-out, and self-toning papers, etc. A mucilage of bassora, tragacanth, marsh mallow root, linseed, seeds of the plantain or plantago psyllium, quince seeds, is combined with a solution of agar-agar. In this combination the setting or gelatinising properties of the agar-agar are combined with the special plastic qualities of the bassorine or bassorine-like mucilage, the resulting product being a medium, vehicle, or coating composition which is soft and plastic, yet sufficiently insoluble, when dry. James Harris Paul Gillard, 2, Beaufort Villas, Sandycroft Road, Kew Gardens, and Henry Hearn Molyneux, Rathleigh Gate, West End Lane, West Hampstead.

News and Notes.

Mr. F. C. HART has resigned the position of hon. secretary to the West London Photographic Society, and his place has been taken by Mr. G. F. Perrins, 20, Rockley Road, West Kensington.

A FOCUSING Screen for Use in Photographing Ultra-violet Spectra.—Prof. W. N. Hartley writes to "Nature": "The sensitive surface upon which Stokes projected the ultra-violet rays when observing metallic lines and absorption spectra consisted of a plate of plaster of Paris moistened with a paste of uranium phosphate acidified with phosphoric acid ('Journ. Chem. Soc.' vol. xvii., 1864). Soret used uranium glass and solutions of fluorescent substances, such as asculine in liquid cells. I have found that the most convenient and effective screen for examining spectra with a quartz spectrograph is one such as is used for the X-rays. It may be made as follows: A photographic plate is first cleared of silver bromide by fixing and washing, and when the film is partly dry, but the gelatin still soft, it is dusted over with a powder of barium platinocyanide crystals, so as to be somewhat thickly coated with the salt. This is fixed in the dark slide of the camera. To focus a spectrum, the slide is tilted to the necessary angle, and a somewhat powerful focussing glass with a flat field is applied to the uncoated surface of the plate, when both the visible and ultra-violet spark spectra may be plainly seen by transmission, the latter by reason of the fluorescence excited. The focussing glass should be first carefully adjusted for any visible object on the other side of a plain glass plate, such as a fine hair fastened upon it, and the position of the eye-piece is then fixed. Suitable focussing glasses are those made by Dallmeyer and by Taylor, Taylor, and Hobson. When the spectrograph has been adjusted by means of the screen, the ultra-violet lines appear quite as sharp as those in the red and yellow, even the details in the group of cadmium lines between wave lengths 2,100 and 2,400 are well defined, and a very fair photograph may be obtained; but for the most accurate focussing photography must be resorted to.

A PHOTOGRAPHIC Section is announced for the forthcoming Armagh Agricultural Association. Particulars can be obtained from the Secretary, Albert E. Craddock, 10, College Street, Armagh.

THE Late Sir Henry Irving's Photograph.—Mr. William Crooke has appealed against Lord Ardwell's decision assailing the defenders

in the action against the Scots Pictorial Publishing Company, Ltd., with reference to the copyright of a photograph of the late Sir Henry Irving.

LOUGHTON Photographic Society.—At a meeting held at the Club, Loughton, on Friday, October 20, it was decided to form a photographic society for Loughton and district. Mr. J. T. Ashby, F.R.P.S., was elected president, Mr. Ernest Marriage, F.R.P.S., treasurer, and a committee of six members, with Mr. H. B. Peck as hon. sec. Ladies and gentlemen interested can obtain all particulars from the hon. sec. at Beverley, Church Hill, Loughton, Essex.

HOUGHTONS LTD. ask us to announce that they are giving demonstrations of their "Ideal Flash Lamp" at 88-89, High Holborn, on Tuesday mornings at eleven o'clock and Thursday afternoons at six o'clock. The Ideal Flash Lamp is particularly adapted for use in the studio, and all professionals who are in town should endeavour to call and inspect it. Absence of smoke, large area of lighting, and rapidity and brilliance of the flash are some of the chief attributes of this apparatus.

Commercial & Legal Intelligence

CLAIM for Non-delivery.—At the Burton County Court on Wednesday, Albert Kinsey, of Church Gresley, sued Messrs. A. G. Taylor, photographers, of Derby, for £1 17s. 6d., claim for non-delivery of a picture. For the plaintiff it was stated that the picture was ordered some considerable time ago, and though some cabinet photographs, ordered at the same time, were sent, the picture had not been forwarded. Defendants' representative admitted that the picture was not sent, as it was not completed when some premises were taken over. The value of the cabinet photographs was 5s. 6d. Judgment was given for plaintiff for £1 12s. and costs, the balance after deducting the value of the cabinet photographs.

FALSE Pretences.—A young man named Leopold Pitt appeared before the Cardiff magistrates on Saturday on a charge of obtaining 3s. 6d. by false pretences from Sam Smith, of the London Artistic Photographic Company, 134, Castle Road, Cardiff. On October 3 he had been appointed agent for the prosecutor to canvass for enlargement orders at Abertridwr at a salary of 10s. a week and 15 per cent. commission on orders. He was alleged to have obtained commission on spurious orders. Prisoner was fined £1; in default, seven days.

A Bogus Photographic Canvasser.—At the West London Police-court on Monday, before Mr. Lane, K.C., Ernest Hopper, 28, a traveller, living at 79, Simmerston Street, Chelsea, was charged, on remand, with obtaining 7s. 6d. by false pretences from Miss Jean Williams, of 40, Kensington Park Gardens. The prisoner called at the house on the pretence that he was a canvasser in the employment of Mr. Mallia, an Oxford Street photographer, and obtained an order and the money therefor. He declared at the last hearing that he took that and other orders for a man named Davis, who was in Mr. Mallia's employment. Evidence was given by Charles Davis, commission agent, living at 27, Darling Street, Walworth, who stated that he was formerly employed by Mr. Mallia, and he used to engage the prisoner as sub-agent to bring him orders. He had not seen him since August 22, and never gave him authority to get orders for him since then. Prisoner: If the witness had met me this would not have happened. We used to meet twice a day, and then I gave him the orders and he gave me the commission. He suddenly disappeared, and I had to use his name to get the orders. I could not find him so as to give him the orders and the money. Miss Netta

Thomas, boarding-house keeper, of 62, Margaret Street, W., stated that on February 9 the prisoner called, and, representing that he was canvasser for Mme. Lintot, of Bond Street (photographer), she agreed to have six photographs of her sister taken and to pay 2s. 6d. deposit. For that purpose she handed him a sovereign, and he promised to get change. He went out and never returned. Leah Keridge, a servant at 12, Hill Street, Mayfair, said the prisoner called on October 9, and obtained an order for six small photographs and one large one. She agreed to pay him 6s. 6d., and gave him a sovereign. He went away to get change and never returned. Prisoner said he would plead guilty to all three charges, and he pleaded that he had a delicate wife to support. Detective-Sergeant Burnie said that thirty other cases of a similar nature could be brought against the prisoner. Detective-Sergeant Ebbage, "W" Division, stated that in 1903 the prisoner was sentenced at Lambeth to six months' hard labour for stealing a ring and embezzlement. Two previous convictions were then proved against him. Mr. Lane sentenced him to three months' hard labour on each charge, making nine months' imprisonment, with hard labour, in all.

DUROLITE, LIMITED.—Registered October 17, by F. H. Faram, 86, Leadenhall Street, E.C. Capital, £30,000, in £1 shares. Objects: To carry on the business of manufacturers of glass, durolite, china, tiles, pottery and earthenware, designers, artists, engravers, embossers, painters, photographers, stainers and decorators of such substances as aforesaid. Registered office, 86, Leadenhall Street, E.C.

AN INFRINGEMENT OF COPYRIGHT.—Before his Honour Judge Lush-Wilson, K.C., at Stonehouse County Court, on Monday, John Abrahams, 39, Catherine Street, Devonport, brought an action for £10 against J. Easden, Army and Navy Studio, 21, Union Street, Stonehouse, in regard to an infringement of copyright in a photograph memorial of Submarine A8, with portraits of the victims and survivors, the funeral procession, and the graves combined, and registered on June 21, 1905. Plaintiff stated that on June 16 he took a photograph of the grave in Plymouth cemetery of the victims of the disaster to Submarine A8. Shortly after he bought a pictorial postcard, which was a reproduction of a portion of his photograph, and the copyright of which he registered. The sale of his photograph was adversely affected by the sale of the picture postcard. William Henry Waterfield, a photographer, said he had compared defendant's postcard with plaintiff's picture, and had come to the conclusion that it was a reproduction. That was proved principally by the perspective, which could not possibly be exactly the same in two different photographs. Defendant stated that on June 15 he took several photographs of the funeral procession. He photographed the grave on the morning of June 17 between five and half-past five. He developed the negative on the same morning, and during the same day sold prints taken from it. About a fortnight later the negative was broken and the pieces thrown away. He took one print from the original negative, but did not know what had become of it. Defendant, cross-examined by Mr. Akaster as to why, when writing him on the matter, he said he took the photograph on the day of the funeral, he replied that he did so because he trespassed in the cemetery on the Saturday morning. He got in by climbing over the railings. Plaintiff recalled, said he took his photograph at 5 p.m. on the day of the funeral, and it was not published until the 21st. Mr. Akaster asked defendant whether he had ever infringed anyone else's copyright. He did not reply, and Mr. Prance said he understood there were proceedings pending against his client. Mrs. Easden corroborated her husband's evidence. Mrs. Venn, stewardess, Stonehouse Constitutional Club, said on the evening of June 17, defendant gave her a pictorial postcard of the grave, and

said he took the photograph early that morning. She produced the postcard. Mr. Browning, salesman to defendant, stated that he was sent out with postcards of the grave on the 19th. Mr. Waterfield, recalled, said if the picture had been taken at 5 a.m. the light on the subject would come from the quarter opposite to that from which it came on the previous evening. His Honour, giving judgment, said he had no doubt that defendant's picture was a reproduction of a portion of the photograph taken by plaintiff on June 16. He could not get over the evidence of his own eye-sight. He could not believe that the postcard was the result of an independent negative, taken not at the same time as plaintiff's picture, five o'clock in the afternoon, when the sun was in the west, but five o'clock in the early morning, when the sun was in the east, and when, therefore, if the photograph was taken, the sun must have been pointing directly towards the lens. If that was true, was it possible to reconcile the acknowledged production in those circumstances? There was an extraordinarily accurate similarity between the postcard and plaintiff's picture. He was sure Mrs. Venn believed herself to be speaking the truth absolutely, but about four months elapsed before either she or Mr. Browning was questioned about the matter, and it was quite possible their memories were at fault. Defendant's answer to the claim was unsatisfactory, and he could not accept it. The documents spoke for themselves. He therefore, gave judgment for plaintiff for the injunction and damages claimed, with costs.

At the Burton Bankruptcy Court on Wednesday last, George Renwick, who had carried on the business of a photographer in Station Street, Burton, for many years, came up for examination, his liabilities being returned at £99 2s., and assets £19 7s. 7d., less £5 7s. for preferential creditors, leaving a net deficiency of £85 1s. 5d. An adjournment for a month, was granted.

ALLEGED PHOTOGRAPHIC FRAUD.—At Chelmsford, George Ash, alias J. Roberts, described as a canvasser, of Brixton, was charged last week with obtaining various sums of money by fraudulent means, at Springfield, Great Baddow, etc. According to the prosecution, the prisoner appeared to have called at various houses, offering to have any photograph enlarged for a small sum, on the purchase of a frame, and it was alleged that he received sums on deposit, and failed to execute the orders. Prisoner was committed for trial at the Essex Quarter Sessions.

CERIO PHOTO PRINTING COMPANY, LIMITED.—Registered October 13. Capital £15,000, in £1 shares. Object, to acquire the sole right to purchase, use, and photographically print on certain paper and other materials prepared by a special process, to adopt an agreement with the Ceriotype Company, Limited, and to carry on the business of photographic printers, photographers, stationers, etc. No initial public issue. The first directors (to number not less than three nor more than seven) are B. Fell, J. C. Mengel, E. Goddard, E. L. White, T. K. Grant, and C. Fitch. Qualification, £100. Remuneration as fixed by the company. Registered office: 23, Moorfields, E.C.

RE CHARLES HENRY BURNABY, 1, Chepstow Road, Croydon.—The above-named debtor appeared for his public examination at the last sitting of the Croydon Bankruptcy Court before the Registrar. The statement of affairs filed by the debtor disclosed liabilities amounting to £1,734, of which £219 was expected to rank, and a deficiency of £189. In reply to questions put by the Official Receiver, debtor said he was formerly in the employ of two photographic manufacturing companies as manager. Both those companies had now gone into liquidation. One of the companies was indebted to him in respect of services rendered to the extent of £118. His wife had a small private income. The examination was adjourned until November 8.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Oct.	Name of Society.	Subject.
27.....	Barrow Naturalists' Field Club	"The System of the Stars," Double Stars. Illustrated. Rev. T. E. B. Phillips, M.A.
27.....	Colne Camera Club.....	"Velox and its New Applications." Mr. A. Webb.
28.....	Sheffield Photographic Society	Third Annual Exhibition at the Montgomerie Hall.
30.....	Wallasey Amat. Photo. Soc.....	"Carbon Prints," Mr. J. H. Ormrod.
30.....	Widnes Photographic Society...	"Photography and the Press," Mr. Tomlin.
30.....	Barrow Naturalists' Field Club	"Marine Life." Illustrated by Microscopic and Lantern Slides. Mr. A. Scott, A. I. S.
30.....	Dewsbury Photo. Society.....	"Through Canada from the Atlantic to the Pacific." Mr. Ernest E. Slater.
30.....	Luton Camera Club	Demonstration. Messrs. Burroughes Wellcome & Co.
30.....	South London Photo. Society ..	"The Carbon Process," Mr. H. Creighton Beckett.
31.....	Barrow Naturalists' Field Club	Question Night. Members.
31.....	Halifax Camera Club	Conversational Evening with Demonstrations. 1. "Solo P.O.P." Mr. J. Peel. 2. "Passe Partout." Mr. G. R. Ryley. 3. "Lantern Slides by Contact." Mr. H. Lightowler.
31.....	Sunderland Camera Club	Beginners Night. 1. "How to Develop a Plate." Mr. K. S. Yeaman. 2. Gaslight Papers." Mr. C. B. Pinkney.
31.....	Darlington Camera Club	"Stories Without Words." Focus Prize Lectures.
31.....	Otley & Dis. Cam. & Art. Soc.	Demonstration. Mr. G. T. Woodley.
31.....	Gateshead Camera Club	"What Can be Done with a Hand Camera." Goetz Lecture, with Lantern Slide Illustrations. Messrs. Davidson and Miller.
31.....	Birmingham Photo. Society. ...	R.P.S. Affiliation Lecture.
31.....	Nelson Photographic Society	"Printing Processes." Demonstrated.
31.....	Jersey Photographic Society ..	"The English Lake District." Mr. P. H. Grandin.
31.....	Bristol Photographic Club	"Gum-Bichromatic Printing." Mr. C. H. Hewitt.
31.....	St. Helens Camera Club	"Gum-Bichromatic." Mr. J. Leyland.
31.....	Glasgow Eastern A.P.A	Visit to Glasgow Southern Photographic Association.
31.....	Thornton Heath Photo. Soc. ...	"Bromide Enlarging on Barnet Paper." The President.
Nov.		
1.....	Redhill and Dis. Camera Club.	"Landscape Photography." Mr. G. T. Harris.
1.....	Coventry Photo. Club	"Practical Enlarging." Mr. W. Riley.
1.....	Leeds Camera Club.....	"On the Fringe of the Austrian Alps." Illustrated. Mr. Charles B. Howdill.
1.....	North Middlesex Photo. Soc. ...	A.R.I.B.A.
1.....	Cricklewood Photo. Society.....	Lantern Slide (Architecture) and Print Competitions.
1.....	Edmonton and Dis. Ph. Soc.....	"Practical Photography." Messrs. Bridger, Carter, Ponsford, and Woolcott.
1.....	Croydon Camera Club	"Portraiture." Mr. Harold Baker.
1.....	G.E.R. Mechanics' Institution...	Competition: "Still Life."
1 to 4 ..	Hackney Photographic Society	"A New Bromide Printing Machine. Sulphide Toning of Bromide Prints" (Wellington & Ward). Mr. J. H. Avery.
2.....	Thornton Heath Photo. Society	R.P.S. Affiliation Competition Lantern Slides for 1905.
2.....	London and Prov. Photo. As...	Annual Exhibition.
2.....	Harrogate Camera Club	Solree Dansante.
2.....	Hull Photographic Society	"History of Gelatine Emulsion Plates." Mr. J. Burgess.
2.....	Balham Camera Club	Photography Prize Slides.
2.....	Chelsea and District Ph. Soc. ...	"Enlarged Negatives." Demonstrated. Mr. J. T. Dyson.
2.....	Liverpool Amateur Ph. Assn...	Members' Night.
2.....	Richmond Camera Club.....	"Photographs of Japan and the Japanese." Mr. E. J. Horniman, L.C.C.
2.....	Rodley Farsley & Calverley Dis.	"Six Hundred Miles up the Nile." Mr. G. E. Thompson.
2.....	Wimbledon and Dist. Cam. Club	Lantern Evening. Members' Slides.
2.....	Southport Photographic Soc.....	"Bromide Re-touching." Mr. J. Way.
2.....	Glasgow Eastern A.P.A.	"Stories without Words." Focus Prize Slides.
2.....		"A Visit to Spain to See the Solar Eclipse." D. E. Benson, A.M.I.C.E.
2.....		"Bromide Printing and Toning." Mr. J. Gillespie.

ROYAL PHOTOGRAPHIC SOCIETY.

On the 24th inst., at the New Gallery, 121, Regent Street, Mr. Chapman Jones, F.I.C., F.C.S., delivered the eighth Traill Taylor memorial lecture, entitled "Photography, the Servant of Science." The lecturer began with a brief and appreciative reference to the late J. Traill Taylor, who, he thought, had a distinct leaning

towards the use of photography for definitely useful or scientific purposes rather than for picture-making or empirical shots at the theories of photographic processes. The kind of photography the lecturer had in view, he said, was such as the student of architecture, the spectroscopist, the microscopist, and others ought to practise when they intend to give perfect renderings of the subjects with which they had to deal. He intended to treat of matters of fundamental importance, and considered that the lens should claim attention first. The matters that immediately concern the user of the lens are truth of outline, covering powers, definition, depth of definition, and the absence of false images and lights. To test for curvilinear distortion, he recommended that an equally divided scale line or lath be photographed, so that the image crossed the centre of the field, when, if the spaces were equally divided, distortion was absent. Errors in other directions might require special tests, though for general purposes there was no better test object than a flat wall covered with designs of the kind well known. As a test for definition he used a sheet of white card having on it groups of lines drawn with Indian ink, and having, in addition, fine holes pierced through. The lecturer challenged the statement that depth of definition depended absolutely on focal length and aperture. Theoretically no doubt it was so, but theory and practice only agreed so far as the axial rays were concerned. With regard to cameras, he considered that those of modern make were in many instances less reliable in holding the plate, so that its surface was perpendicular to the axis of the lens, than some of older type, and it was unfortunate that the deterioration of cameras should be contemporaneous with the improvement in lenses. In the estimation of plate speeds, while recognising the value of the work of Dr. Hurter and Mr. Driffell, he thought it was unfortunate that the object of it was the getting of an exact method of estimating general sensitiveness. He had found ordinary plates more sensitive to red than plates said to be red-sensitive and slow isochromatic plates more sensitive to green than other isochromatic plates labelled "specially rapid," etc. Under definite conditions, he said, every plate has a definite sensitiveness, though not to so minute a degree as many suppose. Want of permanency in a negative he considered to be want of truth, and emphasised the statement he had made long ago that a perfect negative must consist of pure silver in clean gelatine. Of development, he said that while variations in the negative can be made by development, few, he thought, made them when they thought they did. For most work he considered that a single solution (say, of metol) was all-sufficient. Acid fixing baths he condemned, and recommended a bath that contained sulphite and an alkali. For intensification, he considered the only reliable method was to bleach in mercuric chloride, and follow on with ferrous oxalate. Reducers, the lecturer thought, should not be used, since none can be depended upon to act proportionately. As to printing, he thought the best advice to a scientific worker was to avoid it. In a print the errors of the printing process are added to those of the negative.

PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEMBERS' meeting was held at the Royal Photographic Society on Friday, October 13, the President, Mr. T. C. Turner, in the chair.

The subject of discussion was the relationship of photographers with the Press. Reference was made to a newspaper paragraph in which a photographer at Rothesay was reported to have claimed £10 a copy from a Glasgow journal for an infringement of his copyright. The Judge dismissed the case on the ground that it could never have been intended by the law that a Court of Summary Jurisdiction—from the decision of which there was no appeal—should be competent to deal with a claim amounting to £250,000. The Presi-

dent strongly deprecated such claims for excessive damages, and thought the association should do all in its power to discourage such. At the same time it was necessary to assert one's rights, and to show newspaper proprietors that they could not help themselves to any photograph they pleased without reference to the owner.

Mr. Alfred Ellis said the daily Press had a grievance, for which there was some show of justification. They often wanted to reproduce a portrait of a person whom some event of the moment had brought into prominence. They complained that there was often no time to ask and obtain formal permission, and in some cases it was not possible to communicate with the owner of the copyright at once, because his address was not known, or for some such reason, and that on publishing the picture, intending in good faith to pay the usual fee as soon as opportunity occurred, the fee was declined, and they were treated as wilful infringers. There was, Mr. Ellis thought, hardship in some cases, but the difficulty was to find a system by which such cases might be met without giving those papers which had no such honest intentions the opportunity of sheltering themselves under the dispensation when found out. It had been suggested that if the newspapers would agree all to send a copy of the paper immediately upon publication to an official, whose duty it would be to look them over and note the copyright photographs published, it might meet the case.

The Assistant Secretary said the association, in dealing with infringements of copyright on behalf of its members, was very careful to distinguish between cases where there was no excuse for the infringement, and cases where there were extenuating circumstances. He then gave the particulars of three cases which the association had been able to settle during the past three months on terms which were satisfactory to the members involved, and which should be satisfactory to the other parties, as the amount accepted was only so much in excess of the usual fee as to mark the difference between the ordinary transaction and the settlement of a case where the right to recover a substantial penalty had been incurred. There were no law costs when the association dealt with the matter, so that the offending parties were not put to the usual expense which attends circumstances of the kind.

Mr. H. E. Hull thought it would promote harmony in the dealings between the Press and photographers if there existed a general agreement that all matters in dispute with regard to copyright should be referred to arbitration.

MEETING OF THE COMMITTEE.

A committee meeting was held on Friday, 13th inst., at the Royal Photographic Society, 66, Russell Square, W.C., previous to the members' meeting. Present: Messrs. T. C. Turner (Hull), A. Ellis, Wm. Grove, F. A. Bridge, Martin Jacolette, A. Mackie, S. Herbert Fry, H. E. Hull, H. S. Mendelssohn, D. Prodger, E. Scammell, Lang Sims, R. Fellows Willson, Wm. Gill (Colchester), H. A. Chapman (Swansea), and H. C. Spink (Brighton).

Mr. T. C. Turner (President) in the chair.

The President was invested with the gold presidential badge, subscribed for by the members of the committee.

The Secretary referred in sympathetic terms to Mr. A. England, of Barnet, a member who had been a constant attendant at the gatherings of the association, who had met with a severe accident, and stated that he had written in the name of the committee expressing their regret.

The publication of the first number of the "P.P.A. Circular," as authorised by the committee, was officially reported to the committee. The President expressed his opinion of its great usefulness, and said the publication of the steps taken by himself in Hull to circumvent the wiles of a firm of free portrait dodgers had led to a member in

another town adopting the same method, and, he believed, with complete success.

The Assistant Secretary reported that a circular had been drawn up briefly, setting forth the particulars of the association and its work and the advantages of membership. These were being distributed in likely quarters with a view of inducing photographers who were not members to join. The settlement of several cases of infringement of copyright and other disputes was reported. A discussion took place upon the certificate scheme, a year having elapsed since the institution of the system, and was adjourned to the next meeting.

The desirability of continuing the subscriptions of the three members representing the Association to the Artistic Copyright Society was considered, and it was decided to receive the subscriptions.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

Mr. J. C. S. MUMMERY, at the meeting held October 12, demonstrated the gum-bichromate process. In opening, he gave the history of the process, mentioning Pouncey's work, Swan's carbon process, and the resurrection of Pouncey's work in 1894. There were two methods of working—the single coating used by French workers, and the multiple coating used by German and British workers chiefly. Care must be taken in choice of paper, to select one which stretches and shrinks evenly. By previous wetting one can ensure correct register of subsequent printings. Either potassium or ammonium bichromate could be used for sensitising, the potassium salt being best for automatic development, and the ammonium bichromate better for brush work. A large range of colours could be employed, but for warm tones he used a mixture of black and red, rather than the browns. For coating he used gum 35 to 50 per cent., taking 40 grs. lampblack to the ounce, grinding in with a muller, and adding an equal quantity of saturated solution of bichromate. The coating had to be done rapidly, as the solution soon set. The paper was dried quickly, but must not be heated. The lecturer then showed his method of registering his prints. He used a drawing-board, with fillets on two sides, against which the paper was pushed, face up. Then two strips of carefully cut card were placed inside to give a white gauge, the negative then placed film down, the requisite pressure given by a sheet of $\frac{3}{4}$ -in. plate glass. Development was done either automatically by floating face down in cold water, or by laying sawdust soup, as in the Artigue process, with cotton wool or with a spray. Development should take only five to ten minutes, and it was better to let the print dry before using the alum to discharge the colour of the bichromate. The prints must be laid on blotting-paper to dry, as if they are hung up the paper stretches unevenly and destroys register for subsequent printing.

Mr. Teape asked what means the lecturer employed to avoid the coarse grain seen in so many exhibition prints. Mr. Mummery said under-exposure would cause it, as the print could not be developed right out, and over-exposure, in which case it would be due to friction. Mr. Teape asked how to remove undesirable obstacles in the picture. The answer was to block out and print in by the stencil method or dry after development, then soak and work with either sharpened match, brush, or stump. Mr. Bailey asked if it were possible to remove details with the spray, and was told that light detail could be removed, but dark parts always left a stain of the bichromate. Mr. Holding asked if greater depth could not be obtained by twice coating before printing. Answer: Probably not, as the first coating dissolved immediately; in any case, better to print twice or use a thicker coating. Very clear spots could be made by using more gum and taking out with brush, while the print was wet. To take out thin patches, the method was to coat locally, softening the edge with a dry brush, and print again. Asked how the effect was gained in two prints shown, one having light spots, the other not,

and yet showing detail in heavy shadows, Mr. Mummery said it was by carefully avoiding the part with the spray. The chairman proposed a hearty vote of thanks to Mr. Mummery for his demonstration, a proposition which was carried with acclamation.

CROYDON CAMERA CLUB.—A demonstration on the carbon process was given before the members of this club on Wednesday of last week by J. M. Sellors. The lecturer rather favoured commercial drawing-papers as single transfer, owing to the variety of surfaces obtainable. All drawing-papers, however, required a preliminary coating, the one recommended being: Nelson's No. 1 gelatine, 160 grains; water, 9 oz. Allow to swell, and dissolve over a water bath. A chrome-alum solution (9 grains in 3 oz.) is then gradually added, stirring vigorously the while. One coating, applied warm with a stiff brush for the smooth papers, and two for the rough, will be found sufficient. As regards transparencies, the special tissue should be employed, but if the negative were extremely hard, the ordinary tissue, he said, would be found to work best. Glasses with a thin insoluble substratum could be purchased from the Autotype Co., but a very good substratum could be easily made by adding the white of one egg well beaten up to a pint of water. Any sediment formed should be allowed to settle, and the clear portion decanted. The glasses could be dipped bodily into this solution, drained, and dried. In the discussion which followed, it was suggested that methylated spirits would advantageously be utilised for quickly drying carbon tissue. Mr. F. W. Hicks, however, was of a different opinion; the ordinary commercial spirit was so charged with foreign matter that its employment for this purpose was almost out of the question. Mr. H. P. C. Harpur stated that he would judge when printing was complete by breathing on the tissue, and inspecting a transient appearance of the image on its surface. The president, Mr. W. H. Smith, in answer to a question, stated that the "single tint" print-meters were undeniably more accurate in working than those depending upon figures or letters successively printing out.

HULL PHOTOGRAPHIC SOCIETY.—C. B. Howdill, A.R.I.B.A., who lectured last week before this Society on "Yorkshire Minsters," said it was not necessary for amateurs to go abroad to photograph architectural subjects with such delightful and beautiful examples so near home as Ripon, York, and Beverley. Mr. Godfrey Bingley, also lecturing on Warwickshire, Gloucestershire, and the Wye Valley, proved this district to be an ideal spot for both a holiday and the camera.

HEREFORDSHIRE PHOTOGRAPHIC SOCIETY.—The annual meeting of the members of this Society was held at Clarence House, Hereford, on Wednesday evening of last week. Mr. J. S. Arkwright, M.P., was elected president, and Messrs. Alfred Watkins, J. Parker, Mr. J. Humfrys, H. H. Parry, and Foster Shaw vice-presidents. Mr. W. E. Haines was re-elected treasurer, and Mr. Cecil Gethen secretary; Mr. W. Davies, librarian, and Mr. E. Horth, lanternist. On the council there were appointed Messrs. W. A. Roberts, Gus Edwards, W. T. Carless, S. Beeson, Marshall Q. Millar, Akast, W. W. Robinson, Derry, W. Williams, and E. Davies. The treasurer produced the accounts, showing a balance in hand, and the secretary gave a satisfactory report.

BLACKBURN CAMERA CLUB.—At a meeting of this club, held in the club rooms, Church Street, on Friday night, October 20, "The Gum Bichromate Process" was demonstrated by Dr. Ivatts.

WIMBLEDON AND DISTRICT CAMERA CLUB.—On October 19 a lecture on "Hampton Court Palace," illustrated by a large number of lantern slides, was given by the hon. secretary, Mr. J. Munro.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—Mr. F. Rust, of the Leeds Camera Club, gave a practical demon-

stration before the members of this society last week of his method of making enlarged negatives from an untuned P.O.P. print by reflected light. The lecturer's apparatus consisted of a large camera (to take a 15 by 12 negative) clamped on to a fairly long board. At one end of the board opposite the lens of the camera was fixed a 10 by 8 printing frame. This frame was fixed rigidly, with side struts so that it stood at right angles to the base board. In the frame a sheet of thin plate glass was used, and the untuned P.O.P. print from which the enlarged negative was to be made was held flat and central in the frame in contact with the glass in the ordinary way. Mr. Rust explained that an expensive camera was unnecessary for his method, and pointed out that a serviceable apparatus to take its place could be easily constructed out of an ordinary box, and himself used a dark slide made of picture frame moulding and cardboard. In using a box of this description the user's camera could be fixed to the front and thus supply the optical and focussing arrangements. After the print had been focussed to the desired size on the ground glass by the light of a taper or candle the plate was inserted and the exposure made. This was effected by burning magnesium ribbon. For an enlargement from half-plate to 15 by 12 in., using stop $f/11$, 15 in. of ribbon were burnt on both sides of the printing frame. An ingenious way of doing this was demonstrated. Two ordinary long steel hatpins were fixed at an angle of 45 deg. to the surface of the frame by sticking them into the woodwork so that the heads were well in front. Suspended from the ends of the pins were the strips of ribbon, but as these would be too long if held straight they were coiled round a piece of stick or lead pencil and released. They thus formed a sort of helical spiral and burnt very evenly. Pieces of card protected the lens from the glare of the light. Mr. Rust used "Castle" plates, well backed, and developed his exposures with Rodinal. The negatives produced were of excellent quality, retaining all the gradations of the original print. The lecturer claimed that this method was not only far more economical than producing enlarged negatives via a glass transparency, but that far more control was possible in the paper positive in the way of sunning down or printing in clouds, etc. Moreover, by always printing the P.O.P. to just the right depth required for the finished result the exposures necessary for making the enlarged negative were always the same, and by using the same stop, same degree of enlargement, and same length of magnesium ribbon, no error of judgment could creep in, and good results were to be depended upon in every case.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.—A demonstration of oil printing was given on October 17 by Mr. James Gale, of Wolverhampton. Mr. Gale referred to the possibilities of the process as a means of expressing personal feeling. In this respect it may be classed with gum bichromate. There is, however, an essential difference, for in gum we start with a pigmented surface in which also is the image, but in oil printing we apply the pigment to the image. In developing the image is not broken up as in gum, and unlimited alterations may be made in the layer of pigment without altering the image. Further, if we do not like the colour, the whole can be washed off and the image repigmented. As regards history, as early as 1855 Poitevin took out a patent for a process by which he obtained pictures by taking an exposed, chromated gelatinised film, and it is interesting to note that his patent also covered gum-bichromate. In 1904 Mr. G. E. H. Rawlins revived the process. As regards theory, a specially gelatinised basis is needed. This one can prepare oneself, though Mr. Gale did not recommend doing so—a paper has been recently introduced by Elliott and Son which gives good results. It can be had sensitive or insensitive. Sensitising is the same as for carbon tissue. This sensitive surface is then exposed under the negative (which should have good contrast) until the

details are visible, showing as a brownish image on a yellow ground. Printing is very rapid, and should not be carried too far. By exposure, the gelatine surface in those parts acted on by light—e.g., the shadows—becomes hard and insoluble, while the protected parts—e.g., the high lights—remain soft and absorbent. If the print is allowed to soak in water, the soft parts will absorb water, the hard parts will not. This soaking is best done in cold water for two or three hours; though warm water may be used for a shorter time. Soaking should continue until the image shows distinctly in relief. The print is then removed, and superfluous water taken off with a soft cloth. Then it is ready for pigmenting, which may be done at once, or any time afterwards; if allowed to become dry, preliminary soaking is necessary before pigmenting. The pigment may be either tube oil-colours or printers' ink of various colours. This costs about 2s. per lb., and a few ounces will do a great number of prints. A small quantity is taken on a piece of glass, and thinned with turpentine by means of a palette knife. The print is covered evenly with pigment by dabbing with a piece of cotton wool, the whole surface must be covered, and then it is rolled with a roller squeegee. What happens is that the parts saturated with water will throw off the pigment, leaving it only on the hard parts. In this way a picture is formed of any desired pigment held in position by oil, and having the gradation of the original negative. Rolling is best done on a slab of plate glass to ensure perfect flatness; before rolling, the turpentine must be allowed to evaporate. The paint may also be applied with a stencil brush, which is held perpendicularly and dropped lightly on the print, leaving behind each time a certain amount of pigment. The amount taken up is always proportional to the light action, which fact should be carefully borne in mind.

SOUTHAMPTON CAMERA CLUB.—Mr. V. E. Morris, of East Grinstead, lectured on and demonstrated the "Art of Lantern-Slide Making" to the members of the above on Monday, the 23rd inst., and was warmly welcomed by a good attendance. Among the many points urged by Mr. Morris were the following:—That the making of lantern slides must not be looked upon as a sort of by-product of photography, since it was possible in the best slides to obtain better tone gradation than in any print. He pointed out that the slightest defect in the slide was magnified on the screen to a serious blemish, and mentioned that in spotting black slides or negatives he had found, in spite of advice to the contrary, that a soft lead pencil, preferably a B.B., was the best means, since it enabled him to deal with the defect without the usual medium. In matters of exposure and development many hints were given. It was suggested that a negative of which correct exposure was to be found should be exposed in sections, 10 seconds one strip, the next 20, up to 40 for the fourth strip, and then, under normal conditions, the right exposure would be ascertained. In development, it was recommended that for black tones sufficient progress had been made when high lights began to veil, and warning was given that in warm-tone slide-making over-development was easily reached. When reduction was needed in the slide, great care was to be taken that slide be quite cleared of reducer before being held to light for examination. In the matter of putting in cloud negatives, which Mr. Morris fully demonstrated, the method recommended was to have the development done on the slide itself when making warm-toned slides for the consideration of getting proper tones, and on the cover glass when making black-toned slides. Mr. Morris illustrated his lecture from his own slides, producing special slides for the purpose of illustrating faults and varieties of masking. The lecture was listened to with marked interest, and the lecturer was most heartily thanked by those present.

The concluding article by "Hon. Sec." on "Photographic Societies," is crowded out from our columns this week for lack of space.

Correspondence.

* * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * * *We do not undertake responsibility for the opinions expressed by our correspondents*

PROCESS WORK IN AMERICA.

To the Editors.

Gentlemen,—My notes under the above heading in this journal of August 11 and 25 seem to have been received with mixed feelings on "the other side." Mr. S. H. Horgan, the editor of "Process Notes" in the "Inland Printer," says it was hoped that I would give my impressions on the process plants I saw, and give my views of their methods, from which they could draw some valuable hints, and portions of my articles are accordingly quoted in an appreciative spirit. Not so, however, my Chicago friends, who seem to have taken my remarks rather badly, if I may judge by the "Engineer and Electrotyper." This journal heads its remarks: "Americans behind English!" (Don't forget the note of exclamation.) "It's too bad" (says this journal). "But that's where process workers in America have been placed by Mr. Wm. Gamble. And unless his verdict may be set aside Cis-Atlantic photo-engravers are likely to be considered back numbers by their English cousins across the water. Mr. Gamble did well to wait until he got safely on the other shore before rubbing it into Uncle Sam's platemarkers."

After this introduction, the "E. and E." proceeds to quote those parts of my articles which are least likely to be relished. Home truths are never very palatable. My remarks about the "rickety and ramshackle" cameras and camera stands seem to have touched the Chicago photo-engravers in a sore place, though I had in mind New York studios just as much as the Chicago ones when I wrote it, and it was in a leading New York studio where I saw a camera-stand "fixed up with wire nails and bits of string," and cameras which had to be trued up with wedges.

I am next taken to task by "Professor" Algono in this same journal. Mr. Algono says my statements about the equipment "in the majority of the photo-engraving studios of the United States are so utterly opposed to facts that it seems ridiculous to accord them even the attention of a contradiction." It is thought that I have singled out some small plants and ignored the "large and finely equipped plants" which it is admitted I inspected. I would, however, say that I did not visit any small plants. I had not the time to visit any but the most representative ones. Of course in a comparatively short article I had to generalise, and I could not state all the good features as well as the bad ones concerning each plant. I am, however, describing some of the more important concerns individually month by month in "Process Work," and I do not think it will be found that I have neglected to give the meed of praise where it is due.

I suppose Mr. Algono has not visited Europe, or he would have indicated in his article how far American studios are superior in equipment to European ones. I submit that if he has not seen the inside of our studios here he is not in a position to know whether the American equipment is efficient, and, for anything he knows, he is living in a fool's paradise. American visitors have frankly confessed to me that they could not have believed that their country was so far behind had they not had the opportunity of judging on the spot the work and the methods of European process workers.

The same remarks are sufficient answer to E. E. Medine, the

superintendent of the Crescent Engraving Company's plant in Chicago. He is a young man (judging by the portrait accompanying his letter), and he writes with all the self-assurance of American youth. He admits he has never been on the other side of the pond, but says he has "wasted considerable time and money buying and reading the British publications on photo-engraving." He goes on to say: "A careful study of British journals and publications, however, has failed to disclose any intelligent ideas regarding their advancement in photo-engraving. Their literature reveals nothing of importance that has not been originated in America; and as for elaborating on the processes we employ in this country, I will say that the specimens of process work, especially half-tone and three-colour work, shown by European publishers, are usually very poor, and do not stand on a par with the work produced daily in our engraving plants."

This is pretty "high falutin'," and I do not suppose anything I can say will convince this young man that he is wrong. He will find it out as he grows older. I would like to tell him, however, whether he believes it or not, that there is not a single process being worked in America to-day that did not have its origin in Europe. The half-tone process, the three-colour process, and zinc etching were not invented in America, and the man (an Englishman) who discovered the enamel process admitted that he got the idea from an old "BRITISH JOURNAL Almanac." I have always given all honour to such men as F. E. Ives, Max Levy, and other pioneers of American process work, but they themselves would be the last to subscribe to the accuracy of such a wild statement as is made by this reckless young writer.

There is no question about it that America, taken as a whole, is very far behind Europe in the equipment of photo-engraving shops, and I thought I was doing my friends on the other side good service in pointing this out. I give all honour to the men who turn out such excellent work as is undoubtedly done in America, with the very poor appliances furnished them.

WILLIAM GAMBLE.

THE PERMANENCY OF MATT COLLODION PAPER.

To the Editors.

Gentlemen,—Matt collodion papers being printing processes now largely used for better class professional work, I think a discussion in your correspondence columns as to the permanency or otherwise of these processes would be very desirable in the interest of users.

We who have adopted Matt C.C. as a printing process know only too well the extreme care required in handling to produce prints free from blemishes when mounted. But after every possible care exercised in the operations, and each print handled separately several times during subsequent washing, it has been my unfortunate experience that after prints have been mounted two or three days, yellowish spots make their appearance, and sometimes a print will go yellow all over in this short time. From observation I find this to occur most frequently in the damp and cooler season of the year, batches going through without spotting in warm, dry weather. The remedy, therefore, seems obvious—viz., tolerably speedy drying in a warmed room during the winter months. I have worked the process for three years, and, examining some prints done about that length of time, I find they are decidedly faded, and some gone discoloured in patches. The strength of fixing bath recommended is one which has received my attention as being open to suspicion—viz., 1 oz. of hypo to one pint of water—and I always use it somewhat stronger and fix for a longer time than advised. The rapidity with which the printed image reduces in intensity in the operations—and particularly have darkly-printed copies reduced if left for a short time in the fixing bath—must have been noted by users, and

seems to illustrate the somewhat feeble character of the image. Personally I have found that if a print be left in weak hypo for about two hours, spots at once make appearance.

It would be interesting if other users would relate their experiences.—Yours truly,

H. W. BUSBRIDGE.

2, Carisbrook Villas, Westcombe Hill, Blackheath, S.E.

[We shall be glad to have the views of other readers before commenting on our correspondent's letter.—Eds. B.J.P.]

DISTORTION WITH THE FOCAL PLANE SHUTTER.

To the Editors.

Gentlemen,—May I supplement the interesting article on the focal plane shutter, in your last issue, by the two enclosed prints illustrating the distortion produced by a horizontally moving slit. These were taken with the smallest slit and a low tension giving a nominal speed of 1-100 sec., and were produced in the course of



some experiments made by Mr. Carnegie and myself to test the effects produced by different shutters with moving wheels as objects.

The expansion produced when the slit moves with the image, and the contraction resulting from a reversal of the movement are both very well shown. The photographs were, of course, taken for the



purpose of illustrating the distortion of the wheels. A higher tension and a wider slit would have lessened it to some extent, but the speed could not have been much increased without giving marked under exposure, though we used $f/6.8$ on a fine sunny summer day.—Yours, etc.,

C. WELBORNE PIPER.

October 18, 1905.

Answers to Correspondents.

- * *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.
- * *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- * *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- * *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- J. Bailey, 73, Shirley Road, Southampton. *Two Photographs of Four Generations of the Notable Page Family.*
- Charlotte C. Whyte, 4, Ardross Street, Inverness, N.B. *Photograph of the King, Lord Loyat, Sir Schomberg MacDonnell, and Mr. Baillie. Photograph of Sir Schomberg MacDonnell. Two Photographs of H.M. the King. Photograph of Royal Party Fifty-six in Number. All taken at Glenquoich Lodge, Inverness-shire, September 24, 1905.*

ANXIOUS.—As you have the negatives and do not know anything of the copyright in them, it is most likely that the copyright is lost. You can issue them, but you would not be able to prevent anyone from copying them.

HALF-TONE.—Will you kindly describe briefly in an early issue the method of making a half-tone process block from a photograph?—not a negative.—YOUNG PHOTOGRAPHER.

The process is too lengthy to be described in these pages, you had better consult a text-book. In "The Photographic Instructor," by J. I. Pigg (1s.), you will find a good brief description. For full working details see "The Half-Tone Process," by Verfasser (Iliffe, 3s. 6d.).

PLASTER CASTS.—Can you oblige us by putting us in communication with firm who supply plaster busts suitable for study in lighting, and accept our thanks in anticipation?—G. AND J. HALL.

Giuseppe Baldacci, 41, Hatton Wall, E.C., or Daniele Landi, 36, Charles Street, Hatton Garden, E.C.

PLATE SPEEDS.—It says in some advertisements that the speed of certain plates is increased by the use of a special developer—generally metol, I think—and I fail to understand how this can be.—Q. S.

The statement is perfectly correct for some plates. When the speed of a plate has been determined by the H. and D. method, using ferrous oxalate as a developer, it has been proved that several of the organic developers, as metol, will give a higher speed reading. In other words, such developers as metol will bring out of an exposed plate as much as possible and more than such a developer as ferrous oxalate.

G. H.—A plain floated paper, previously salted in a bromide bath, is used, and is not nearly so rapid as bromide. We should say are light is a *sine qua non*.

TITLES ON PRINTS.—I want to print on photographs and views that I take and expose for sale the names of places and what it represents. If you would kindly give me a little instruction, and where to obtain things suitable for the purpose, I shall be greatly obliged.—A LOVER OF THE WORK.

We should advise you to get the "Nameit" outfit as supplied by Richford and Co., Snow Hill, E.C. With that you will be

able to put the names on the negatives so that they print with the pictures.

LENS QUERY.—I have a studio 16 ft. by 12 ft.—good, uninterrupted north light. Would you advise a —'s lens $7\frac{1}{2}$ in. focus for general use in it. Should I get a good full-length cabinet with it? Would it cover well, so that at full aperture I could take children? The cab. portrait lens I am using is good, but I want a better. I thought if the above lens was suitable, I should be able to do away with the heavy half-plate studio camera and substitute a 1/1 plate field camera in its place, and should find it generally more portable. Would you advise retaining the ordinary studio camera and portrait lens, or do you think I could turn out satisfactory work with this lens.—A. E. FAIRWEATHER.

The lens mentioned is of very short focus for cabinet pictures, but as the studio is so small we do not see how you can use a longer for full length pictures. A lens of the focal length of the one in question is what is usually employed for carte portraits. We should advise you to retain the lens you have, and supplement it with the one you propose having, using the longest focus one whenever you can so as to obtain the better perspective.

COPYRIGHT QUERY.—I have recently photographed a "church choir," and half the proceeds from sale of the prints is to be devoted to the "Church Building Fund." I am anxious to have this negative made "copyright," and would like to know if there is anything to prevent me under the circumstances, and if I am bound to obtain permission.—J. RUSSELL.

If the choir sat at your solicitation, and you made no charge for taking the picture, the copyright belongs to you. If you were commissioned to take it, and paid for doing the work, the copyright belongs to those for whom you did it.

RESTORING DAGUERREOTYPES.—I should be pleased if you would kindly answer me under initials "H. W. B." in "Answers to correspondents" column of BRITISH JOURNAL OF PHOTOGRAPHY:—1. The address of any firm who specialise in the restoration of Daguerreotypes. 2. The procedure if I were to do the work personally.—H. W. B.

1. We cannot say. 2. The process is a delicate one, and space does not permit us to enlarge on the precautions to be taken. You should refer to an article in our issue of July 25, 1902. However, what you have to do is to remove the opalescent tarnish—the images have not faded—for which purpose clean the plate in alcohol, wash the surface in water until the "greasiness" has gone, and then immerse in a very weak solution of potassium cyanide until the tarnish is removed. The surface must on no account be touched at any stage. The plate is finally rinsed with distilled water and dried over a spirit lamp.

"VAPOUR" AND A. BROWN.—You can obtain information from A. W. Penrose and Co., 109, Farringdon Road, London, E.C.

DEFECTIVE NEGATIVES.—Could you explain the reason of small round holes in films of negatives after development?—J. H.

Probably the "holes" are clear gelatine, due to dust on the plate during exposure or air bells during development. It rarely happens that a plate is "pitted" through to the glass.

BOOKS ON THE STUDIO.—Can you tell me what books there are published on studio construction, which you consider best, and where I may obtain a copy; also price?—R. H. R.

"The Photographic Studio," by T. Bolas, 2s.; "Lighting in Photographic Studios," by P. C. Duchochois, 1s.; "Studio

Construction," 6d. You can obtain the above through your dealers, or from Dawbarn and Ward, Limited, 6, Farringdon Avenue, London, E.C.

DEXTRINE PASTE.—Would you be kind enough to give me the number of the JOURNAL in which the recipe for dextrine paste appeared. I made some paste to the recipe and have found it excellent in every way; I then cut out the recipe to paste into a book, and have unfortunately lost it.—A. J. S.

The formula appeared in our issue of June 2, 1905.

CARBON PRINTING TROUBLE.—I enclose you a carbon print, taken by the double-transfer process. A ground opal was used for the temporary support, and same was waxed with turpentine and beeswax solution. The print enclosed was stripped from the support two days after the operation, "double transfer," to ensure thorough drying. Will you kindly let me know the cause of the tissue not adhering to the final support, and the remedy to prevent this occurring again?—T. H. D.

The trouble may proceed from three causes. First, imperfect waxing of the opal plate; second, the double-transfer paper soaked too long in the warm water, so that the coating is dissolved off; third, the transfer paper, not soaked long enough to get it in an adhesive condition. The latter, we surmise is the cause of the trouble in this instance. In fact, we have little doubt about it. Soak the paper till it feels quite slimy to the touch, and then squeegee it on to the print. If the paper has long been made it will require a longer soaking in the warm water to get it into this condition than if it was newly made.

PHOTOGRAPHS ON WATCH CASES.—In an article on printing carbon photographs on "watch cases and the like," given in the JOURNAL on Dec. 2, 1904, it is recommended to use, instead of the ordinary temporary support, "foreign post" paper coated with a thin rubber solution. Can you tell me whether this rubber solution is the same article as is used for mending cycle tyres, etc., or whether it is another thing altogether. 2. Will the Nelson's Gelatine (Patent Opaque), sold at grocer's shops, do for photographic purposes, as well as "No. 1 Nelson's," as I seem to be unable to obtain this latter in less than half-pound packets?—H. M. K.

1. What is meant is unvulcanised indiarubber dissolved in benzole. Purchase a tin of rubber solution as sold at the indiarubber shops and dilute it with benzol to the consistence of rather thin treacle. Put the solution in a flat dish and float the paper upon it, and dry. 2. It is not stated for what photographic purpose the gelatine is required. It will do for some, but it is not suited for others. If the formula you intend to work by mentions the "No. 1 photographic," you had better employ that.

DAMAGED PHOTOGRAPH.—I have had an old photograph to copy for a customer. The photograph was tinted-coloured. The photograph itself covered by a cover glass. Photograph about $3\frac{1}{4}$ square inches. I took the cover glass away, and seeing a stain round the edges, I rubbed with a cloth. But the cloth being damp in a part it made the colour run. Now, I have thought that perhaps you might give me some information through the JOURNAL. If I rubbed the colour all off, could I have it re-coloured? The photograph appears to be at the back and covered with paper, coloured on the front, and covered with a glass. The picture is a very precious one, and any information would be gladly welcomed.—W. H. J.

Without seeing the picture we can hardly advise you. From your description it would seem to be a crystoleum. We should

think your best way would be to repair, with colour, the portion you have damaged, and then secure the picture as it was before.

DEPTH OF FOCUS.—What depths of focus respectively have a 5-in. and a 10-in. lens at an aperture of $f/16$, when focussed on point 10 in. distant in the first case and 20 in. in the second?—Focus.

This is a peculiar question, for in each case the adjustment is one for copying on a scale of full size, and the available depth is so small that the approximate rules, so useful under ordinary conditions, are not applicable. The following exact rules must therefore be used:—1. To find the nearest distance in focus, multiply the hyperfocal distance by the distance of the object, and divide the result by the hyperfocal distance plus the difference between the distance of the object and the focal length. 2. To find the farthest distance in focus, multiply the hyperfocal distance by the distance of the object, and divide the result of the hyperfocal distance minus the difference between the distance of the object and the focal length. The hyperfocal distance is always equal to the focal length, multiplied by the diameter of the stop, and divided by that of the circle of confusion. Taking 1-100 in. as the circle of confusion we find by these rules that with the 5-in. lens

$$\text{depth extends from } \frac{\frac{2,500}{16} \times 10}{\frac{2,500}{16} + 5} \text{ to } \frac{\frac{2,500}{16} \times 10}{\frac{2,500}{16} - 5}$$

or from 9.69 in. to 10.33 in.
so that the total depth is only .64 in.

With the 10-in. lens

$$\text{depth extends from } \frac{\frac{10,000}{16} \times 20}{\frac{10,000}{16} + 10} \text{ to } \frac{\frac{10,000}{16} \times 20}{\frac{10,000}{16} - 10}$$

or from 19.685 in. to 20.325 in.
and the total depth is .64 in.

The total depth is thus the same with both lenses, but it will be noticed that the near and far limits of depth are relatively nearer the lens in the second case. It is not likely that any lens will work exactly to these figures, and they are only rough guides.

ALPINE Photography according to the "Daily Chronicle"—"M. H. Muller, a Swiss photographer, of Berne, while taking snapshots on the Jungfrau, was overtaken by an avalanche, which carried his apparatus and himself some 250 yards without doing much harm to either. Later, on developing the plates, he discovered a fine photograph of the avalanche and himself tumbling down the mountain side. The avalanche had photographed itself."

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

THE forty-fifth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1st. This year's ALMANAC reached a total of 1,612 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1906 will also consist of 25,000 copies.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1906 will be modified to make it more than ever the book of universal photographic reference. The editorial article will deal very completely with the important subject of

PHOTOGRAPHIC COPYRIGHT,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The ALMANAC for 1906 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ have been revised and added to where necessary, and wherever practicable new features of an informative nature added.

The publishers desire to draw the special attention of dealers and others to the fact that orders for the ALMANAC should be placed well in advance of publication; for the reason that, in all probability, the edition of 25,000 copies will again be exhausted before the date of issue, December 1.

EX CATHEDRA.

The Cape Town Exhibition. An Offer.

We recently published particulars of the International Photographic Exhibition to be held in February next in South Africa. The Cape Town Photographic Society is making every endeavour to ensure the success of the show, and it is hoped that a large entry will be sent from this country. In order to assist intending exhibitors, and to facilitate dispatch, we have arranged to receive and forward to South Africa all pictures entered for competition in this exhibition. Exhibitors will, therefore, only be put to the expense of carriage to and from THE BRITISH JOURNAL Office, 24, Wellington Street, W.C. The closing date for entries is January 13, and exhibits should, therefore, leave London by December 7. Exhibitors intending to take advantage of this offer must send their exhibits so that they are in our hands at latest by December 4, and should be distinctly marked "Cape Town Exhibition." We have on hand a supply of entry forms and these will be forwarded on application. On another page will be found brief particulars and conditions of the exhibition as affecting British exhibitors.

Christmas Orders.

With Christmas seven weeks from us, we have to prepare for the rush of work that season usually brings. In fact, many orders are now in hand for work required in time for posting abroad. The well-organised business is already prepared for dealing with the extra pressure of work. Daylight printing is out of the question, at any rate for orders that come in within the last two or three weeks, and, in the absence of special illuminants, bromide, or the slower gaslight printing papers, must be employed. We recently referred to the partial printing of P.O.P., the image being developed up to full depth by means of an acid hydroquinone or metol developer; but for a rush this method will not compare with the papers printed entirely by artificial light. Preparations should, therefore, be made, a supply of materials obtained in readiness, and some careful experiments made as to the best means of securing perfectly uniform results. There are many brands of paper on the market, and one should be chosen which will give the best results with the particular class of negative produced in the establishment. In working gaslight papers the main points to bear in mind are correct exposure and development with a strong, fresh developer. The professional worker will probably find it best to use these papers with a bright yellow light rather than in the open gaslight. If bromide papers are employed accuracy of exposure, uniform exposure for each print of a series, and development to the full in each case will produce prints of equal depth and colour. Rapid development, one to one and a

half minutes, and rapid fixation, not over ten minutes, with quick washing afterwards, go a long way to the production of good blacks and greys.

Price Lists. We have lying before us, as we write, several price lists from studios of different types, and the feeling forced upon us is that very much more might be done in their production to attract the public within the studio. Last week we printed an article dealing with the reception-room and its presiding genius, the receptionist. We pointed out that, broadly speaking, the effort should be to attract the prospective sitter within the premises, leaving the clever receptionist to secure or enlarge the order. It is questionable whether the very full and sometimes complicated price list really serves any useful purpose, particularly now that the various styles of mounts in use so vary the cost of the prints. Sitters invariably ask many questions as to price and style when they make appointments or come for sittings, indicating that the printed information has conveyed no definite idea to them. This being so, is it not worth while taking a leaf out of the book of the great advertising firms and, having some special line, call attention to that, and only that? Quality may be the specialty, or a particular style, or rapidity of production, or evening work by means of artificial light; but, if attention is called to the one point, and prices for dozens and half-dozens of the one line quoted, we think force will be gained by concentration. It would be almost essential to introduce from time to time new specialties, particularly in a town where the population is not frequently changing.

Does Cheapness Attract?

The question at once raises the old dispute as to the position of photography as a profession or a trade. We do not intend to discuss the question, thinking it sufficient to say that those who can run a studio on professional lines are well advised to do so; but that very many must perforce treat it as a trade, and adopt methods common to business where a manufactured article is offered to the public. As long as ladies have money to spend bargains will be hunted for, and ladies form a considerable portion of the photographer's clientele. With the very highest class of business the attraction of low price is not a consideration; and, in fact, it may then happen that a high price is an attraction. But where the bargain-hunting class of client exists, and they are attracted in the way indicated it is of the utmost importance to make the most of the position. Here the expert receptionist seconds the efforts of the one who framed the advertisement. The "ticket line" is only intended to open the door to further transactions—not in the future, but at the time. In arranging and advertising a special line, the utmost care must be taken to avoid an appearance of cheapness. It may sound cynical, but what many people like is to think that they are clever enough to get the best article at the price of the cheapest.

The Word "Photography."

The letter by Dr. Murray in the "Correspondence" Column this week raises an inquiry which has often occurred to ourselves, and it is one which at one time or another we have attempted to pursue further than the paper of Sir J. F. W. Herschel to which Dr. Murray refers. But we also have been unable to discover the words "photograph" or "photography" ante-dating Herschel's communication to the Royal Society. The readiest way to obtain a glance over the nomenclature of the earliest days of photography is to turn over the pages of the "Athenæum," which, for some years following 1839 discharged the duties of a

photographic organ. There we find Niepce's work described as "heliography," Fox Talbot's as "photogenic drawing," and only Herschel's as "photography." The now familiar name was used particularly in relation to Herschel for some time, and was included as a sub-section of the whole art of "photogenic drawing." It is not until 1843 that the latter phrase commences to be replaced by the word apparently first employed by Herschel. Considering the meagreness of literature ante-dating Herschel's paper, it is unlikely that any prior use of the words "photography" or "photograph" has been overlooked, and the natural explanation of the glib way in which Herschel let fall the words seems to be that they were the most natural Anglicisms—of a process and a product—to occur to a scientific man who was also a classical scholar.

THE "RESTORATION" OF DAGUERREOTYPES.

Professional photographers are sometimes called upon by their customers to copy a Daguerreotype portrait, the image of which is nearly obliterated, or, to use a more customary term, "faded." Bad as the state of the picture may be, it is usually highly prized by its owner, who may have heard that such pictures can be "restored." The photographer, perhaps, may have no idea as to how to do the work, nor is it surprising that the majority of the present generation of photographers should not be *au fait* with a process that became obsolete some forty or more years ago. Last week, in the Answers Column, we replied to a correspondent who very wisely wanted the address of someone who made a specialty of restoring Daguerreotypes, or, failing to obtain that, some advice on how to do the work himself. We say "wisely" advisedly, for it is within our knowledge that many valuable Daguerreotypes have been irretrievably ruined by people, knowing nothing of the exceedingly delicate nature of the pictures, attempting to deal with them.

Few, except those familiar with the process, recognise how extremely tender is the Daguerreotype image, although it is in reality the most permanent of all silver pictures. The image, it may be mentioned, is not supported by a film of any kind, nor is it protected by one, as in the case of a collodion or gelatine picture. It is merely on the surface of the metal plate, and can easily be removed with the finger, and a slight touch may be quite sufficient to leave a mark which no after-treatment will remove.

Briefly, the Daguerreotype process is as follows:—A silvered copper plate has its surface brought to an exceedingly high state of polish, i.e., until it is quite black. As a matter of fact, it is this black polish that forms the deepest shadows of the picture, and the higher the polish, the more vigorous the picture. This highly-polished surface is exposed to the vapour of iodine, then to that of bromine, and again to iodine. The iodide of silver is thus formed direct upon the bare metal. After exposure in the camera, the plate is submitted to the fumes of mercury, by which the image is developed. It is then fixed and afterwards "gilded"—that is, toned with gold.

Now, what takes place when a Daguerreotype "fades" is that the silvered surface of the plate becomes tarnished and the tarnish obliterates the image. But the picture is still there, and it is only necessary to remove the tarnish to make the portrait as good as it was at first, provided it has suffered no mechanical injury. If the picture was hermetically sealed, and kept so, so that the air did not obtain access to it, there would be no so-called fading. This sealing up the producers of Daguerreotypes were always careful to do by binding the picture, mat, and

glass together at the edges with goldbeater's skin, or a hard sized thin paper. In nine cases out of ten when a Daguerreotype has faded it has been taken out of its case, unsealed for copying, and then simply put back again without the trouble being taken to secure it against the atmosphere. Hence the deterioration, which always proceeds from the margin inwards. Often the centre of the picture is quite good, while the edges are nearly black. It is obvious that the image being in the attenuated form just described, and having no film to hold it as in the case of collodion or gelatine pictures, mechanical methods, such as polishing, are out of the question; and, therefore, chemical means must be resorted to in order to get the tarnish away. Cyanide of potassium is the agent to be employed, and we will now describe the manipulatory details.

The picture is taken out of its case and the old securing paper cleaned off the back, carefully avoiding any particles getting on the front. If there is any dust on the picture which cannot be blown off it should be allowed to remain, as it will be removed in the next operation. Its removal, even by a camel-hair brush, if it be of a gritty nature, would be liable to scratch the image, and a scratch once made cannot be eradicated. The next thing is to wet the picture evenly, and this cannot be done direct with water as the surface is very repellent to that fluid. The plate is first flooded with alcohol for a minute or two, and then put under a gentle stream of water from the tap, until all apparent greasiness is removed. Then, having ready a solution of cyanide of potassium, a little is poured over the plate and flowed backwards and forwards until the tarnish has been dissolved off. No definite strength for the solution can be given as the cyanide of commerce varies so much—from thirty to ninety per cent. The best way, therefore, is to make up a pretty strong solution and then add a little of it to some water, gradually adding more

until the tarnish begins to yield, and then allow time for its complete action. The solution may be used in a dish; but the better method is to pour it on and off, as then it can be applied locally, if desired. The tarnish having been removed—the picture restored—the plate is well washed under the tap, and finally rinsed with distilled water. If the final washing is with common water a thin veil is left from the lime or other impurities in the water. The picture is dried, and the drying must be done properly or streaks will be left. The method is this. The plate is held by one corner—say, the bottom left hand one—with a pair of pliers and flooded again with distilled water and drained from another corner, say, the right hand one. From this point the slope of the plate must not be changed. The flame of a spirit lamp is then brought under the highest corner, and as this dries the plate is gently raised so that the drying proceeds regularly downward. If there is a stoppage in the drying a mark will be caused which it is almost impossible to get rid of. In the drying, too, much heat must not be employed, or some of the mercury forming the image may be vapourised and the picture weakened.

The work being finished, it only remains to hermetically seal the plate and replace it in its case. This is done by binding the picture, the mat, and the glass together with a thin hard sized paper, or goldbeater's skin, as lantern slides are bound up. The best cement, perhaps, is flour paste; but gum should not be used, as when dry it is liable to split off the glass and metal. Most of the glass used for glazing Daguerreotypes was thick, and had its edges ground to give a tooth to the cement.

Although we have given very full details of the method of cleaning Daguerreotypes, we would strongly advise our readers, in view of the delicate nature of the image, not to attempt the work on a valued picture before they have experimented on one or two of little or no account.

HINTS ON PLUMBING FOR PHOTOGRAPHERS.

OUR readers will doubtless have noted a recent case reported in the JOURNAL when a photographer was mulcted in fairly heavy costs for damage done to other people's premises by the water from one of his sinks which had got stopped up. This stoppage of waste pipes is of frequent occurrence, and even large three-inch pipes are subject to it. Even if one does not damage other people's property, when no one is near and the sink overflows, there is certain to be a fair amount of deterioration to one's own place, and therefore it is advisable to take means of checking the nuisance.

Clearing Congested Pipes.

The small one-inch pipe frequently supplied to photographers' sinks is often stopped by small objects finding their way into the pipe and lodging at a bend, or by itself jamming. The longer pipes are most effectually made useless by a print floating on to the grating, or more especially by pieces of film cleaned off from glass. Apparently, the water that soon collects, instead of removing the print or film, keeps it in place by the weight of the water. The first consideration is to keep open the pipe, and the second how to prevent the recurrence of the trouble. A very good method for clearing pipes is to have a short length of rubber hose with connection for the tap. The hose is then placed on the tap, the loose end fixed into the plug-hole, and well wrapped round with an old cloth. The cloth and pipe is then firmly held down so that no water can get out of the pipe and into the sink, the wrappings of cloth making what is practically a water-tight joint. When these preparations are complete the water is turned on at full strength, and the pressure in all but the most stubborn cases removes the obstruction.

The Plumber's Force-Cup.

This rough-and-ready method is obviously of no use for the bigger waste pipes. In the case of an obstruction in these pipes a long cane will usually remove the source of the trouble. Frequently, however, the photographer will send for a plumber to do the work, and incidentally to charge as much as possible, not only for removing the difficulty, but also for going to the shop for some necessary instrument (it is most peculiar, but they all do it). His calling in the plumber adds up, and would easily be saved by buying the apparatus the plumbers use. All ironmongers sell them, or will order them; they are called force cups, and are like an extra strong sucker. The price, which is saved the first time the arrangement is used, is one shilling for the small size used for one-inch pipes, one shilling and ninepence for the intermediate size, and three shillings and threepence for the professional article with long handle. This long handle is in the case of a bad stoppage very useful, for one gets so much more leverage. The method of using this little instrument is to place the indiarubber cup over the plug-hole and press down until the cup is flat on bottom of sink, and the water is expelled from the cup. It will now be found that it is almost impossible to move the instrument, and it practically cannot be done until the pipe is free and air admitted from the other end of the tube. To clear the pipe the handle attached to the cup is forced sideways, and very soon the suction will remove any impediment to the flow of the water.

These methods, however, remind one of locking the door after the horse has gone: prevention is better than cure, and though it is almost impossible to guard against stoppage caused

through the congregating of matter in the waste pipe itself, yet the most frequent cause of disaster in photographic establishments—that is, prints, paper, and films stopping the outlet from the sink itself—can be easily circumvented.

A Simple Safeguard Against Overflow.

With large waste pipes, a wire cage shaped like the half of an egg, and with two or three long wires to drop through the holes of grating and keep the cage in position over the pipe, will easily prevent the stoppage. With earthenware sinks with small holes, the prevention is not so easy, the small cage usually used frequently being stopped. It is, however, obvious that a small cage is not a necessity; a large one might just as easily be arranged, and will be more effective. These cages, however, are not always convenient, and frequently get in the way, or get mislaid or get broken, when dishes are moved in the sink, so that when possible the following is advised:—Beside the ordinary waste pipe an overflow pipe should be fitted to the sink, with the entry to it about one inch lower than the side of the tank. This entry may well be at some distance from the ordinary plug-hole. We should advise that the overflow pipe be at least equal in diameter to the supply pipe, and that it join the latter at about two feet below the plug-hole. It will thus be seen that in the event of the plug-hole or of the first two feet of the pipe being stopped, it is impossible for the sink to overflow. This pipe is most easily fixed to wood sinks lined with lead; but it is easy to get earthenware sinks with the overflow outlet bored in the side, and the certainty that even if prints do get loose, the sink will not overflow is worth some little trouble.

We recently had damage to ceiling and wall that cost a twenty-pound note for redecoration, so the cost of fitting cannot be pleaded. The whole thing will only cost about five shillings for each sink.

The Common Syphon in Emergencies.

There is another dodge that we intended to mention before when speaking of the short length of the hose. If not too short this hose can be used for emptying a full sink into some point lower than the sink without use of basins or buckets for scooping up the water. A large bath may be used, in fact, for relieving the sink. Put one end of tube into the sink, and lead the other over the side, but be sure that this end is longer than the one in the sink. Now place the end of the long tube into the mouth—or, preferably, into some one else's mouth!—and draw in the breath. You can easily tell when the water commences to flow, and can then place the pipe into the receptacle intended for the reception of the water. Of course this is a description of a syphon, and very useful it is, too. Recently, before we took precautions, a sink filled, and the washer or tap was defective, so water had to be removed. The nearest grating was over a wall, so, getting a garden hose, the water was taken up seven feet across a flat for fourteen feet, and then fell twelve feet. It took plenty of breath to start the syphon, but when started it acted splendidly. Another use for the tube when the sink is full and tap running without cessation is to place tube on tap and let the drippings run into some other outlet.

A Waterproof and Soundproof Floor.

For those who are willing to go to some expense to be assured that drippings from dishes, splashes, and overflows will not do any damage, the following can be recommended:—Each room where water is much used is floored, or, rather, the floor is laid, with sheet lead, carefully joined, and extending for two inches up the walls, making a big watertight tray. Not only does this remove all chance of damage to other property, but it deadens all sound—in fact, many offices are treated in this way solely with that end in view, and, moreover, the floor can be kept scrupulously clean, a consummation devoutly to be desired.

W. FOSTER BRYHAM.

THE WEEK IN HISTORY.

A Memorial of Daguerre.

TO-MORROW, November 4, exactly fifty-three years will have elapsed since the statue to the memory of Daguerre was unveiled in the little market-place of Bry-sur-Marne. It was at Bry that Daguerre spent his last days, and in the little cemetery he is buried. The memorial takes the form of a bust and pedestal, and on the latter one reads the inscription:—"A. Daguerre, Artiste, Peintre, Chimiste, Inventeur de la Photographie." The opening of the memorial was made the occasion of very liberal encomiums of the work of Daguerre, and if I had the mind I could fill up weeks and weeks of history with the eloquent orations of M. le Maire, and other speakers. *Sic transit gloria mundi*, the place and the statue are now as good as forgotten, and not one photographic tourist in a thousand probably that visits Paris ever makes the forty-minute journey from the Place de la Madeleine to Bry and has a look at the last home of Daguerre. If they knew of a book about it all perhaps they would read it as they take the night express to Switzerland or Italy, and so I name the volume which collects all there is to say of Daguerre: "*La Découverte de la Photographie en 1839.*" By Mentienné, formerly Mayor of Bry. (Paris: Paul Dupont, 1892.)

The Changing-box of Fifty Years Ago.

The idea of carrying a stock of plates ready for exposure appealed just as strongly to the photographic enthusiasts of the fifties and sixties of the last century as to your latter-day amateur, who must have his pocketful of cartridges, a magazine of plates, or a satchel of envelopes loaded with cut films. The early patents in photographic apparatus abound in descriptions of curiously-fashioned devices for dispensing with the all-convenient and still undisplaced dark slides. But as early as any,

I believe, was an apparatus devised by a M. Plaut, the subject of a note in "*Cosmos*" of November 7, 1852. M. Plaut's changer was evidently the forerunner of the changing-box, although, as far as one may gather from the unillustrated account of it, infinitely more cumbrous in use. But, at any rate, it was immeasurably more practicable than a piece of apparatus of which Fox-Talbot described in "*Cosmos*" a week or two later. The inventor of calotype outlined a "*Chambre de Voyageur*" within which the photographer should sensitise, then expose, and next develop his picture, a scheme of daylight operations on which many inventors have wasted time and money from that day to this; on which, indeed, as I see in the "*Patents*" column of the *JOURNAL*, protection is still claimed for apparatus as old as the hills.

The Pretsch Process.

About the earliest photo-mechanical process to come into any sort of regular use was that patented fifty-one years ago on November 9 by Paul Pretsch. The process, however, was applicable chiefly to line originals. Yet the inventor endeavoured to break up full-tone originals into a sort of stipple by producing a reticulation of the gelatine. As described in the patent specification, No. 1854, 2,373, a plate was coated with a mixture or emulsion of silver iodide in a solution of glue or gelatine, was rendered sensitive by bichromate, and exposed under a print or other object to be copied. The plate was developed in water until the image appeared in relief, and then washed in spirit of wine, and finally hardened by a series of processes applied to increase the relief of the gelatine image. From the relief a copy was made by electrotyping or stereotyping.

HISTORICUS.

PHOTOGRAPHIC SOCIETIES AND EXHIBITIONS.

SOME NOTES ON THEIR PRESENT POSITION AND MANAGEMENT.

VII.

A GLANCE at the list of forthcoming exhibitions announced from time to time in the *BRITISH JOURNAL OF PHOTOGRAPHY* must convince the most sceptical that these annual fixtures are more popular now than at any previous time. In fact, the number seems to be steadily on the increase, in spite of croakings in certain quarters that the provincial photographic exhibition has seen its best day. Changes undoubtedly have taken place in the conduct of the shows, but these have been internal, and, in most cases, for the good of the undertaking. Any one who has followed the progress of provincial shows for the past few years and has had opportunities of observing the prospectuses and the general management of the proceedings, must have been struck with the fact that the tendency has been to standardise not only the rules and regulations governing the exhibitions, but for societies to imitate the organisation of each other. In fact, with a slight alteration of names, one society's entry form would now very frequently serve for half a score other shows.

Exhibition Rules and Regulations.

If a dozen or more prospectuses of different exhibitions be taken at random, it will be found that a great family likeness exists between the rules and regulations of all of them. It will also be found that in the main these are similar to the rules adopted by a meeting of exhibition judges on April 11, 1900, and revised in June, 1903. These rules were drawn up for the benefit of the societies affiliated to the R.P.S., and are published annually in the "Red Book."

They can be taken as a good guide by any society contemplating an open exhibition for the first time.

One Class or Many.

Among the recommendations added to these rules will be found one that reads:—

"It is desirable not to have classes. Where there are classes their number should be kept as small as possible, and divisions, where made, should be entirely respecting 'subject,' such as portraiture, landscape, etc., and not such as hand-camera classes, enlargement classes, etc."

If the society is of some standing, and has held successful exhibitions in previous years, the first sentence contained in the above recommendation can certainly be acted upon with advantage. If, however, it is a newly formed society, or has had no previous experience in exhibitions, there can be no doubt that several classes and a goodly display of awards—medals or plaques—will attract a far bigger entry. The fact nevertheless remains, unfortunate as it may appear, many shows depend to a great extent upon the "pot-hunting" fraternity, and unless they are encouraged the exhibition is a failure.

The time is not yet ripe—and it still seems a long way off—when provincial exhibitions will be strong enough to dispense with medal awards altogether. At the present time, to offer the exhibitor—as a return for sending his pictures and entry fees—the bare honour of being selected and hung at a provincial show, would spell disaster.

The Entry Form.

When drawing up the entry form and prospectus, the secretary and committee will have to bear in mind the following points:—Number of classes in both open and members' classes—the latter in any case to be as many as possible for politic reasons. Lantern slide classes; the form the awards are to take, and how many in each class; the date of the show, which should not, if possible, clash with

any other exhibition; the number and names of the judges; and the length of time the show will remain open. The inexperienced secretary cannot do better, however, than write to the secretaries of all other societies holding exhibitions and ask for specimens of their entry forms, etc. With these as a guide a good idea of the right way to proceed will soon be gained. When these preliminaries have been dealt with, and the prospectus is printed, a list of the most likely exhibitors to whom they can be distributed should be obtained from secretaries of other societies by writing a courteous letter asking for the loan of copies of all available catalogues containing names and addresses of exhibitors. The method of sending out the prospectuses is also deserving of more attention than it gets. The forms are usually placed in envelopes and sent without further comment to the potential exhibitors. If the exhibitor is at all well known he is in receipt of a great number of these forms, and unless some particular attraction is offered will probably put the bulk of them in the waste-paper basket. It is no great trouble or expense, therefore, for the secretary to prepare a typewritten letter, and have it duplicated. If he personally signs them and encloses one with each prospectus, much more attention will be paid to the application for exhibits than if the form only is sent.

Advertising.

Before deciding on an exhibition, arrangements should, of course, be made for its accommodation, and when a suitable gallery or room has been secured, the event should be judiciously advertised. Editors of photographic papers are first approached, and a polite request to insert a preliminary notice and date rarely finds denial. The local papers should also be notified. The results of these announcements takes the form of applications for entry forms. If these are ready they should be at once dispatched and a note kept of the addresses, and when the time for sending in entries draws near, these applicants, and also the exhibitors whose names have been obtained from other sources, should each be sent a reminder on a postcard, or another entry form.

About this time, too, further paragraphs should be sent to the papers, indicating any special features of the show, and negotiations should also be entered into for obtaining the attendance of the mayor or other local bigwig to perform the opening ceremony. This will afford excuses for notices in the local press, and the formal opening of the show under these circumstances will probably be the best advertisement it will get. Posters and smaller bills are also very necessary. Endeavours should be made to arrange with the authorities to display the former on boards in special positions, such as near the gates of parks or other open spaces in the locality, and the fact that the local M.P., or the mayor, is announced to open the show, will greatly assist towards this end. Local dealers and other shopkeepers can usually be persuaded to display the small posters or bills in their windows, and each member of the society should be asked to see to the distribution of a certain number; each can usually get a few displayed, and the total will be a great help.

Sources of Income.

The sources of income open to the enterprising exhibition secretary for the benefit of the show are many. As, in nine cases out of every ten, the annual exhibition is run with a view to profit and not a loss, they are all worthy of attention. First, there are the entry fees. It should be quite definitely settled, when arranging the preliminaries for the exhibition, whether a selection committee will be appointed or not. If the show is a strong annual feature, and a large number of entries are anticipated, such a committee is an advantage; but if

is strongly advised that if any exhibitor's pictures are rejected, his entry fees should be refunded, otherwise the reputation of the society will suffer in the future. Secondly, advertisements in the exhibition catalogue. These can be either canvassed for by the secretary or his assistant, or the entire catalogue can be given to a printer who will undertake to produce the issue free and pay himself out of the advertisements he obtains for it. From the frequency this latter method is adopted it is clear that a profit can be made over the printing bill, and it is therefore advised that the matter be kept in the hands of the society. With an average price of £1 per page, and a couple of guineas for full-page advertisements on the covers, a handsome addition to the funds should be made if the canvassing is well managed. Every well-known photographic advertiser should be written to (the "B.J. Almanac" forms a good directory), and either a specimen copy of last year's catalogue or a dummy copy of this year's submitted. Full particulars as to number of issue, scope of exhibition, etc., and latest date for copy, should be given, and follow-up letters should be sent after an interval of a week if no reply is forthcoming. Local advertisements can be best canvassed for personally. Thirdly, trade stalls. If the show is a big one, certain well-known firms may send representatives. Usually, however, it pays best to offer the spaces to local dealers, who will then not only represent the big firms and derive profit from the advertisement, but will do much to boom the show among their customers before it opens. Fourthly, gate money and sale of catalogues. These, of course, depend on local circumstances, the weather, and to what extent the show has been boomed. Fifthly, commissions on sales of pictures, donations for medals, etc., and side shows. Lantern lectures, if well advertised, are always a draw, and it pays best in the long run if no extra charge is made. If space permits, however, a tea-room for afternoon visitors should be arranged. This can be let to a local caterer at a fixed price, and he will take all the profit he can.

Dealing with the Pictures.

When the time for entries approaches and the pictures begin to arrive, it will usually be found best to deal with them all together. On an appointed day, therefore, after the entries are all in, the secretary and his assistants (this is where the talkers and the workers betray themselves) assemble at the exhibition room, where all the cases and packages have been delivered, and, with the help of at least one professional packer, the pictures are removed from their coverings. Each worker should have an appointed task, and the secretary should see that he does it, or endless confusion will result. Storage for the empty cases and wrappings should be taken into account when hiring the hall for the show, otherwise there will be great difficulty in disposing of them until they are wanted again. As the exhibits are unpacked they are checked with the entry forms, which should be kept in alphabetical order (exhibitors' names) for ready reference. Their condition and a brief description of box should be recorded in space left for this

purpose, and a distinctive number should be marked on the case, the entry form, and the backs of all pictures from that case. This will be found very helpful for future identification when repacking.

Cataloguing.

The compilation of the catalogue should commence as soon as the entry forms are received, and the following method suggested by the writer some years ago has proved very reliable and expeditious in practice. A series of slips of paper about 12 in. by 2 in. are prepared beforehand. On them are written particulars of the pictures (title, process, name, and price) as given on the entry form. A space is left for the catalogue number, to be filled in later. By the time the boxes are unpacked each entry form should have attached to it one or more of these slips duly filled up—one for each entry. As the pictures are checked, its proper slip is attached by one end with a little gum or paste to the back of the frame near the top, and the remaining portion, with the particulars in view, allowed to hang over the front. The frames are then stacked according to classification, if there are classes, and finally hung. As soon as each wall or panel is hung, numbers are fixed to the pictures in proper rotation (these numbers should be small and neat) and the blank places on the slips of paper filled in with similar numbers. The slips are then torn off as many of the frames as are fixed in their final position, and sent to the printer. They form the printers' copy for the catalogue, and he sets the matter up straight away from them. Errors are far less likely with this system than with any other, and moreover the catalogue will be in strict agreement with the order of the pictures on the walls.

Hanging.

The plan adopted for satisfactorily hanging pictures in most exhibitions, and one to be commended, is to mark out on the floor a space equal to the wall space to be covered, and then arrange the frames in this space before putting them on to the walls. Each section of the walls can thus be quickly dealt with in turn, and the arrangement will usually give far more satisfaction than if the pictures are fixed straight on to the walls at first. If there are no classes, a good plan is to hang each exhibitor's work in a group if he sends in more than four pictures. The best height for the sight line will be about 5 ft. from the floor. This should represent the middle of the pictures "on the line." Frames—unless they are big—should never be higher up than 7 ft.

Judging.

The number of judges selected should always be odd. This is necessary to avoid a deadlock of opinion, which sometimes occurs when there are two or four judges. Three appears to be the best number, and the exhibition rules and regulations previously referred to will be found to meet all contingencies connected with the judging. The question of allowing the judges to know the exhibitors' names should be settled definitely, and quite the best plan is to supply each judge with an advance copy of the catalogue with full particulars. If sufficient faith cannot be placed in the impartiality of the judges chosen, they ought not to have been selected.

"HON. SEC."

WHEN DOCTORS DISAGREE.—In our issue of the 13th ult. we referred to statements made by Dr. George Lindsay Johnson in the "Daily Telegraph," conclusively shattering the old belief that the last optical impressions of a dying person were recorded indelibly on the coating of the eyes, and proved beyond question the impossibility of obtaining the image of a murderer by investigating or photographing the retina of the person murdered. The Rome correspondent of the "Daily Chronicle" now sends the following communication to that paper:—"An astounding discovery has been made by a distinguished Roman ophthalmologist, Professor Cyprian Martini. Readers of the 'Chronicle' will remember the assassination of Signor Bianchi, one of Italy's best-known criminal lawyers, who was defending Captain Modugno, at Perugia, on a charge of

wife murder at the beginning of last month. Professor Martini, in order to experiment with an improved ophthalmoscope invention of his, obtained the permission of the authorities to examine the eyes of the young university student Casale, who confessed to the murder of Signor Bianchi. By means of his instruments the professor affirms that he discovered a perfect profile of the murdered lawyer at the back of the retina of Casale's right eye, so clear was it that he was able to discern the exact position of Bianchi, the precise expression of his physiognomy at the moment of assassination." The account also states that several endeavours to photograph the image on Casale's retina were fruitless. Our readers who will refer to Dr. Johnson's communication will readily understand the reason of this.

DEVELOPMENT OF P.O.P. PRINTS.

THE formula published in our issue of October 20 in the report of the paper by Dr. Woolsey Blacklock, before the Gateshead Camera Club, has been tried by a writer in the "Pharmaceutical Journal," who expresses satisfaction with it, so far as to describe it as giving better results than any hitherto used. The following notes by the writer on his working of the process may be quoted in continuance of the directions given by Dr. Blacklock.

Development Precautions.

In my own experiments I selected the Ilford Special P.O.P. as being a quick and soft printing paper, which would yield a thin image with good detail to work upon, and gave this an exposure of about two minutes to diffused daylight, the negative employed being of full density and contrast. The print is put into the developer direct from the printing frame, no intermediate washing being necessary; in fact, it appears that the free silver nitrate of the paper plays an important part in the building up of the image. I found the development rather slow, it being quite ten minutes before the image had arrived at anything like full density. This was then fixed in the following:—

Sodium hyposulphite.....	1 oz.
Lead acetate	60 grains.
Water	6 fl. oz.

as recommended by Dr. Blacklock who, in his paper, makes no mention of any toning. The tone thus obtained is of a warm sepia character, and not unpleasing. Contrary to Dr. Blacklock's experience, I found that the developer became slightly discoloured after using it upon one print, and it did not appear to be advisable to use the same solution a second time. The back of the print became discoloured also, but the whites of the image remained clear, so that this was of no moment. My second exposure was made from the same negative, and was of about the same duration. Development proceeded just as in the first instance, but after well washing the developed print in flowing water I put it into a combined toning and fixing bath. Toning proceeded very slowly, probably due in great measure to the low temperature, and the finished result, though still warm in colour, has the purple tinge similar to that of a fully printed-out image treated in a like bath. I found that the prints toned rather quickly and unevenly in the ordinary sulpho-

cyanide toning solution, separate from the fixing, but possibly I might have been more successful had the toning bath had more time to ripen or if a minute proportion of sulphite, as recommended for the Ilford Special P.O.P., had been added to the toning bath as a restrainer.

Silver Nitrate as Accelerator.

It appears that the action of the developer, as recommended by Dr. Blacklock, is analogous to that of the intensifier used many years ago for collodion plates, which consisted usually of pyro, citric acid, and silver nitrate, the free silver nitrate of the P.O.P. taking an active part in the building up of the image. In order to test this I exposed another paper for about two minutes, and during the development added occasionally a few drops of silver nitrate solution, and found that this not only materially accelerated the development, but also added considerably to the vigour and richness of the image. The print thus obtained, and toned in the combined toning and fixing bath, is by far the best in quality I have yet obtained by this method. I would, therefore, suggest that a solution of silver nitrate of 5 per cent. strength should be kept at hand, and should the development be unduly slow, a few drops added from time to time until full vigour and density is attained. Extra care and cleanliness should be observed at every stage of the operations, or there is great liability of staining the paper, and, consequently, of ruined prints.

By Artificial Light.

In order to test whether similar results could be obtained at night by the use of magnesium ribbon as the illuminant, I made two exposures upon another negative, somewhat thinner in character, with complete success. For the first exposure, 12 in. of ribbon was burnt, being kept in motion during the exposure about 2 in. from the negative; this produced a visible image which developed up strongly, and produced a print quite equal to those obtained by the daylight exposures. The second exposure proved that 6 in. of ribbon was quite sufficient to produce an equally good print, probably even less would suffice, but in order to ensure equality of illumination, it would be necessary to cover the front of the frame with tissue paper or ground glass, which would probably necessitate the use of that quantity at least.

F. GOLDSBY, Ph.C.

A PHOTOGRAPHER'S ADVERTISING.

[A fortnight ago we published an account from "Printers' Ink" of more remunerative circle of patrons by local booklet distribution. advertising contemporary, deals in a general way with advertising deserving of study.—Ens., B.J.P.]

THERE is no good reason why the photographer should remain, as he does, in the world of outer darkness where advertising prevails not. For he has a splendid proposition. All it needs—saving the pun—is skilful development.

Portrait work forms the staple product of a photographic studio. Yet perhaps only one person in ten who really wants a new portrait ever gets up to the studio stairs and under the skylight. The rest procrastinate. Photographers continue to print plain business cards in church programmes or to dwell on their bargain prices in the scant newspaper advertising they venture upon. Little is said about the art of portrait photography or the latest styles in which pictures are finished. What photographer ever went the length of sending out decently-printed folders showing half-tone reproductions of his best work? Yet is there another line of business that lends itself so readily to illustration of this kind?

Business Through Sentiment.

The sentiment of the photograph is fine material for advertising. Death is continually taking people off, leaving relatives and friends

the way in which a photographic studio was introduced to a new and The following article, which also appeared in the columns of our as it may be undertaken by the photographer, but is none the less

without a likeness. Some families make a practice of visiting the studio yearly and having a group taken or individual portraits—a commendable practice that many other families would adopt if they knew about it. Then there are the babies. A baby changes so rapidly that its portrait ought to be taken every three months during its first year of life, and every six months up to school age. Weddings, birthdays, anniversaries, family reunions—all these are occasions that suggest photography to the photographer, but those who take part in them seldom think of the camera until too late. The advertising of a live photographer would be written in the form of little talks about these matters, suggesting uses of the camera and occasions when a visit to the studio would result in a valued memento. If the photographer were in a smallish town, and made a specialty of photographing residences, dinner parties, weddings, and similar gatherings, these would form another theme for good advertising talks. The artistic side of photography has never been presented to the plain people in its true aspects. If it were, by a photographer who knew his business, there would be less demand for the vulgar

over-retouched "picture" and more for the studied, natural photographic portrait—at twice the price.

You May Tell Your Customers How to Dress for a Photograph.

Information about his craft—that is the advertising need. How many photographers go the length of printing a folder telling people how to dress for effective portraits? Yet is any subject more live than this—has any a more direct bearing on satisfactory work? Not long ago the "Housekeeper" published an article on this subject, which covers it *in toto*. Reproduced as it stands, it would make a folder to mail to a list of the best people in town:—

HAVING ONE'S PICTURE TAKEN.

Colours in Dress Are of Utmost Importance—What to Wear When You Visit the Photographer's Studio.

Generally speaking, dark gowns should be avoided. Red, especially, is a colour to avoid, as it gives an intense black in the finished portrait. Even for the elderly ladies it is better to have something light and soft folded about the neck and shoulders. Sheer fabrics and good lace always look well in photographs if nicely arranged. Where possible a low-necked dress should be chosen, if the sitter is not too slender, since the lines of the neck and throat are the prettiest part of many photographs. Where one does not care to wear a regulation evening dress, one just slightly open around the throat is infinitely preferable to a high stock collar. A chiffon or mousseline de soie fichu is as artistic a thing as one can find, unless one be fortunate enough to have some delicate piece of old lace which can be arranged in somewhat similar lines. Some faces look more attractive when framed, as it were, by a large picture hat (ordinary hats are generally a mistake in photographs), and this, in combination with a low-necked dress, is not against the canons of good taste, though it might easily be so if the wrong kind of hat were used. An opera cloak edged with something light and fluffy is pretty thrown loosely over the shoulders, especially if one prefers not to have too much of the neck and shoulders

showing. Arranging the hair becomingly, so as to avoid any hard lines where it touches the face, is very important. The style of bringing a solid mass of hair low over the forehead is one that needs the most careful treatment in the world to prevent its ruining the picture. Indeed, it is well to avoid extreme styles (which are always ephemeral and look almost vulgar when they are no longer fashionable) in a photograph—not only in dressing the hair, but in what one wears to be photographed in. This is, of course, especially important in a full-length portrait, for, although we all get to like what is fashionable, however outrageous we first thought it, an exaggerated protuberance in sleeve, bustle, or any lines which are not those of the natural figure, become distasteful later on, and we feel inclined to burn up the photograph when we see it in our friends' houses.

Advertise Quality at a Good Price.

Prices should be a distinct theme in the photographer's advertising. But not competitive prices. The bargain idea has been overdone in photography, and the craft thereby put on a basis wholly wrong. People look for the lowest price now because they do not know what quality in a portrait means. If told in straightforward, informative advertising they would quickly see the point, willingly pay the price. In place of the old conventional dozen cabinets, all alike in their bourgeois finish, would spring up a demand for fine individual portraits of real artistic value. People do not always know what is best, and need education. Judicious advertising along quality lines would do for the photographer what it has done for many other business men—separate the bargain trade from that which is willing to pay for value. These plain advertising truths doubtless look trite to business men in other lines, where publicity has been developed logically. But the state of the photographic craft is so backward as regards advertising that they should be fresh and suggestive—so much so, let us hope, that they will be acted upon.

A CRITICISM OF THREE-COLOUR PHOTOGRAPHY.

II.

The Reproduction of Colour.

I MIGHT go on giving you numerous other examples, but we will now apply them to the case of colour photography. Taking them together, the reproduction of motion with the cinematograph, of relief with the stereoscope, and of sound with the phonograph, do they not give a blow to the sceptical aspect of the question? Do they not incline us to look more favourably on the feasibility of photography in colours in the professional sense? Do they not, indeed, take us still further and prompt the question, "How is it that we photographers, having done so much to instruct and please the world, do not also give in our prints the pink of the cheek, the hue of the eye, and the glory of the sunset on the mountain?"

Before answering this question, let us see what has already been done. Within a year of the discovery of photography in 1839, men's thoughts were turned to the possibility of fixing the colours of the camera image. Robert Hunt had already obtained results with a sensitised paper, showing that on exposure to diffused daylight under red, yellow, and green glasses, it became red under the red glass, yellow under the yellow glass, and green under the green glass. He also wrote as follows:—"Colour alone is wanting, and there are sufficient reasons for believing that in the progress of research we shall, before long, arrive at processes by which the delightful pictures of the camera shall be rendered permanent in all the beauty of those glowing tints which give to the fields of creation their exquisite charm and enchanting character." These remarks and experiments of Mr. Hunt are valuable as affording an example of the attitude of many early enthusiasts, both as regards the possibility of reproducing colours, and of the manner in which it would be accomplished. That is to say, it was fondly hoped, during those sanguine

days which immediately followed the first achievements in monotone, that a substance or preparation would be found which, on exposure in the camera, would permanently assume, or could by subsequent treatment be made to assume, the natural colours of the object.

The Work of Clerk Maxwell.

Years, however, passed without any real progress being made. But, in 1850, Clerk Maxwell, an undergraduate at Trinity College, Cambridge, studied the subject of colour. By 1855, and when but 24 years of age, he had conceived a complete system of recording colours by means of photography, as well as a method of reproducing them.

He says:—"Let it be required to ascertain the colours of a landscape by means of impressions taken on a preparation equally sensitive to rays of every colour. Let a plate of red glass be placed before the camera and an impression taken. The positive of this will be transparent wherever the red light has been abundant in the landscape, and opaque where it has been wanting. Let it now be put in a magic lantern along with the red glass, and a red picture will be thrown on the screen. Let this operation be repeated with a green and violet glass, and by means of three magic lanterns let the three images be super-imposed on the screen. The colour on any point on the screen will then depend on that of the corresponding point of the landscape, and by properly adjusting the intensities of the lights, etc., a complete copy of the landscape, as far as visible colour is concerned, will be thrown on the screen." Here we have the first conception—clear, definite, and incisive—of a method of reproducing colours, and in mentally looking back to this time, we can realise the immense step forward which it chronicled.

Photographic Records of Colour.

Sixteen years had passed, and had been spent by those who investigated the subject in the quest for a substance which would arrange itself, by the action of light into permanent compounds reflecting the multitudinous hues of nature, or in fact anything and everything which appeared in the least hopeful; like mariners getting sail to discover a port without charts or compass, and without even knowing its whereabouts, they were without a clue or a guide to help them. Clerk Maxwell, at one stroke, located the port, and gave the true course.

Sixteen years had passed, and the sensitive plate was universally regarded solely as a chemical means of recording gradations of light and shade. Half a century has since passed, and, speaking broadly, negatives are still regarded much in the same way. Clerk Maxwell, in one short sentence, gave us the more truthful statement, that our negatives are not records of light and shade; but records of colour. It is true that people knew their sensitive plates were only sensitive to violet rays—but this is a very different thing to the full recognition that negatives can form a true record of that colour, and can be used to reproduce it in its proper gradations as existing in the original. Clerk Maxwell further told us that by three such records—the others being red and green—all the colours of nature can be registered for future production at will.

Du Hauron's Colour Prints.

In 1870, Louis Ducos du Hauron pointed out, amongst many other applications, that, by use of transparent pigments whose colour is complementary to that which the negatives record, the system can be applied to the production of colour prints, and he introduced the process now developed afresh, that of superposing these carbon prints. At this time the Franco-German War began, and Louis Ducos du Hauron, though a born investigator, nobly left his experiments and went to fight in his country's battles. By 1879, however, he and some of his pupils, notably Artigue, of Bordeaux, and Albert, of Munich, had produced excellent specimens.

Since this time many new processes have been introduced, and we now have those of Ives, Prof. Joly, Benetto, Sanger-Shepherd, Lumière, and this year Dr. Koenig's Pinatype, besides many others. But none of these even remotely touch the problem from its professional aspect, and I will now endeavour to explain why it is they fail.

Clerk Maxwell's Methods in Practice.

The first of the two essentials which we found form the basis of the successful reproduction of motion, relief, and sound respectively, were simplicity of method, both in the means employed to form the records and in the reproduction. You will have gathered from my references to Clerk Maxwell that he taught us, and, I may say also, substantiated his teachings, by exact measurements, that both perfect records and the reproduction of natural colours are possible by very simple means.

Clerk Maxwell further taught us that we can, in fact, both record and reproduce all colours by three photographic impressions, and so we secure simplicity of method, the first of our two essentials. Let us put this clearly in another way. We can perfectly reproduce motion, so far as it is a question of sight, without having to reproduce the actual motions themselves. We can also perfectly reproduce the solidity and forms of objects, so far as sight is concerned, also, without having to make solid models. We can also reproduce the music of a hundred performers without the instruments themselves or copies of them. Clerk Maxwell showed us that we can include colour in our list, and reproduce by equally simple means the colours of nature. And here I will ask you to give me your best attention for a few minutes, as we are reaching the kernel of the subject.

While I am talking there are many perhaps who are recalling to their memories three-colour prints produced by one of the numerous processes already in vogue, and are saying to themselves—Do you mean to call these photographs in natural colours? Certainly not. A photograph in natural colours means the accurate reproduction of the colours as you see them on the ground glass of the camera, where they are true to nature, and highly idealised through being in miniature. I want everyone here to-night to fully understand that Clerk Maxwell's system of colour photography is in no way responsible for the crude results we are familiar with. The system is all right, but the methods and materials of carrying it out are defective. This brings us to the second essential to success—"Accuracy." At first sight it would seem that we ought to succeed in this respect, for we have the same accuracy of image on our ground glass which we find gives such admirable results with the cinematograph and the stereoscope, but the analogy is only superficial, for the accuracy of the photographic print, as distinct from the camera image, is only applicable to the outlines of the subject, and does not apply to the tones and colour values. You cannot alter the outlines of your image by using different plates, or by differences in exposure or development, or depth of printing, but the tone and colour values can and are altered by each of these alterations to almost any extent. It is precisely here that our colour reproductions break down. Our colour records are absolutely accurate in outline, but hopelessly inaccurate in their colour values. The pink of a lady's cheek requires absolute accuracy, both singly in each negative, and relatively to each other in the three negatives to become records of any real colour value, and the same applies to the prints. But the prints themselves by our present photographic methods, are just as likely to turn the pink into green.

Problems in Colour Reproduction.

We can now sum up our chief difficulty as follows:—The lens and camera give us on the ground glass accurately the natural colours of the original as well as the outlines, but both the recording negatives and the reproducing prints completely fail in accuracy except as one lucky chance in a thousand, or with very easy subjects.

Having localised the chief source of our difficulties, we must next find out why it is our negatives and prints, whilst giving us such absolute accuracy of outline, fail so completely in tone and colour values.

It is because the outlines are formed exclusively by optical means, whereas our tone and colour values are dependable, in addition, upon delicate chemical reactions (over which we have no adequate control) and human judgment. As long as we keep to mechanics and physics, it is not difficult to arrange matters so that we get automatic accuracy and uniformity of action, but directly we depend upon these delicate chemical changes or human judgment, however skilful, we introduce errors, and our colour process and prints, for these reasons, just in the one detail above all others where accuracy is required, fail us.

"Process" Solutions.

Let us now look round and see if we can find any way out of our difficulties, and here close at hand our attention is arrested by tricolour type printing, which is the one application of photography to the reproduction of colours which has any real professional value at present, and we soon find the reason of this success is that we have here a process in which the faulty methods of pure photography are to some extent got rid of and some degree of accuracy secured.

In three-colour type printing the prints are obtained with an ordinary printing press, and this means that we practically impress our paper with the full colour or with nothing, and do not attempt

to print gradations of colour. The gradations are there, of course, but they are produced by printing dots or stipple of different sizes in a given area, so that a greater or less portion is covered with the pigment and the remainder left white, as in a wood or steel engraving. In this way we remove the uncertainties of purely photographic printing, and secure accuracy so far as the dots on the printing block represents accurate colour records. But in order to make our printing block, we have first to secure what is called a screen negative—that is, one in which the gradations are formed by dots, as in the block. In the production of these screen negatives, as practised by photo-engravers at the present time, we have all the sources of inaccuracy, with others added, as occur in ordinary photography. It so happens, however, that the metal printing block is eminently fitted for retouching, for corrections, and for alterations, and the success of tricolour printing is founded largely on these two qualities—that is, first, the facility with which corrections can be made on the block, and, secondly, the blocks, once they are corrected and adjusted, become both accurate and automatic in the printing.

There is a very good illustration of this point. It is an example of tricolour printing by Mr. G. Symmons and myself, taken some time ago, in which an endeavour was made to get a correct reproduction without retouching, but less than two or three dozen negatives were taken before the negatives were sufficiently accurate for the purpose, but, once obtained, the block-making and printing became automatic.

"Irradiation" in Negative-making.

The question then arises, can we go a step further and obtain the same automatic accuracy in making the negatives, and to do this it is necessary, as I have explained, to get rid of the uncertainties due to human judgment and chemical reactions.

I have here a series of incandescent lamps, through which electric currents of different intensities are passing. Those who are sufficiently near will be able to see that the filaments of the brighter lamps look thicker than the others, and that the apparent thickness, in fact, is proportional to the brightness. You will particularly notice that the outlines of these thickened filaments have sharp edges. This effect is due to the light which forms the image of the filaments spreading in the retina of the eye, and is called irradiation. The same effect takes place in our photographic films, and you may make photographs showing these thickened filaments. Now in ordinary photography, as we have stated, the particular value of the gradation depends upon the chemical nature of the film, the exposure treatment during development, etc., and in ordinary screen-making, in addition to these elements of uncertainty, we have others added, due to the size and shape of stop, distance of screen, intensification and reduction, and so on, but this phenomenon of irradiation I have just shown you is a function exclusively of the physical nature of the film, and if you prepare a process screen so that its rulings are in contact with the film, you get a gradation of dots dependent exclusively upon the quantity of light reaching the film, and nine-tenths of your sources of error disappear. You have, in fact, the analogue of the waxed cylinder in the phonograph, except that although the light strikes the film vertically, it cuts its record laterally. There are numerous examples here illustrating this phenomena.

Here, for instance, are some large photographs, in which the tones are produced in the manner described, not exclusively so, because an ordinary process screen was used, having the thickness of the cover glass between the ruling and the paper. But notwithstanding this, in the case of these prints the gradations are quite independent of chemical reactions, of the time of development, of the composition of the developer, and human judgment, and, to a very large extent, also independent of the exposure.

We have, then, in the phenomena of irradiation a potential means of recording tone and colour values on our negatives, which is vastly more accurate and automatic than any system which has hitherto been published or utilised. There are, it is true, one or two other systems which eliminate chemical action, as in the highly scientific process of Prof. Lippman, founded on the interference of light.

The Need of Accuracy.

But what I wish to most particularly emphasise is that until you adopt some means by which the natural colours of the object automatically and accurately record themselves on the negatives, you cannot hope to realise photography in natural colours in the professional sense, and as far as I can see the only way to get such accuracy is to make the record a physical one, either with the aid of irradiation, such as I have indicated, or by some other similar means which research may discover. In the references we have been making to the employment of screens, we have been speaking so far in their relation to type printing, but they are equally applicable to pure photography. In type printing, the rulings of the screen must be fairly coarse, and certain conditions in connection with shadow dots and high lights, which are necessary, interfere with their accuracy, but in ordinary photography the rulings can be much finer, so fine, indeed, as to be invisible, and it is just with these fine rulings that irradiation has full play to exert its influence. There may be many here who are saying, surely you will not compare a process print with a good photograph? To such I would say, the defects of the process print are the defects of the rough methods of printing, not of the ruled screen.

[The lecturer here showed many examples in which the gradations were formed by irradiation, and stated that these gradations were not only equal to those given by the best ordinary photographs, but, if any thing, superior to them.] Here, for instance, is a reproduction of a very simple object—a white sphere. I do not think it is possible to obtain a photograph of this simple object by ordinary photography, which will compare, as regards delicacy and purity of gradation, with that obtained with the aid of a screen, and this test with a simple object is true in even greater force of more complex forms. Also in ordinary process work, in order to get correct screen action, we are practically confined to ruled screens and dots, but with irradiation we may employ curvilinear lines, stipples, patterns and textures of every description and of every degree of fineness, the one condition being the division of the screen into opaque and transparent spaces. Examine yourselves small steel engravings of statuary and other subjects, in which purity and delicacy of gradation are essential, and then see if you can find any pure tone shading which will compare with them.

In conclusion, let me remind you that the future is in the hands of the worker. Our theoretical knowledge is sufficient, if not complete. At the same time, the ratio, if I may use such a term, between work and the value of its results, depends upon the correctness of the lines upon which the individual expends his energies, and, as we have learned to-night, the lesson which the cinematograph, the stereoscope, and the phonograph, as well as many other triumphs of recent years, teaches us is that one of the conditions upon which future work must be based is that the methods of record and reproduction must be free from the inaccuracies which at present exist in photographic processes, inaccuracies which, while important even in ordinary monotone, form a fatal barrier to success in colour work, and I can express no more appropriate wish for those I am addressing than that they may be sharers in the commercial, professional, and pictorial triumphs, which the future undoubtedly holds in store in the domain of photography in natural colours.

E. HOWARD FARMER.

THE CAPE TOWN EXHIBITION.

ELSEWHERE in this issue we refer to our offer to British photographic exhibitors to receive and forward to South Africa all exhibits intended for the international photographic exhibition, to be held at the City Hall, Cape Town, in February next, under the auspices of the Cape Town Photographic Society. The following rules and conditions relating to the competitive classes are abridged from the prospectus of the exhibition. They are the only ones necessary to be observed by competitive exhibitors from this country. The entrance fee is 1s. for each competitive class, irrespective of the number of exhibits. Exhibits from other parts of the world than South Africa need not be framed, but must be mounted. Not more than one picture to be included in one frame or mount. The necessary particulars for catalogue must be given on the entry form, and a label bearing the name and address, also title or description of photograph, together with a number corresponding with that on the entry form, must be affixed to back of picture. Entry forms and labels will be forwarded, but any exhibitor may affix his or her own labels. The name of the exhibitor must not appear on the front of any exhibit, except lantern slides or stereoscopic transparencies. The rules and regulations of the "Conference of Judges," as published in the Photographic Red Book for 1905, will be adhered to. Arrangements will be made for the sale of pictures, if desired, subject to a commission of 15 per cent.

The International and Open Pictorial Section contains the following classes:—1. Landscapes. 2. Seascapes. 3. Architecture. 4. Genre and Figure Studies. 5. Still Life. 6. Lantern Slides any subject (sets of 3). 7. Stereoscopic Transparencies (sets of 3). 8. Stereoscopic Paper Prints (sets of 3). A silver medal is offered in each class.

There is also a section for scientific and technical photography, in which medals will be awarded at the discretion of the judges.

The society's gold medal will be awarded (in lieu of any other medal) for the most artistic picture, irrespective of class or subject, such picture to become the property of the Cape Town Photographic Society.

Pictures sent "Not for Competition" will be included in the Invitation Section.

The judges will be:—Pictorial Classes: Messrs. R. H. Whale (Art Master and Technical Instructor, Government School of Art), Vine Hall; and A. J. Taylor.

Genre and Figure Studies: Messrs. G. Crosland Robinson (Art Master, Government School of Art, and Diploma of Honour, Dresden Academy), J. J. Bissett, and W. Watson.

Scientific and Technical: Dr. R. Marloth, Messrs. H. E. Fripp, and W. Richmond.

Entry forms will be forwarded on application to The Editors, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, London, W.C. All exhibits intended for the competitive sections should reach this address not later than December 4.

THORNTON-PICKARD £100 PRIZE COMPETITION, 1905.

THE following is the list of prize-winners in the recent Thornton-Pickard prize competition. The organisers inform us that the competition has been a great success, and state that another competition on similar lines will be shortly announced for next year.

Class I.—For pictures taken with any of Thornton-Pickard cameras fitted with any pattern of Thornton-Pickard shutter, except focal plane: First prize, £10, Mr. D. Robertson, London; second prize, £5, Miss Ella Tomlinson, Chichester; third prize, £5, Miss Marion Silverston, Birmingham; fourth prize, £3, Mr. S. Short, Cardiff.

Six prizes, £2 each: Mr. S. Cato, Leamington; Mr. D. Dunlop, Motherwell; Mr. R. W. Dugdale, Gloucester; Mr. E. R. Housdon, London, S.E.; Mr. C. Phelps, Trinidad, B.W.I.; Miss Agnes Tomlinson, Chichester.

Class II.—For pictures taken with either pattern of the Thornton-Pickard focal plane shutter: First prize, £10, Mr. Graystone Bird, Bath; second prize, £5, Mr. J. S. Lancaster, Bournville, Birmingham; third prize, £4, Mrs. Mahony, Dalkey, Co. Dublin; fourth prize, £3, Mr. C. J. Waters, Epsom.

Class III.—For pictures taken with any of the various patterns of the Thornton-Pickard shutters, except focal plane: First prize, £10, Mr. Karl Wipplinger, Linz, A.D.; second prize, £5, Mr. J. W. Sagar, Burnley; third prize, £4, Mr. J. A. Symington, Kew; fourth prize, £3, Mr. J. J. Hartley, Colne, Lancs.

Six prizes £2 each.—Mrs. G. A. Barton, Birmingham; Mr. A. W. Cooper, Preston; Mr. E. O. Hoppe, London, E.C.; Mr. Ward Muir, Boro' Green, Kent; Mr. F. G. Price, Crumlin, Newport, Mon.; Mr. J. A. Symington, Kew.

Class IV.—For pictures taken with the Thornton-Pickard Studio shutter, used either in or out of the studio: First prize, £5, Mr. F. Brigham, Scarborough; second prize, £3, Miss M. Prentice, Glasgow; third prize, £2, Mr. T. Johnstone, Motherwell.

Exhibitions.

SHEFFIELD PHOTOGRAPHIC SOCIETY.

THE third annual exhibition of this society was opened at the Montgomery Hall, Sheffield, on Saturday last. Over 400 exhibits are on view, of which 180 are contributed by members of the society. The exhibition is in every way an excellent one. The opening ceremony was performed by the Master Cutler, Mr. Sydney Jessop Robinson. The judges, Messrs. F. M. Sutcliffe and C. Barrow Keene, made the following awards:—

Open Section.—Champion Class.—Any subject which has been previously medalled in open exhibition.—Silver-gilt plaques: "Tugging Home," Wm. Clayden, Plymouth; "November," Fred Judge, Hastings.

Landscape, Seascape, and River Scenery.—Silver plaque: "A Dusty Day," Arthur Marshall, A.R.I.B.A., Nottingham. Bronze plaques: "A Dutch Canal," James Gale, Wolverhampton; and "June," Jno. S. Atherton, Todmorden.

Portraiture, Figure Studies, and Animals.—Silver plaque: "The Artist," Thomas Heaps, Keighley. Bronze plaques: "A Jovial Monk," Wm. H. Foxall, Tunstall; and "Binding the Wheel," A. E. Coleman, Plymouth.

Architecture, Interior and Exterior.—Silver plaque: "A Norman Procession Path," Wm. A. Clark, Birmingham. Bronze plaque: "Until the Day Breaks," S. G. Kimber, Southampton. Certificates: "Water Gate Row, Chester," Dan Dunlop, Motherwell.

Flowers, Fruits, and Still Life.—Silver plaques: "Grasses," S. G. Kimber, Southampton; "Hops," E. Seymour, Watford. Certificate: "Iris," E. Seymour.

Lantern Slides (any subject).—Silver plaque: "The Town Cobbler," Rev. H. W. Dick. Bronze plaque: "Birch and Bracken," F. W. Banks, Southport. Certificate: "Kittiwake, Farne Island," Wm. Farren, Cambridge.

For Novices under fifteen years of age.—Bronze medal: "I'm A-coming," W. F. Pilch, Sheffield. Certificate: "Bolton Abbey," Jack Perrin, Halifax.

Members' Classes. Landscape, Seascape, and River Scenery.—Silver plaque: "Conisbro' Keep," Dr. H. G. Paterson. Bronze

plaques: "Whitby," Dr. H. G. Paterson (debarred); "The Lake," H. D. Parkin. Certificates: "Twilight," F. J. Roberts; "December in the Wood," Arthur Turner.

Architecture, Interior or Exterior.—Silver plaque: "The Old Refectory," F. J. Cribb. Bronze plaque: "Cathedral Square, Geneva," James R. Wigfull. Certificate: "The Ballroom Doorway," Jonathan Taylor.

Any Other Subject.—Silver plaque: "Is He Thinking of Me?" Arthur Turner. Bronze plaque: "Bluebells," Miss E. H. Tillotson; "A Grinder," Dr. H. G. Paterson. Certificates: "Dejection," H. D. Parkin; "A Sheffield Blade," Dr. H. G. Paterson.

Lantern Slides, Landscape, Seascape, and River Scenery.—Silver plaque: "Snow, Frost, and Fog," T. G. Hibbert. Bronze plaque: "Tollers of the Deep," W. H. Barraclough. Certificate: "A Moorland Path," A. Nicholson.

Lantern Slides, Architecture.—Bronze plaque: "Doorway, St. Michel, Dijon," James R. Wigfull.

Lantern Slides (any other subject).—Silver plaque: "Stitchwort," Geo. D. Harrison. Bronze plaque: "Flowers of the Meadow," W. H. Barraclough.

The Society's challenge trophy, consisting of a silver rose-bowl, was awarded to T. G. Hibbert, for the best three prints or slides entered in three separate classes.

The exhibition remains open until to-morrow evening (Saturday). Apart from the exhibits, the attractions include animated pictures, which are shown each evening, exhibitions of lantern slides, and musical selections throughout the afternoon and evening.

FORTHCOMING EXHIBITIONS.

October 28-November 4.—Sheffield Photographic Society. Joint Hon. Secretaries, J. W. Charlesworth, 1 Joshua Road, Sheffield, and James W. Wright, 62, Vale Road, Sheffield.

November.—Edinburgh University C.C. Hon. Secretary, Harold C. Simpson, University Union, Edinburgh.

November.—Bristol and Clifton Arts and Crafts Society. Secretary, R. H. Parr, 5, Grove Buildings, Blackboy Hill, Bristol.

November, December, January.—Second American Photographic Salon. H. Snowden Ward, 6, Farringdon Avenue, London, E.C.; Wm. T. Knox, 279, Washington Street, New York City, U.S.A.

November 1-4.—Frome Mechanics' Institute Photographic Society. Hon. Secretary, Wilfred L. Watson, 14, Cheap Street, Frome.

November 1-4.—Hackney Photographic Society. Hon. Secretary, Walter Selfe, 70, Paragon Road, Hackney, N.E.

November 3.—S. Norwood Photographic Society. Hon. Secretary, George R. Beckett, 28, Carmichael Road, S. Norwood.

November 8-15.—Croydon Camera Club. Hon. Sec., W. H. Rogers 88, Woodville Road, Thornton Heath.

November 14, 15, 16.—Ipswich Camera Club. Hon. Sec., R. H. Sutton, 37, Henley Road, Ipswich.

November 16.—St. Matthew's (Bootle) Camera Club. Hon. Secretary, H. Tempest, 78, Thornton Road, Bootle, Liverpool.

November 16-18.—Burnley Camera Club. Hon. Secretary, F. Pinder, Mechanics' Institute, Burnley.

November 17.—Redhill and District Camera Club. Hon. Secretary, James Paterson, M.A., Whalley, Lynwood Road, Redhill.

November 21-25.—Southampton Camera Club. Hon. Secretary, S. G. Kimber, Oakdene, Highfield, Southampton.

November 21-25.—Sefton Park Photographic Society. H. Cubley, 3, Langdale Road, Sefton Park.

November 23-25.—Isle of Thanet Photographic Society. Hon. Sec., L. G. Hodgson, 58, Queen Street, Ramsgate.

November 25-December 2.—Glasgow Eastern A.P.S. Hon. Secretaries, Thomas B. Kirkhope, 37, Winston Street, Parkhead, Glasgow, and John Brough, 68, Dalmarnock Street, Parkhead, Glasgow.

November 27-30.—Lancaster Photographic Society. Hon. Secretary, R. T. Simpson, 60, North Road, Lancaster.

December.—Muirkirk A.P.S. Hon. Secretary, William Barrowman, Ayr View, Muirkirk.

December 1-5.—Hove Camera Club. Hon. Secretary, A. R. Sargeant, 55, The Drive, Hove.

December 6-7.—Watford Camera Club. Hon. Secretary, E. H. Jackson, 100, High Street, Watford.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. Machlachlan, Blairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph. A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January, 1906.—The Dover Institute Photographic Society. Hon. Secretary, H. Plowright, 47, Maison Dieu Road, Dover.

January, 1906.—Brierley Hill Camera Club. Hon. Secretary, J. Thomas, William Street, Brierley Hill.

January 11-13, 1906.—Boston Camera Club. Hon. Secretaries, H. M. Haines and R. W. Halliday, 65, West Street, Boston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

January 25-27, 1906.—South Essex Camera Club. Hon. Secretary, Thomas Michell, 180, Browning Road, Manor Park, E.

January 31, 1906.—Tring Camera Club. Hon. Secretary, J. Owen Raymond, Frogmore Road, Tring.

February, 1906.—Windsor Camera Club. Hon. Secretary, Thomas J. Cartland, Thames Side, Windsor.

February, 1906.—Cardiff Windsor A.P.S. Hon. Secretary, W. A. Woodward, 187, Mackintosh Place, Cardiff.

February-March, 1906.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

February 3-10.—Cape Town Photographic Society International Exhibition. Entries close January 13, 1906. British exhibits will be received and forwarded by the BRITISH JOURNAL OF PHOTOGRAPHY free of charge if delivered at 24, Wellington Street, Strand, W.C., on or before December 4.

February 3-February 25, 1906.—Marseilles Fourth International Salon. M. Astruc, Sec. Gen., 11, Rue de la Grande-Armée, Marseilles.

February 6-9, 1906.—Guisbrough Fine Art and Industrial Society. Hon. Secretary, George Page, 34, Westgate, Guisbrough, Yorks.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

February 20-21, 1906.—Royal Albert Institute, Windsor. J. W. Gooch, Hon. Secretary.

Feb. 22-24, 1906.—Bowes Park and District. Hon. Sec., H. C. Bird, 91, Whittington Road, Bowes Park, N.

February 24—March 10, 1906.—Edinburgh Photographic Society. Hon. Secretary, J. S. McCulloch, 3A, N. St. David Street, Edinburgh.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Sec., W. B. Woodland, 18, Beckingham Road, Leicester.

March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.

March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.

March, 1906.—St. Helens Camera Club. Hon. Secretary, John Glover, 34, Ormskirk Street, St. Helens.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Oughton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 7-8, 1906.—Doncaster Camera Club. Hon. Secretary, T. Haigh Connor, 39, Market Place, Doncaster.

March 12-15, 1906.—Cripplegate Photographic Society.—Secretary, Fred. Leeks, 8, Barford Street, Islington, N.

March 13-14, 1906.—G.E.R. Mechanics' Institute (Stratford). Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.

March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Yines, Market Chambers, South Parade, Nottingham.

March 19-24, 1906.—Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

FORTHCOMING COMPETITIONS.

November 30.—Royal Photographic Society "Affiliation" Print Competition. Particulars from the Secretary, 66, Russell Square, W.C.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between October 16 to 21:—

TRIPODS.—No. 20,931. Improvements in tripods for photographic cameras. William Butler, 139, Dale Street, Liverpool.

LENS.—No. 21,164. A new or improved lens for photographic objectives. Stephen Drummond Chalmers, 8, Quality Court, Chancery Lane, London, W.C.

POSTCARDS.—No. 21,205. A method of adapting stereoscopic and lantern transparencies for use as postcards. Courteney Spencer Jones, Montsorel, Woodford Green, Essex.

DEVELOPING APPARATUS.—No. 21,412. A combination dark-slide plate, carrier, and daylight developer for plates. George Henderson, 4, Newby Terrace, Stockton-on-Tees.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

COATED PAPERS FOR EMULSIONS.—No. 17,303, 1905. The claim is for the application to a raw paper (of wood pulp or other cheap material) of a fibrous protective coating of thin paper, fabric, etc., which is laid on the raw paper by means of an adhesive, etc. The fibrous layer is stated to prevent the penetration of the emulsion better than other applications, such as that of baryta, but it is also stated that baryta may be applied in addition to the fibrous coating. Ignaz Hoffmüller, 11, Schenkelsstrasse, Düren, Rhine Province, Germany.

COLOUR-SENSITIVE EMULSIONS.—No. 24,290, 1904. The claim appears to be for an emulsion containing dyes such as ethyl red, eosine, erythrosine, etc., which increase the sensitiveness of the silver haloid. Gustav Koppmann, 29, Hohe Bleichen, Hamburg, Germany.

THREE-COLOUR PHOTOGRAPHY.—No. 21,210, 1904. The patent relates to the making of trichromes on glass or line colour screens so as to (1) avoid staining of one image by another; (2) produce screens of finer ruling; (3) produce a screen firmly built together with absence of air-bubbles, blisters, etc.; and (4) make the screen so that the outer surfaces of the coloured portions are in the same plane or at one level. The glass is coated with a substratum such as water-glass, and a layer of coloured gelatine applied either in the coloured state or uncoloured for subsequent dyeing. The coloured gelatine film prepared in either way is sensitised in a bichromate bath, printed, and developed. For the second and third monochromes it is most important that the colour be inserted into the film before development, but for the first it will answer as well whether put in before sensitising and printing, or before or after development. It is preferable, however, to colour the gelatine from the start, and to print from the negative or line-screen. In the latter case, the engraved or ruled side of a half-tone screen, having a patterned area containing white or transparent spaces one-half as wide as the opaque spaces, is laid against the sensitised side of the film, and the printing done through the white areas. In either case, the image lies in an area or areas of the coloured gelatine film determined by the nature of the stopping-out medium, whether a photographic negative or a line-screen. Such first colour areas are indicated by the reference c^1 . The next step is the

preparation of the plate for the reception of a second gelatine film. This can be done in a variety of ways, the method of preparation depending, firstly, on the nature of the intermediate or protective film employed, and secondly, on the method employed in putting on the gelatine film out of which is to be formed the second image. With celluloid used as an intermediate or protecting film, the successive operations are as follows:—The first image being finished, a thin film of colourless gelatine, c^1 Fig. 1, is washed over the plate and allowed to dry. Then a solution of celluloid, so prepared that it will adhere to the underlying image during the subsequent operations, is flowed over this and allowed to dry: for instance, by adding glacial acetic acid in quantity sufficient to slightly dissolve the underlying film of soluble gelatine and thus weld the two surfaces together. After dyeing the whole is insolubilised, converting the films into an inseparable mass, i^1 . The plate, now ready for the film out of which is to be formed the second image, is treated as if it were a new plate, that is coated with soluble glass, then a thin wash of gelatine over which the coloured gelatine film c^2 is squeegeed; this is sensitised, printed, and

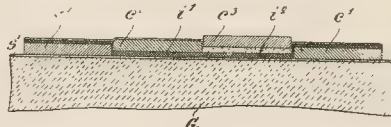


Fig. 1.

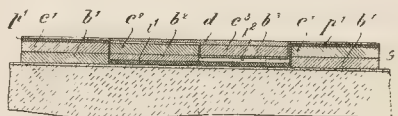


Fig. 2.

developed. Then a colourless film of gelatine is flowed over the plate, and when dry is coated with the celluloid solution and allowed to dry. This is hardened or insolubilised, and forms the film i^2 . The image c^3 is then formed, the series of operations being the same as for c^2 . The resulting polychrome photograph may be mounted for viewing by either transmitted or reflected light, and it may be transferred on paper if the glass support G has been suitably prepared for that purpose. When using this process in the manufacture of parti-coloured screens, the patterned black and white screen above mentioned is used for stopping out the light at each printing operation, the areas of the second and later coloured gelatine films exposed thereby and printed there-through being at one side of and in contact edge to edge with the similar areas of the previously printed film or films, so that, in the finished screen, the light-shifting media are juxtaposed without perceptible intervals between them. In using the process for manufacturing trichromatic views or taking screens, the first step may be as above described, and the preparation of the glass for the second and the third coloured gelatine films, their transfer, sensitising, and development may also be as above set forth in connection with the manufacture of a polychrome photograph. In printing the image or areas, however, the black and white line screen, for the second and third colours, is laid against the sensitised film so that its opaque areas will cover the image or areas previously printed, and so as to bring the areas of the second image or colour edge to edge against the first image or areas without overlapping.

clear spaces, and so as to bring the third set of coloured areas in between and against both the first and second sets of coloured areas without overlapping and without leaving clear spaces. When the areas, as linear strips, of the screen for use in colour photography, are to be very small and fine, it is important that their outer faces shall lie in one plane, as, otherwise, the screen will not be satisfactory on account of the divergence of the light rays, especially when using wide-angle lenses. Fig. 2 illustrates the formation of a screen by this process when it is desired to have the coloured areas in one plane or with their outer faces in such a plane. The operation of making such screen may be described as follows, viz.:—The transparent support G, as a glass plate, is provided with a suitable substratum s^1 , as water glass. Then the first colour is put on in the following way: First the substratum is coated with a colourless film of soluble gelatine and of the required thickness; on which a coloured gelatine film is transferred cold and its flexible support removed. Next, the gelatine film is sensitised, printed behind a black and white screen as above set forth, and developed, leaving separated areas c^1 on the glass or support. The colourless film forms blocks b^1 between the areas c^1 and the substratum s^1 after the development, etc., as shown in Fig. 2. Then the glass is prepared for the second colour as follows:—The areas c^1 and blocks may be impermeabilised or fixed against absorption of colour, and, if necessary to varnish, a colourless film of soluble gelatine is washed over the glass and areas c^1 , after which a varnish, or a protective coating i^1 , which will adhere to the gelatine during subsequent operations, is put on, and the whole rendered insoluble. Next, a film of water glass is put on, over which a layer or film of colourless soluble gelatine is put, after which the second coloured gelatine film is put on cold, and its flexible support removed. Then it is sensitised, printed behind the black and white screen as described above, and developed, leaving areas c^2 on the glass support with blocks b^2 thinner than blocks b^1 , said blocks b^2 being formed from the last-mentioned film of colourless soluble gelatine. A new isolating and binding film i^2 is next prepared, and a third colour is put on, printed, etc., and developed in like manner, leaving areas c^3 having blocks b^3 thinner than b^2 and b^1 . Or the blocks b^3 may be omitted if necessary to secure flatness of surface. By this process have been made tricolour screens having over 500 lines to the inch, free from blisters, hair lines, and overlapping of colours, and with their outer surfaces in substantially the same plane. The aggregate thickness* of the screens, exclusive of the glass or other support, is very small, being much less than the thousandth part of an inch. The process shown in Fig. 2 need only be used when the lines are very fine, but for screens of moderate fineness the process as shown in Fig. 1 will be found to answer all requirements. Among the difficulties encountered in the manufacture of such polychrome screens, both taking and viewing, is that of having the different lines of the respective intensities of colour required. It thus becomes necessary, when the negative is made, to use a supplementary monochrome screen. In the case of positives it is also necessary to use a supplementary screen and to dip the positive itself in a suitable dye-bath. To render the use of such monochrome screens unnecessary, the finished screens, both taking and viewing, are coated with a thin gelatinous solution, and this film then dyed in a suitable bath. One is thus enabled to obtain absolutely grey viewing screens, and can also regulate and correct the relative intensities of the colours of the taking screens. Charles Louis Adrien Brasseur, No. 10, East 15th Street, New York, U.S.A.

Bla.

The following complete specifications are open to public inspection before acceptance under the Patents Act, 1901:—

CATATYPES.—No. 20,372, 1905. Reproduction of pictures with the aid of catalysis. Neue Photographische Gesellschaft.

APPARATUS.—No. 20,570. Photographic apparatus. Anderson.

CURVE-DRAWING.—No. 20,579. Photographic curve-drawing apparatus. Siemens and Halske.

New Material.

Merck's crystal pyro (E. Merck, 16, Jermyn Street, London, E.C.) is now manufactured in a somewhat coarser form than hitherto. The sample submitted to us we find to dissolve freely in water to a bright solution, and a brief experience of it in developing some plates leaves us in no doubt of the high degree of purity to which the Merck pyro, cryst. or re-sublimed, has made a legitimate claim in the past. Personally our preference is for the crystal form, and the maker's present departure renders the developing agent a shade more convenient to handle.

We are indebted to the author, William Cotton, M.D., for a reprint of a paper on "Twin X-ray Representation and the Reflecting Stereoscope" from the "Bristol Medico-chirurgical Journal." It describes the application of a Wheatstone reflecting stereoscope to the production of radiographs of fractured limbs. A bibliography of X-ray stereoscopy is appended.

A PAMPHLET—"Colour Photography in a Nutshell"—reaches us from the author, the Rev. Jevon James Muschamp Perry, for whom apparently it is published, at the modest price of 3d., from the "Guardian" office, Alnwick. It deals very simply, and evidently as the result of experience, with the making of transparencies by the Sanger-Shepherd process.

SIR BENJAMIN STONE'S PICTURES.—As announced in these columns some time ago, Messrs. Cassell and Co. are issuing in fortnightly parts a series of reproductions from the collection of "record" photographs made by Sir Benjamin Stone, M.P., of national life and history. The first part of this series is to hand, and proves to be a remarkably well-produced publication, containing sixteen full-page reproductions (whole-plate size) on art paper of photographs of festivals, ceremonies, and customs. Interpolated with the plates is descriptive letterpress, and the whole, when complete in several volumes, will form a unique addition to the library of every Englishman interested in the manners and customs of his own country. Sir Benjamin Stone's untiring efforts in survey and record work have raised him almost to the position of a national institution, and the great charm of many of his pictures is that facilities have been afforded him for securing them that would have been denied to nearly every other photographer. The commonplace and the unimportant have been avoided, and although Sir Benjamin would be the very last to claim anything for his photographs than that they are absolutely "unfaked" records of events, etc., artistic merit is not lacking in some of them. Messrs. Cassell are advertising this publication extensively, and it is well worth the 7d. charged for each part.

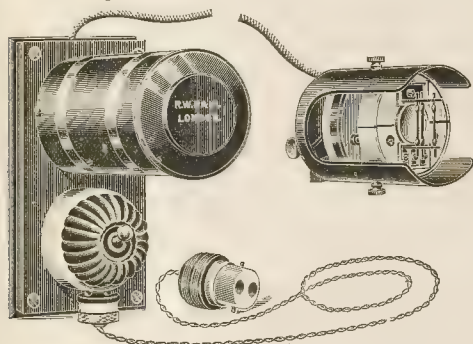
On Thursday, October 26, the L. and P.P.A. Henderson award was unanimously voted to Mr. A. J. Bull, of the L.C.C. School, Bolt Court, for his paper on "Orthochromatic Photography," read before the Association on February 23, 1905. This paper was given in full in the B.J. for March 3.

New Apparatus, &c.

The Nernst High-Power Lamp. Made by Robert W. Paul, 68, High Holborn, London, W.C.

The Nernst lamp, which has steadily grown in favour for enlarging and projection purposes, is now issued in a new pattern by Mr. Robert W. Paul. Its features are first a high power, ample for large commercial enlarging, and secondly adjustability for various current voltages. Moreover it is made in a shortened form for use in lanterns of the smallest dimensions. The lamp takes a current of three amperes, and by using one or more of a set of filaments fitted by small brackets to the front of the lamp can be used at high or low power.

In circuit with each filament, and contained in the body of the lamp, is a resistance of iron wire enclosed in a glass bulb fitted into a bayonet socket. These resistances are used to steady the current, and also to protect the filaments by acting as fuses in case of excess of pressure.



The lamp is started by heating the filaments with a spirit lamp until red hot, and the lamp is provided with a pivotal movement by which the spirit flame can be conveniently applied to the battery of filaments. The result is an intensely luminous area, equal in power to a good blow-through jet, and of a brilliant white colour.

The figure shows the convenient way the lamp is mounted, half in and half out of a small lantern. The system is just as conveniently applied to small projection lanterns, which can thus be used to efficiently illuminate discs up to 10 ft. in diameter. Our own conclusion from seeing the lamp in use is that the enlarger and amateur lanternist will find it difficult to obtain a light more suited to his purposes. The price of the ordinary pattern, complete with resistances, one burner, three filaments, and flexible connection is £2 10s., of the shortened pattern seen in figure, £3 10s.

News and Notes.

A PAMPHLET setting forth the activities of the Scottish Photographic Federation for the session 1905-6 is at once an outward and visible sign of the many instances in which Scotsmen are bent on being in the vanguard of modern photography. And the Scotsman in the Federation seems equally determined on taking every (Federated) individual along with him, if it can be done by lecture, demonstration, or portfolio.

BRITISH ASTRONOMICAL ASSOCIATION.—The annual general meeting of this association was held at Sion College, Victoria Embankment, E.C., on Wednesday of last week. The President (Mr. C. D. Crommelin), in his address, commented on the great advance in Martian photography that had been obtained at the Lowell Ob-

servatory. The results, he said, confirmed the objective reality of the canals on Mars. They would also serve to improve the maps of the planets, since the outlines of the so-called oceans were plainly shown and could be accurately measured. As a result of a ballot taken, the following officers were declared elected for the ensuing session:—President, Mr. A. C. D. Crommelin; vice-presidents, Messrs. E. W. Maunder, S. A. Saunder, W. H. Wesley, and C. T. Whitmill; treasurer, Mr. W. H. Maw; secretaries, Messrs. J. G. Petrie and J. A. Hardcastle; librarian, Mr. F. W. Levander; other members of the council, Mrs. E. W. Maunder, Dr. Smart, and Messrs. G. F. Chambers, Tyson Crawford, W. Heath, H. P. Hollis, W. T. Lynn, G. J. Newbegin, T. Thorp, and A. S. Williams.

In the "Court Circular" of the "Times" is the announcement that her Majesty the Queen, attended by the Countess of Antrim, honoured Mr. Edward and Miss Alice Hughes with a visit at their studios in Gower Street on Thursday last.

STELLAR Photography.—During the recent proceedings of the British Association meeting at Johannesburg, Dr. A. A. Rambaut, of the Radcliffe Observatory, Oxford, described an instrument for measuring stellar photographic plates on which the latent image of a réseau has been impressed and developed with the star images. Such a réseau the author describes as a "black" réseau, and the side of the square, which is 5 mm., corresponds to an angle of 150" in the Radcliffe telescope. By an ingenious arrangement of lenses the image of a small réseau, ruled on a silvered glass plate, is projected on the "black" réseau, and since the lines appear bright is denoted as a "white" réseau. This white réseau contains sixteen lines in each direction—i.e., mutually at right angles, so that the outer lines form a square which just fills one of the squares of the black réseau, from which it will be seen that the white réseau interval is equal to 10". The micrometer screw carrying the silvered glass plate on which the white réseau is ruled has a pitch of 10", and the heads being divided into 100 parts and read by estimation to tenths, a unit in the last figure is equivalent to 0".01. When the plate to be measured is inserted in the machine the preliminary adjustments of focussing, bringing the lines of the black réseau parallel to the slides and those of the two réseaux into sensible parallelism, can be effected in two or three minutes by means of the adjusting screws provided for that purpose. These adjustments having been satisfactorily completed, the observations for measuring the position of a star image with regard to the réseau square in which it lies are as follows: The black réseau is first set so as to coincide approximately with the white. Using the micrometer screws, three corners of the white réseau are then brought in succession to coincide exactly with the corresponding corners of the black réseau. As the white lines are considerably thinner than the black, and appear neat and sharp when projected on the somewhat softer black lines, this is an observation which can be made with great delicacy. The probable error of a single setting was found to be 0".02.

THE Hon. Secretary of the Southampton Camera Club asks us to remind our readers that the last day for entries for the club's fifth annual exhibition is Saturday, November 11. Entry forms and full particulars can be obtained from S. G. Kimber, Oakdene, Highfield, Southampton.

WISHAW PHOTOGRAPHIC ASSOCIATION.—This Society holds its annual exhibition on December 29, 1905—January 4, 1906. There are six open classes, viz., Portraiture, Landscape or Seascape, Architecture, Flower, Fruit, or Still Life, Lantern Slides, Any Subject (confined to exhibitors who have never gained an award in open exhibitions). The judge is Arch. Cochrane, of Barrhead. The awards offered are one solid bronze plaque, 4½ in. by 2½ in., and two bronze medals in each class. Closing date for entries, December 18, 1905. Receiving dates for pictures, December 22 and 23, 1905. Entry forms may now be had from the hon. secretary, R. Telfer, 138, Glasgow Road, Wishaw, N.B.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
3.....	Colne Camera Club.....	"Gum-bichromate." Demonstrated. Mr. W. Baldwin.
3.....	Aberdeen Amat. Photo. Assn.	"Silhouette Photography." Mr. G. Robertson.
6.....	Dewsbury Photo. Society.....	"Cawthorniana." Mr. A. Houghton.
6.....	Barrow Naturalists' Field Club	"Oliver Wendell Holmes." Miss M. Martin.
6.....	South London Photo. Society ..	Affiliation 1905 Competition Slides and Focus Prize Slides, "Stories without Words."
6.....	Luton Camera Club	"Three-Colour Photography." Mr. Murray Barford.
6.....	Southampton Camera Club	R.P.S. Affiliation (1904) Slides.
6.....	Wandsworth Camera Club	Affiliation. Lecture on "Lantern Slide Making."
6.....	Bowes Pk. and Dis. Ph. Soc.	"Intensification and Reduction of Negatives." Mr. J. McIntosh.
6.....	Leek and District Photo. Soc.	Lantern Night. Miscellaneous Slides. Lecturette, Mr. V. Prince.
7.....	Nelson Photographic Society	Members' Lantern Slide Evening.
7.....	Hackney Photographic Society	"Zigo and Carbon." Demonstrated. T. Illingworth & Co.
7.....	Otley & Dis. Cam. & Art. Soc.	"Nature Poets and Nature Pictures." Mr. P. Lund.
7.....	Jersey Photographic Society	Annual General Meeting.
7.....	St. Helens Camera Club	"Trip to India." Dr. Thompson.
7.....	Leeds Photographic Society	"Oil Printing." Demonstrated. Mr. Harry Wade.
7.....	Gateshead Camera Club	"Bromide Enlarging." Mr. Urwin.
7.....	Darlington Camera Club	Members' Lecturettes.
7.....	Sheffield Photographic Society	"Retouching." Demonstrated. Mr. John Way.
7.....	Halifax Camera Club	"Cawthorniana." Mr. A. Houghton.
7.....	Thornton Heath Photo. Soc.	Conversational Evening.
7.....	Worthing Camera Club	Opening Night. Musical and Social Evening.
7.....	Brentford Photo. Society	"Portraiture." Mr. Harold Baker.
7.....	Glasgow Southern Photo. Assn.	Demonstration of New "Gum" Process. Dr. Richmond.
7.....	Stafford Photographic Society.....	"Enlarging and Enlarged Negative Making." Mr. W. L. Hey.
7.....	Burton-on-Trent Nat. His. Soc.	"Zigo and Carbon Printing." Messrs. Illingworth.
8.....	Leicester & Leicestershire P.Soc.	"The Romantic in Landscape." Illustrated.
8.....	Huddersfield Nat. and Ph. Soc.	"How to Make Lantern Slides." Various Processes. Demonstrated. Mr. Frank Nicholson.
8.....	Coventry Photo. Club	Judging Summer Contact Prints.
8.....	G.E.R. Mechanics' Institution.....	"Exposure." Mr. H. W. Bennett, F.R.P.S.
8.....	Cricklewood Photo. Society.....	Demonstration by Morgan and Kidd.
8.....	Leeds Camera Club.....	"Lantern Slides." Demonstrated. Mr. W. H. Reed.
8.....	Birmingham Photo. Society.....	"Intensification and Reduction of Negatives." Mr. J. McIntosh.
8.....	North Middlesex Photo. Soc.	"The Sculptures of Chertres." Mr. Ernest Marriage.
8.....	Hampstead Scientific Society	"Bromide and Gaslight Papers." Demonstrated. The Rotary Photographic Company, Limited.
8.....	South Essex Camera Club	Annual Meeting and Presidential Address.
8.....	Heaton & Dis. Camera Club.....	Mutual Criticism of Members' Prints.
9.....	Rugby Photographic Soc.....	"The Italian Riviera." Mr. B. B. Dickinson, M.A.
9.....	Glasgow Eastern A.P.A.	Members' Night.
9.....	London and Prov. Photo. As.	Open Night.
9.....	Harrogate Camera Club	"The Alteration and Improvement of Negatives." Demonstrated. Mr. Percy Sheard.
9.....	Hull Photographic Society	"The Gum Bichromate Process." Demonstrated. Mr. J. Page Croft.
9.....	Richmond Camera Club.....	Pictures with the Goerz Lens. A Collection of Slides lent by Mr. C. P. Goerz.
9.....	Liverpool Amateur Ph. Assn.....	Exhibition of "Photography" Prize Slides.
9.....	Balham Camera Club	"Printing and Finishing P.O.P." Mr. C. W. Cox.

HARROGATE CAMERA CLUB.—"Retouching" was the subject of a demonstration given by Mr. John Way, of Pudsey, on Thursday evening of last week, in connection with the Harrogate Camera Club, in the lecture room of the Builders' Exchange, Harrogate. At the outset, Mr. Way particularly asked his hearers that, if they were fortunate in learning anything from his demonstration, and should ultimately perfect themselves in the art of retouching, he earnestly hoped they would use their knowledge fairly and not in any way to injure the professional by doing work for others

at cutting prices. The outfit was first described, and proved to be very simple and inexpensive. The desk was one of the demonstrator's own construction, and he claimed it to be the simplest and most efficient he had seen. It was sufficiently large to take a 15 by 12 negative, and instead of the usual panel arrangements for taking different size negatives, an aperture about 3 in. square was cut in the centre. A piece of grooved wood, to one end of which a piece of strong elastic was attached, and to the other end a button, served to hold the negative in position. By passing the elastic behind the desk and looping on to the button, this was held firmly, and by moving up or down, any part of the negative was brought over the aperture, through which the light was passing from the back. To further reduce the strain on the eyes, pieces of opaque paper, with small openings, were placed over the negative, thus reducing the light area to that part only which the operator desires to retouch. Seated at the desk, Mr. Way gave practical lessons to each one in turn, and members were afterwards invited to try their hand. The lecturer particularly impressed on his hearers that the work of retouching could only be acquired by constant practice, and that they were not to be discouraged by first failures.

CROYDON CAMERA CLUB.—Mr. J. W. Eadie, vice-president of the Scottish Photographic Convention, on the 25th ult., gave a practical demonstration on bromide paper and enlarging, having special reference to the well-known products of Messrs. Kodak, Limited.

CROYDON NATURAL HISTORY AND SCIENTIFIC SOCIETY.—At a meeting of the photographic section of this society, held on Wednesday evening, the 25th ult., Dr. Hobson gave an address on "How to do it and how not to do it," illustrated by a large number of lantern slides. The composition of the pictures shown by the slides was criticised by the members present, and Mr. Leonard Skeats, who was amongst the visitors, pointed out the good features and the defects of the pictures from the point of view of an artist who is not a photographer. It is proposed at the November meeting to submit a number of finished prints contributed by members for open criticism in the same way.

THE BRISTOL PHOTOGRAPHIC CLUB.—This club held its annual general meeting on Tuesday evening, October 24, at 5, St. James's Square. Satisfactory reports were submitted by the secretary and the treasurer. It was gratifying to learn that the membership had more than doubled during the year. The following were elected to office:—President—John Fisher, Esq., Hon. A.R.C.A. Vice-presidents—Mr. T. W. Brown and Mr. H. R. Harford. Council—Messrs. F. H. Stevens, M. B. Fowler, R. W. Coates, Fred Little, J. S. Guthrie, and G. Easonsmith. Hon. Folio Secretary—Mr. H. R. Harford. Hon. Treasurer—Mr. E. Beaven. Hon. Secretary—Mr. W. W. Smith, 62, Sefton Park Road, Ashley Down, Bristol.

CONSETT AND DISTRICT PHOTOGRAPHIC SOCIETY.—The annual meeting of this society was held last week in Luton House, Middle Street, Consett. The report stated that the past year's proceedings, fully justified them in taking Luton House, that venture having been entirely successful. The financial statement showed that they had reduced the debit balance from £16 18s. 8d. to £4 13s. 10d. The officers were elected as follows:—President—Captain Petherick. Vice-presidents—Mr. H. Palmer, Mr. R. G. Barclay, J.P., Mr. T. L. Gledstone, Mr. William Davison, Mr. E. G. Kirkhouse, Mr. T. Duckworth, Mr. William Nicholson, Mr. E. Cellan Jones, and Mr. E. Taylor. Secretary—Mr. P. E. Surtees. Assistant Secretary—Mr. W. E. Massey. Treasurer—Mr. P. H. Sanderson, York City and County Bank, Consett. Auditor—Mr. W. E. Urwin. Committee—Mr. W. Bird, Mr. J. H. Courtney, Mr. William Smith, Mr. Jesse Hall, Mr. U. Rollinson, and Mr. R. Gardner.

NORTH LONDON PHOTOGRAPHIC SOCIETY.—A society for Highbury, Finsbury Park, and adjacent districts has been formed with the above title. It is expected that the society will commence work on the first or second Thursday in January, and a course of lectures and demonstrations will be arranged. The annual subscription has been fixed at 5s., no entrance fee being payable by gentlemen joining before the end of this year. Forty-two gentlemen have already become members. The first members' meeting will be held at Highbury Vale Mission Hall, Myrtle Street, Blackstock Road, N., on Thursday, November 16, at 8 p.m., when the officers and committee for the ensuing year will be elected. Any gentleman desirous of becoming a member or wishing for further information is asked to communicate with Mr. Charles Roberts, 33, Riversdale Road, N., hon. secretary (pro tem.), who will also be glad to hear from trade and other lecturers with a view to their being included in the first season's programme.

CATALOGUES AND TRADE NOTICES.

EXCELLENT photographic reproductions of the pictures of the late T. Sydney Cooper, R.A., are being placed on the market by Mr. Edmond Wallis, studio accessory maker, of Dunton Green, Kent. These photographs, which are first-class specimens of copying work, are supplied to photographers and the trade, and should prove a good side line during the winter months. There are sixteen in the series, and, depicting, as they do, some of the masterpieces of the famous animal painter, are likely to be popular, especially when suitably framed, as presents for Christmas and the New Year. A reference to our advertisement pages will give further particulars concerning them, and application should be made for terms.

"FALLOWFIELD'S Photographic Annual for 1906" reaches our table as a ponderous volume of 1,220 pages—a veritable encyclopædia of photographic apparatus and materials. It is a volume which in the past we have never allowed far from our table, and the present issue, larger but just as well arranged as its forty-three predecessors, is absolutely the most comprehensive catalogue a photographer (professional or amateur), can possess. An hour spent in perusing its pages will probably persuade the most satisfied worker that in some particular or other he might be better provided. Big as it is, Mr. Fallowfield's list is easy of consultation, and in its universal use of illustrations—there are 2,122 of them altogether—the finest means of illustrating, of enabling the purchaser at a distance to see what he is buying. The "Annual" costs 1s. 6d. post free.

Two seasonable price-lists are among the new issues of Messrs. Houghtons Limited:—No. 1 of Christmas greeting cards, and forcibly illustrated by half-tone blocks. The character of the variety of cards thus obtains adequate representation, and the list is quite an incentive to purchase. List No. 2 is of enlargers and enlarging accessories. Both are the sort of catalogue for a dealer to place in his clients' hands.

A new list of Boardman's arc lamps, 10, Southwark Bridge Road, London, S.E., reaches us, with a convincing list of photographers now using them.

THE "Foldscope" is the name given to a new and convenient series of folding stereoscopes recently introduced by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C. Containing all the necessary features of a good stereoscope, these instruments are made to adjust and fold into a remarkably small compass. They are well made in metal, the bright parts being electro-plated. In view of the revival of interest in stereoscopic photography, the "Foldscopes" should prove very popular. They are inexpensive.

Commercial & Legal Intelligence

"PHOTOGRAPHIC INDUSTRIES."—Resolutions for winding up voluntarily have been passed and confirmed, and Mr. W. Leal, 12, King William Street, E.C., appointed liquidator. The company is in liquidation for the purpose of returning the subscribed capital to the shareholders.

AN Alien's Alternative.—A Pole named Dosteel, was sued on a judgment summons, in Wandsworth County Court, on Tuesday last, by Messrs. Tudor, Hora, and Co., photographic chemists, of York Road, S.W., for £14 19s. 11d., for goods supplied at cost price and "money lent to pay the brokers out." The plaintiff's representative stated that about three months since, the defendant recovered £125 damages and costs against his landlord in the High Court. The defendant: I am doing nothing at present. His Honour: What nationality are you. The defendant: A Pole. I offer 5s. a month. His Honour: That is ridiculous. Two pounds a month, or committal in default. If you do not like it you can go back to Poland.

DOUBLED His Wages by Fraud.—At Worcester, on Thursday, Charles Arthur Williams, 27, photographer's assistant, of Bransford Road, was charged with a series of embezzlements from his employer, Horace Henry Dudley, of West Bromwich, for whom he acted as manager of the Worcester branch at Broad Street, Worcester. Mr. W. W. A. Tree, who prosecuted, said the prisoner had by systematic fraud on his employer exactly doubled his wages. There were three classes of fraud. In the one case the prisoner had received moneys from customers for which he had not accounted, representing that the people had had free sittings; in other cases he accounted for only a portion of the moneys received, and he had also made charges for cleaning which was done by the boy employed by the prosecutor. Defendant pleaded guilty to all the charges with the exception of one in respect of 4s. Mr. E. C. Harrison, for the defence, pointed out that the defendant had built up a good business, and had fallen a victim to the temptation offered by a coupon system. Defendant offered to make restitution to the amount of £25. The Bench remarked upon the deliberate character of the fraud, and sentenced prisoner to three months' hard labour for the embezzlement. A further charge of fraud was withdrawn.

A. W. PENROSE AND Co., LIMITED.—This company has been registered with a capital of £40,000, in £1 shares (10,000 6 per cent. preference). Object: To acquire the business carried on by A. W. Penrose and Co., at 109, Farringdon Road, E.C., to adopt an agreement with A. W. Penrose, and to carry on the business of manufacturers of and dealers in all machinery, apparatus, material, and appliances used in connection with photography, etching, engraving, drawing, painting, printing, or other graphic arts, manufacturers of electric cranes and hoists, makers of printing machine motors and gears, electrical and general engineers, etc. No initial public issue. The first directors (to number not less than three nor more than five) are A. W. Penrose, W. Gamble, and D. Munro. A. W. Penrose is governing director, and may retain office while holding 5,000 shares, with power to appoint other directors. D. Munro is nominated by the Law Guarantee and Trust Society, Limited. Qualification (except above-named directors and any other director nominated by the said society), £100. Remuneration of A. W. Penrose, £600 per annum. So long as the guarantee of debentures by the Law Guarantee and Trust Society, Limited, remains in force, the total remuneration of directors (including governing director) shall not, without the consent of the said society, exceed £1,000 per annum. Registered office, 109, Farringdon Road, E.C.

Correspondence.

*** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*** We do not undertake responsibility for the opinions expressed by our correspondents*

CHRISTMAS CARDS.

To the Editors.

Gentlemen,—In a leaderette in the last issue of the JOURNAL, under the heading "Preparing for Winter Business," you recommend photographers to make original designs for their Christmas post-card borders, photograph them, and transfer them to the cards by double printing.

I have practised the method for some years for private Christmas cards, and as the process is so simple, requiring no skill in drawing, and requires less time in printing than an ordinary vignette, I agree with you in expressing surprise that the profession have not taken it up, as it affords such scope for original idea in design.

In the "Almanac" for 1901 (p. 713) I gave full details of a process for Christmas cards, and to adapt it to the present postcards the design board should be 21 x 33 inches, which on a half-plate will reduce to postcard size—viz., $3\frac{1}{2}$ x $5\frac{1}{2}$ in.

The advantage of my method is that holly, flowers, fruit, shells, etc., etc., as taste and fancy many dictate, may be used for the border design—the camera does the rest.

I enclose a specimen print showing one design of border.—Yours truly,
169, Commercial Street, Lerwick.

JOHN LEISK.

THE TITLE OF A PICTURE.

To the Editors

Gentlemen,—Referring to my previous letter which you published, I find, in further correspondence with the Secretary of the Royal Photographic Society that the mistake made in the title of my pictures is in no way due to any error on his part, but to the fact of my frame-maker reversing the titles on the two pictures. Will you kindly give this the same publicity as my first letter and oblige?—Yours faithfully,

EDWIN H. HAZELL.

Linden Road Studios, Clevedon,

October 26, 1905.

THE PERMANENCY OF MATT COLLODION PAPER.

To the Editors.

Gentlemen,—I was much interested by Mr. Busbridge's letter in your current issue dealing with the permanency of pictures on matt collodion paper, for only the other day, in looking over some prints made about three months ago on the matt collodion paper of a well-known firm, I was surprised to find that they were all afflicted with what, in the diction of Mr. Pepys, might fairly be called "the spotted fever." I submitted some of these faded prints to the makers of the paper, and received from them a very courteous letter, in which probable reasons were assigned for my misfortunes. But the only reason adduced that I think could possibly apply to my case was to the effect that the blotting paper, used for the purpose of lightly mopping the prints after washing, was contaminated in some way. At first I was inclined to accept this suggestion as the true cause of my failures, but the story of Mr. Busbridge's experience is unsettling, suggesting, as it does, the possibility of an inherent in-

stability of the image on the class of papers concerned, quite apart from all misadventures and mischances in their manipulation. I must, however, confess that my experience of matt collodion papers is strictly limited, being, in fact, confined to the unfortunate instance I have described.—Yours, etc..

DOUGLAS CARNEGIE.

October 28, 1905.

To the Editors.

Gentlemen,—In reply to your request in "B.J." October 27, as I have had a large and varied experience with this class of paper, may I venture to state that I have never had cause to complain of the permanency of this process if properly worked.

I have experienced great difficulty at times, the prints being, as your correspondent states, covered with spots and patches, much lighter in colour than the other parts of the picture, but in every case, I have found it due to carelessness on the part of the printers or impure mounts and mounting papers. I have before me a set of prints in Matt C.C. double-toned. These prints were made about four years ago, they have travelled over Great Britain many times, and been exposed to all sorts of rough usage, yet they are as rich and pure in colour as the day they were toned and fixed.

With the double-toned prints the image seems particularly soluble in hyposulphite of soda, and it is this peculiarity that is the cause of most of the faded prints.

I have repeatedly found that the blotters used in mounting are contaminated in some way, sometimes even with particles of hypo. These are imparted to the damp collodion prints when mounting, and of course fading ensues. Minute crystals of hypo in the form of dust might settle on the print while damp with again the same result.

It is not to be supposed that these conditions would obtain with an experienced worker, but, owing to cheapness, mere apprentice hands, mostly girls, are left to do the printing and toning. They know nothing whatever of photography, and, necessarily, failure results. I have even known the mounting blotters to be placed within six inches of a cask of hypo, and have actually seen the hypo crystals dropped upon them by workers of this class. Why wonder any longer at the fading of prints?

I am writing from personal experience, and I have produced identical stains myself by pressing contaminated blotters into contact with damp prints. Yet again, I repeat there is no real cause for fading.

If new toning and fixing solutions are used, the prints are well washed, and clean workers and blotting paper is the rule, and not the exception, as is often now the case in the photographic atelier, then we shall hear less of fading prints and printers' troubles. Still, there will always be the dissatisfied worker, but perhaps, to quote the words of one of them, the only complaint will be:—

"Oh, don't the days seem limp and long,

When all goes right and nothing wrong."

Apologising for the space I have taken, I beg to remain yours most sincerely,

BERTRAM T. HEWSON.

Elham, Canterbury, October 27, 1905.

THE RESTORATION OF DAGUERREOTYPES.

To the Editors.

Gentlemen,—In reference to your answer last week to a correspondent on the subject of cleaning Daguerreotypes, we believe our Mr. W. Kent is almost the last living Daguerreotypist, having opened his first studio in the year 1848 in New York. He has had numbers of old Daguerreotypes through his hands for restoration.

The greatest risk in treating them arises from the "gilding" or "non-gilding" at the time they were taken. An error of judgment in this respect involves the total destruction of the image, if treated

in the manner to which you refer in your reply to your correspondent.

—We are Gentlemen, yours truly,
104, Terminus Road, Eastbourne.

October 28, 1905.

WHENCE COMES THE WORD "PHOTOGRAPH"?

To the Editors.

Gentlemen,—Although the history of photography as an art has been very carefully investigated and fully written, I have nowhere seen any statement of the invention or introduction of the name, or of the cognate words photograph and photographic. Histories which tell minutely when and by whom such names as heliotype, daguerrotype, calotype, photogenic picture, etc., were invented, have apparently nothing to say about the first inventor of "photograph." We are anxious to give the history of these words in the Oxford "New English Dictionary." Will lovers of photography kindly help in tracing them to their first appearance? At present the earliest occurrence known to us is in the paper read to the Royal Society by Sir John Herschell on March 14, 1839, entitled "Note on the Art of Photography, or the Application of the Chemical Rays of Light to the Purpose of Pictorial Representation." In the paper as printed in the proceedings, he uses photography, photograph, and photographic, as freely and naturally as any one uses them to-day; the inference from which would be that they were then in everyday use, or at least well known to his audience. But, strange to say, we have not succeeded in finding them anywhere earlier. They were not used by Niépce, Daguerre, or Fox Talbot. The latter read a paper to the Royal Society on his own discoveries just six weeks before Herschell, in which he never uses the terms; his name for photography was photogenic drawing; his photographs also were "photogenic drawings." French friends have also failed in tracing the word photographié in French before 1839. Whence, then, did Herschell get the word? He does not claim it as his own, explain it, or comment upon it in his paper (so far as this is reported in the proceedings), as he does, for example, in introducing the terms positive and negative, of which, in their photographic application, he was the author. Can it be that, in the experiments that he had made for several years, he had invented the name photography for his own private use, and became so familiar with it, as to use it in his paper without thinking of explaining it, or can any source be discovered whence he obtained it? It does not seem right that the origin of "photography," or light-drawing should itself remain in darkness, and that we should have to say of a word, which apparently arose within the lifetime of many still with us, and has been for years on everybody's lips, that its origin is unknown? Its analysis and Greek derivation are, of course, transparent enough; but what we want to know is its history—who made it, and when?

Oxford, October 28, 1905.

J. A. H. MURRAY.

[We refer to Dr. Murray's letter under "Ex Cathedra."—*Eds. B.J.P.*]

As Eastman Function.—On October 7 took place the opening of Mr. George Eastman's magnificent residence at 350, East Avenue, Rochester, and to the house-warming Mr. Eastman invited some 100 guests connected with the various Kodak enterprises. The occasion was evidently one that will long be remembered by the participants.

Der Verein zur Förderung der Photographie, the leading photographic society of Berlin, are projecting an international exhibition, to be held during July, August, and September next year in one of the large public galleries of Berlin. The exhibition is to embrace scientific, technical, as well as pictorial photography, and it will also include photographic manufactures.

Answers to Correspondents.

- *.* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *.* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *.* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- *.* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- W. E. James, 8, Parchment Street, Winchester, Hants. *Photograph of the South Side of Winchester Cathedral on Props.*
- W. E. Welchman, The Studio, Exchange Street, Retford, Notts. *Photograph of West Bridge, near Retford. Photograph of Winney Moor, Retford. Photograph of Ordsall, near Retford (from Bridge).*
- H. Osguthorpe, 18, King Street, Spennymoor, County Durham. *Photograph of Tom Lancaster, of Spennymoor (Buxer).*
- E. Austin, 54, Union Street, Wednesbury, Stafford. *Photograph of Passive Resistors' Sale, Wednesbury.*

COLONIES.—1. Sharland's "New Zealand Photographer," Lorne Street, Auckland, N.Z. 2. "Australian Photographic Journal," 386, George Street, Sydney; "Australia and Australian Photographic Review," 375, George Street, Sydney. 3. "St. Louis and Canadian Photographer," 3,210 Locust Street, St. Louis, Mo, U.S.A. There are no journals in the other places you name.

J. G.—The paper is an ordinary collodio P.O.P., such as you will see advertised by several firms in our pages. It is toned with gold or platinum, or can be purchased of the self-toning variety. If you consult the formulæ section of the ALMANAC you will see how to set to work.

TONING FORMULA. Should esteem it a great favour if you would tell me of good toning bath for Paget P.O.P.; one you can recommend for warm tones, such as red and warm-brown, etc. Also, what should the temperature of the baths be.—*Pro.*

You will find full information in the booklet on P.O.P. issued by the Paget Company. Surely they are the best people to advise you.

PREVENTING SALE.—We should be pleased if you would let us know whether we can stop a non-copyright photograph from being sold by others.—*D. B. M.*

No; certainly you cannot. If the copyright is vested in you, you can register it; then you can prevent further sales of the picture.

CARBON TRANSPARENCIES FOR THE STEREOSCOPE.—Will you be kind enough to tell me how to transpose the pictures in making stereo transparencies by the carbon process? It seems a little puzzling. Must the negatives be cut?—*A. F. P.*

By far the simplest method is to cut the negatives and transpose them as regards right and left. Failing that, mark the negatives so as to just include the subject desired. Then cut the tissue so that the two pieces, when together, are a little smaller than the glass they are to be developed upon. Print the pieces, of course marking them so as to know

which is right and which is left, and it is then easy to place them in position on the glass for development. But, as we have just said, the simplest way, and perhaps the most satisfactory, is to cut the negatives.

F. MACCABE.—The particulars and print you sent are insufficient to enable us to offer an opinion. An inspection of the negatives and description of camera and dark slide might make the matter clear. Are you sure there is no obstruction across the lens, either inside the camera or outside.

RETOUCHING (Reply to "Hampshire").—You retain the likeness well—a most important, and often neglected, point—but your touch is too stiff and formal. Blend more softly, and keep your eyes further away from the work in hand. Each touch appears separate in its application, and this leads to mechanical hardness, and also displays the method of working too perceptibly. In a year's time you should not recognise your present finish if you adhere to the above advice.

RETOUCHING (Reply to "E. C. P.")—We cannot detect any improvement upon your last efforts, and you should have allowed a longer interval before again sending to us. Your main fault is raggedness of texture, and you also fail to model the nose correctly. You should work the necks more than you have done on this batch. Better work should show for the time taken. One good lesson from a really skilled teacher should put you on the road to nicer finish. The cabinet of young man is far and away the best for general working, but rather too fine in the touch. Do not cultivate the excessive stippled effect so loved by some firms, for, whilst leading to a pretty effect, it is generally unnatural, hard, and not a little bit like the sitter. Did you read the paragraph headed "A Caution to Retouchers," in "Ex Cathedra" of our issue of October 27? We should think a considerable amount of the character has been taken from the bearded man's forehead.

J. E. R.—Two or three of the specimens sent are good average work, the others are not. We can form no opinion of the retouching, as prints from the unretouched negatives were not sent for comparison. As you have had no experience in professional portraiture, which is quite a different thing from working as an amateur, you must be prepared to take a small salary if you succeed in obtaining an appointment.

BUSINESS DISPUTE.—I entered into a contract with a firm to supply certain photographs of certain building specified by them, as part contra account. Their limit was to value of £20; my estimate, which was accepted, was for about £19 for that work. They now want to get out of it by denying the value of them as to quality. So at last it has been agreed upon to have an independent valuer, and I ask you if your aid may be given as to a thoroughly qualified person of sufficient standing, to insure an independent verdict. They have written to me through my solicitors, suggesting Mr. —. I do not know of him, and an ordinary portrait photographer cannot, or may not, be a good judge. Would you give me your opinion, which I know would be quite unbiassed?—S. T.

As the matter in dispute is so small it seems a pity that you cannot settle it between yourselves. In a case of arbitration it is usual for each side to appoint one, to discuss the points in dispute, and settle them. At present we know of no one who we think would act for you except for a fee that would probably be considered too high in so small a matter. You might approach the Professional Photographers' Association, 57, Baker Street, London, W.

PERPLEXED.—The direct cause is, obviously, allowing the prints to remain in a heap in a damp condition, but there must be some exciting cause, and we should be inclined to look for it in the mountant or the card, and most likely it will be in the former. You do not state what mountant you use, nor when you met with the same trouble before, whether you used the same cards, mountant, etc. We shall be pleased to hear from you on this, also as to your exact method of working, length of washing, etc.

A MOUNT QUERY.—I would be glad if you could tell me where it is possible to get mounts same as sample enclosed? I have tried several of the largest English houses, and cannot get them. I think they are only to be got abroad. You will see that it is a slip-in mount for large photographs 12 by 10 and 10 by 8 prints. There is printed on the back of mount, which comes from France, Collection Defeste Muldum (this word not distinct) Prix, and a photographer's name on the front.—BLACKDOWN.

We are unable to identify the mount as that of any manufacturer known to us. Perhaps the actual maker can give our reader the information.

T. B.—Kodak, Limited, 57-61, Farringdon Road, London, E.C.

DEVELOPER.—I would be greatly obliged if you would tell me a good developer for midget negatives taken by incandescent light, for I do not seem to get very good ones by using pyro soda; it does not bring the detail out in the blacks.

Probably the negatives are under-exposed. Try the following: Soda sulphite, 2½; water, 10 gs. Add 1 oz. to 3 oz. of water, and to each ounce of this weaker solution add two to three grains of dry amidol at time of use.

RAPID.—The glazed area would give you too little top light. You might make it do for busts, but for standing figures and groups you would find yourself at a disadvantage. The extension of sidelight sideways would not help you, but in any case 16 ft. is very short for a studio.

M. PLANTIE, Prefect of Constantine, in Algeria, has prepared for Queen Alexandra an album containing a complete collection of photographs of the most picturesque sites in the country. According to the "Daily Telegraph," her Majesty, during her visit there last spring, had, it is said, expressed the wish to possess some such memento of her sojourn in the French colony. The album has been sent by the Prefect to a lady, now at Marseilles, who will transmit the present to the Queen.

Mr. T. G. AMES, late with Messrs. B. J. Edwards and Co. notifies us that he is now representing Messrs. Elliott and Sons, Ltd. of Barnet.

* * NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the best portion of the paper.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

The whole literary and advertisement contents of the ALMANAC, it is satisfactory to state, are now passing rapidly through the printers' hands. The task of producing 25,000 copies of a volume of 1,616 pages is, however, no light one, and it will be December 1 before the printed ALMANAC can be delivered to the public. Individuals who have not yet ordered should do so at once through a dealer or bookseller, otherwise they will most probably be disappointed in obtaining a copy. The features of the ALMANAC are sufficiently well known, but attention may be specially directed to certain constituents of the forthcoming volume:—

1. A *Contents*, serving as a guide to the pages, and showing at a glance in which portion a given item of information is to be sought.
2. An *Index* of nearly every individual fact, formula, and paragraph, serving to take the consultant to his subject at once.
3. *Photographic Copyright*. A popular exposition of the subject in its present-day applications.
4. *Epitome of Progress*, classified and codified. A review of the year's work in technical and scientific photography; in which everything on a given subject is assembled at one place in the volume.
5. *Contributed Articles* by leading writers.
6. *Frontispiece*, in Barnet Platino-Matt bromide paper, of Miss Billie Burke.

The Tables, Formulæ, and other features of the volume have been revised and re-arranged, and, it is hoped, will meet with the approval of every one of the 25,000 prospective readers of the 1906 ALMANAC, which in mere size, the publishers must confess, is greater than any of its forty-four predecessors.

EX CATHEDRA.

The Wrong Man's Portrait. It is exceedingly unpleasant to have one's portrait published as being one who has committed a crime; but such a thing may happen by accident. The "People," of Sunday last, contains an apology for having published, as a portrait of a murderer, that of another person of the same name, residing in the same county. It would seem that the portrait was supplied in error. This is what the "People" says:—"We much regret the error on the part of the firm from whom we received the photograph, and apologise," etc. Such a mistake as this is very regrettable, and shows that one can never know to what use our portraits may, at times, be put. It is very doubtful if a photographer who has been paid for taking a portrait can legally sell copies of it, even if the person becomes a criminal.

* * *

Frauds on the Public. On one or two occasions during the past year we have made reference to the frauds committed on the public in connection with photography, by persons going about on the pretence that they are canvassing for orders for photographers. The system followed is usually this, and the chief victims are generally servant girls. The man, after showing some excellent specimens, represents that by paying him a small sum they can have their portraits taken at a ridiculously low price at a high-class photographer's in the neighbourhood. The money is paid, and when the sitting is asked for, the dupe learns that she has been defrauded out of her money. Sometimes the money is obtained for an enlargement, at a very much reduced price; the picture is taken away, and nothing more is seen of it or the man. A week or two back one of these gentry was brought to book, and was sentenced at the West London Police-court to nine months' imprisonment with hard labour. Another stands committed for trial at the next Essex Quarter Sessions, on an alleged similar offence. Not only are the public defrauded by these people, but they cause great annoyance to the photographers whose names they have used, for when the victims go to the studio, it is sometimes difficult to convince them that they have been duped—the photographer's word often being doubted. It is a further annoyance to good-class photographers to know that men are going about, from house to house, using their names, touting for bogus orders, when they are much above that style of business.

* * *

The History of Gelatine Emulsion. The paper by Mr. J. Burgess, read last week before the L. and P., and published in this issue will, no doubt, be read as a very *ex parte* criticism of the share taken by Dr. Maddox in the evolution of the gelatino-bromide emul-

sion. We do not question the correctness of Mr. Burgess's reminiscences, even if we are unable to repress a smile at his statement of the chief claim of Dr. Maddox's paper to recognition. And then, forsooth, he would ask us to believe that the leading members of the photographic profession and trade, in supporting the Maddox memorial, were hoodwinked into regarding the paper as of some value. Mr. Burgess appears to be angry that credit has not been done him in these pages; but the *ALMANAC* of 1880, in its editorial review of the "Rise and Progress of Gelatine Emulsion Photography" is just to Mr. Burgess in describing him as having "first showed practically that excellent results were obtainable with a dry gelatine plate."

Half-tone for Christmas Cards.

It is somewhat surprising that professionals have made so little use of half-tone printing for long runs of work when the quality of a platinotype or bromide print is not required. Almost the extent to which this method of producing prints has been carried is in postcard work, election portraits, and so on, but the big Christmas card publishers have long issued beautiful little views printed from half-tone blocks, and such are the facilities offered by the blockmaking firms, that a hundred or a gross of prints on a fine-surfaced paper can be obtained for something like half a guinea. Indeed, if a number of lots are ordered at the same time, so that the minimum rate does not come into effect, the prints may cost even less than this. When more from each block are wanted, the cost is greatly reduced, an extra hundred or two costing only a few pence more. Really good original photographs should be sent to the blockmaker, and a fine-grain screen should be employed, the resulting block being carefully printed on good paper. One application of half-tone printing which suggests itself at the present moment is for private Christmas cards. Photographs of house and grounds, a recent portrait group of children, a photograph of the first baby, and so on, would form suitable subjects, and a couple of hundred cards is not at all an unusual number for many customers to order. The picture might be printed direct on to the card, or on a folded sheet as an inset. In case mounting was necessary, the best method would be to apply mountant of a readily soluble character to the backs of all the prints, allowing them to dry and then trimming, when the card would be sponged, the print laid in position, and placed under firm pressure. Done systematically, this method would be quite as rapid as ordinary mounting methods, and the results greatly superior.

Fog in the Studio.

Not only the worker in the city studio, but many whose businesses are situated away in country towns, are dreading the autumnal fog season. Some of the most up-to-date workers have adopted the system of double doors, forming a species of fog trap, and though some of the foggy atmosphere must pass in every time there is an entrance or an exodus, the double doors prevent a current of air, carrying a great deal of fog, from passing through. Care must, of course, be taken to stop all ventilation during the prevalence of the fog, and the fitting of sashes, etc., should be seen to, or the fog will subtly penetrate. This system will scarcely be used except in the largest cities, where artificial light is available, and if this light is so arranged that the sitter is illuminated while the studio between sitter and camera is as dark as possible, any traces of fog will be very slightly illuminated, and so be unlikely to produce veil on the negatives. In smaller studios, and in places where

the fog is more in the nature of mist than the dense mixture of smoke and moisture so familiar to Londoners, a thorough warming of the entire building, and especially the studio, will be found a considerable help towards the elimination of the mist. Here, again, care must be taken to see that no weak sunlight shines in to illuminate the fog particles. In foggy weather preference should be given to lenses of as short a focal length as practicable, for the reason that the nearer the lens is to the sitter the less intervening moisture-laden atmosphere will there be to cause deterioration of the brilliancy of the image. Care must be taken to avoid over-exposure, too, and it may often improve negatives taken under foggy conditions to stop development before any veiling of the shadows occurs, and then intensify afterwards to obtain sufficient printing strength.

The Kokka.

In a recent issue we drew attention to "The Kokka," a high-class illustrated monthly dealing with the fine and applied arts of the Far East. It is published in Tokyo, at two yen a copy, or about 4s. in our money, and even at this price compares very favourably with any English production on the same lines. Its value must be considerable to the student and collectors, since it illustrates by means of wood engravings in colours and collotype, works of Japanese art, in private hands, or in temples, which the traveller is never likely to see. The title indicates this to a certain extent, as we understand that "Kokka" means "flowers of the nation." A perusal of the latest number sent for our inspection reveals a wealth of beautiful designs and reproductions, characteristic of oriental subtlety and mystery, but it is interesting to note that the whole literary contents—from the pens of eminent Japanese art critics—is in excellent and erudite English. At a time when all things Japanese are being studied in this country with increased interest and respect, the pronouncement of one of the writers in the present number on the "characteristics of Japanese art" should throw an interesting side-light on the art-motive as it presents itself to a people who are universally acknowledged to be a race of artists. He says:—"Our art is generally inclined to present a broad, bird's-eye view of a scene. Consequently in one and the same painting there are represented scenes of all sorts, distant mountains, a flowing stream, a tortuous path, a towering edifice, a half-way village, etc., a peculiarity which must strike the western eye as something fantastic and incongruous. Just here, however, lies the peculiar advantage of the Japanese theory of landscape painting, for a scene of the most complicated nature can be treated with remarkable ease and freedom when the chief sentiment of the picture is not concentrated on any one particular object, but finds expression of the organic relation of the whole." We gather therefore from this that the Japanese idea of pictorial art is primarily decorative. Subject and motive, unlike the ideals of the Occidental, being relegated to a position subordinate to the scheme of line and form.

Storing Apparatus.

With November comes the end of the photographic season, so far as outdoor work occupies the majority of workers. Seeing that valuable apparatus will lie idle for some months, it is worth while to consider how, and where, it should be stored. Too often the owner finds when it is unearthed for use in the spring that it is not in the same condition that it was expected to be. Then it is recognised that had a few simple precautions been taken at the time it was put away, and had it been differently kept, things would have been quite different, and, some

times, much inconvenience and some expense avoided. Very frequently the apparatus is put away in just the same state as it was when last used, perhaps damp, with the result that the wood-work of the camera, and of the slides more particularly, has become swollen, and the glue joints loosened. Even with the best seasoned wood, which is always used in the more costly apparatus, it will not stand several months continual exposure to damp without suffering to some extent. Damp, again, will seriously injure the bellows. The glue securing the leather to the canvas foundation will become softened, and, as most are aware, leather, if kept long in a damp place, is liable to become mouldy, and the mildew spots, when cleaned off, if they are deeply rooted, leave unsightly marks, even if they do no further harm. Metal parts are also liable to suffer from oxidation. Although the hinges are of brass, the iron pins of them get rusty, and then the hinges work stiffly, and often, after a little while, the wire breaks.

* * *

Seasonable Precautions. All the troubles enumerated above may be avoided with little or no labour to the owners of the apparatus, and here are a few hints that may be useful to some:—In the first place the camera, with the bellows fully extended, should be allowed to stand a day or so in a dry room, say an ordinary living room, so that any undue moisture can escape. The dark slides, with the shutter drawn, should be similarly treated. After resting for a few hours, or a day, all the parts should be carefully dusted, the pins of the hinges receive a drop of olive oil, and the apparatus packed up. It is a good plan to dust the bellows, in the folds, with a little French chalk, to prevent sticking, to which the varnish is sometimes liable when two surfaces are kept for a long time pressed in contact. If the apparatus is contained in a leather case it is a good plan to see that this is thoroughly dry also. When all this is done, it is well to tie the whole up in brown paper, as that will protect the case from dust and dirt. A word will not be out of place with regard to storage. It goes without saying that the place should not be a damp one; neither should it be abnormally dry, as under these conditions ill-seasoned wood may suffer by shrinkage. The best place to keep the apparatus during the months of storage is that where the conditions of an ordinary living or bedroom prevail. If the precautions we have enumerated are taken, the apparatus may be put away with the assurance that it will be found, when next required for use, as fit for work as when put away.

PRINTING PROCESSES.

XV.—TONING BROMIDE PRINTS.

The desire for warm tones on bromide prints was probably, in the first place, induced by the feeling that, whilst the surface was extremely satisfactory, the cold black or grey tones were not always suitable for every subject. There may have been also a desire to emulate the rich warm tones of carbon without having the necessity to resort to the transfer process. But we are not so much concerned with the origin and history of the various toning processes now in vogue as in their practical application. The methods for obtaining warm tones are very numerous, but the subject can be much simplified if we omit from serious consideration those processes which do not yield permanent prints. Foremost among these is uranium toning, one of the earliest, one also giving a convenient range of tones. But whilst in some cases prints treated by this method have stood the test of

years, others have been known to fade within a few weeks, and there seems to be no reliance to be placed on any given method of working.

Another process, which must be viewed with suspicion, is the so-called platinum substitution process suggested by Mr. C. W. Somerville. We have before us as we write some prints treated by this process, which, although not six months old, are now of a pale lemon colour in parts, and still fading. The vanadium process for obtaining green tones, suggested by the same experimentalist, is also open to very grave doubts, as some of our trial prints have undoubtedly faded. Further than that, the final tone of the print is dependent on the amount of washing that it receives. After toning it is distinctly blue, by washing it becomes green, by still further washing an olive green, and finally the green tone disappears altogether. It would seem reasonable to lay down the axiom that any processes of toning bromide prints which leaves as a constituent of the image a substance which is readily soluble in water cannot be permanent.

MM. Lumière and Seyewetz have proved that the lead and cobalt methods of toning bromides give an image of which a large portion consists of silver chloride. These therefore cannot be considered permanent.

The copper toning process certainly gives more permanent prints than the uranium, but is open also to the objection that the final tone is dependent on two salts, which can be readily dissolved by weak alkalies, even such as hard tap-water. It is but fair to surmise that, as it is impossible to preserve a bromide in an absolutely anhydrous condition, and the air may contain traces of ammonia, there is a loophole for change of colour.

Practically the only processes for obtaining warm tones which can be relied on are those in which the final image consists of sulphide of silver. Before entering upon these processes there are one or two points which must be considered. The first question is the effect of the original developer upon the final tone. That this has some influence cannot be gainsaid, and, assuming that one of the sulphide toning methods be adopted, the following developers give a range of tones progressing from cold to warm—amidol, metol-hydroquinone, rodinal, metol, ortol, ferrous oxalate, and hydroquinone.

There are two principal methods of sulphiding the image, the one in which the original image, consisting of metallic silver, is treated, and the other in which the image is converted into a silver salt and then converted into sulphide.

The former process is usually effected with a mixture of hypo and alum, either cold or warm, and of the two the latter is much to be preferred, mainly on account of the saving in time. For this process undoubtedly the best results are obtainable when the print is developed with ferrous oxalate. This gives warmer tones than any other developer, and if the hypo-alum bath is prepared as suggested below, sepia and purple-brown tones are readily obtained:—

Hypo	3½ ounces.
Powdered alum	½ ounce.
Boiling water	20 ounces.

Dissolve the hypo in 15 oz. of water, the alum in the remainder, mix the two solutions, and then add

Silver nitrate 10 per cent. sol. 60 minims.

Stir the mixture well, and allow to get quite cold. Then heat the solution to 120-140 deg. Fahr., and allow to cool. Repeat the heating and cooling three times. When required for use, the bath must be heated to 100-120 deg. Fahr. The print, which should be alumed, washed, and dried after fixing, is bodily immersed, and left for from fifteen to twenty minutes.

Some workers prefer to use the plain alum-hypo bath alone, either heated or cold. In the latter case the operation of toning takes a very long time—it may even run into days—and without the addition of the silver the tones obtained are not quite so rich.

There is no fear that the print may suffer from the raised temperature, though it is frequently advised that the print should be immersed in the cool solution, and then the temperature gradually raised. There is, however, no practical difference in the results.

The other process of sulphiding is, as already stated, the conversion of the image into a salt of silver, such as the ferrocyanide, the chloride, bromide, or iodide, and then converting this into sulphide by the aid of a solution of sodium sulphide. It is obvious that a solution of sulphuretted hydrogen might be used, but the stench of H_2S is far more unpleasant than in the case of the sulphide, and but little difference is seen in the final result; possibly the tones with sulphuretted hydrogen are slightly warmer.

It is as well to recall here the warning given by Mr. J. B. B. Wellington as to the effect of the sulphurous fumes on sensitive materials, particularly printing-out paper; therefore these toning methods should not be carried out where such materials are stored.

The first step in these processes is the bleaching of the image, which may be effected by using chlorine, bromine, or iodine solution, but to many the smell of these is extremely irritating and unpleasant, and equally good results may be obtained by using other oxidising solutions. We may convert the silver image into the haloid, either by using an acidified mixture of bichromate and an alkaline haloid, or with a mixture of potassium ferricyanide and haloid. The advantage of the former is that it at once destroys all traces of hypo, so that the print need not be so thoroughly washed: that of the latter is that the bleaching is more rapid. There is not much choice between the two.

As a typical formula for the bichromate bleacher we may use

Potassium bichromate	25 grains.
Alkaline haloid	50 grains.
Sulphuric acid	50 minims.
Water to	10 ounces.

The alkaline haloid may be either salt, potassium, or ammonium bromide or potassium iodide.

For the ferricyanide bleacher we may use

Potassium ferricyanide	$\frac{1}{4}$ ounce.
Alkaline haloid	180 grains.
Water to	10 ounces.

The question as to which is the best haloid to use must be decided by the operator himself. The coldest tones are obtained by the use of a chloride, the warmest by a bromide.

Instead of using a haloid the image may be converted into ferrocyanide of silver by using the above quantity of ferricyanide and rendering distinctly alkaline with ammonia; and this gives somewhat cold tones.

The sulphide solution may be kept as a stock solution, but there is sometimes a variation in the results obtained, so that it is better to make a fresh solution as wanted:—

Pure sodium sulphide	1 ounce.
Water to	20 ounces.

As soon as the print is immersed in this solution the change of colour will begin and be completed in a very short time, but it is as well to leave the print for a minute or two and then wash thoroughly.

Before leaving the sulphide process, it may be as well

to point out that warmer tones are obtained by bleaching the print in copper bromide or chloride, the formula being

1. Copper sulphate	200 grains.
Potassium bromide	200 grains.
Or salt	200 grains.
Water to	10 ounces.

The print must be thoroughly free from hypo, immersed in the above bath till thoroughly bleached, and then rinsed two or three times, immersed in a 1 per cent. solution of nitric acid, and washed, and then treated to the sulphide bath.

Another process, in which the final image consists, wholly or in part, is that in which the bleached print is treated with a 1 per cent. solution of Schlippe's salt (sulphantimoniate of soda), rendered alkaline by caustic potash or soda. Somewhat yellower tones are obtained by this process, but it is an open question as to whether the results are permanent. Some prints treated by this process over ten years ago seem to be now in their original condition, whilst others have markedly changed in colour; this being doubtless due to the complete or incomplete conversion of the silver salt.

An important point to be considered when choosing one of these toning methods, is the effect on the gradation and depth or intensity of the image—that is to say, whether the print is reduced or intensified.

The hypo-alum method certainly reduces the print considerably, therefore prints must be over-developed. The sulphide method does not reduce nor intensify, but as the colour of the image is not so intense as when black, a rich print must be obtained, otherwise the shadows will be flat and poor. The copper and Schlippe's salt methods intensify the print, the former, however, not very appreciably.

As regards the colours obtained, opinions on this point differ, and some will prefer the sepia of the sulphide, whilst others the more purple tone given by the hypo-alum with silver bath. This, used after ferrous oxalate, gives the nearest approach to the purple brown of a P.O.P. print that we have yet obtained.

So far as we are aware, there is no satisfactory method of imparting a permanent green tone to bromide prints, and certainly such a tone is rarely required. The same might also be said of blue tones, but these can be obtained by immersing the print in

Potassium ferricyanide	90 grains.
Strong nitric acid	48 minims.
Ferric ammonium citrate	44 grains.
Water to	20 ounces.

When the desired tone is reached the prints must be well washed until the whites are clear. There is some danger of the whites being stained, as it is difficult to prevent the formation of basic iron salts in the pores of the paper.

Rich brown and purple tones can be obtained by bleaching the print in the ordinary mercuric chloride solution, as used for intensification, well washing and then toning in an ordinary sulphocyanide of gold bath. In the case of rusty bromide prints, such as are often obtained by the use of too much bromide in the developer, or over-exposure, a strong sulphocyanide of gold bath will considerably improve the colour, and it is quite possible to save many a print by this method.

The above may really be said to be the practical processes of bromide toning. Changes may be made in the bleaching solutions, or in the strengths of the sulphide solution, or in using other sulphides than the sodium; but in practice they offer but few, if any, advantages.

COLLODIO-CHLORIDE PAPER.

[In reference to the recent letters in our correspondence columns on the stability of prints made on collodio-chloride papers, the following notes, by one who can claim some eight years' continuous practice in working the process, may be offered as opportune. The fact that the stated experience of those printing in collodio-chloride is contradictory is sufficient ground for the view that the technique of the process only requires to be mastered to remove the slur of impermanency which some workers have felt compelled to cast upon it.—EDS. B.J.P.]

The paper can be had matte or glossy, and various colours are easily obtained—from red to grey with the cold bath only, and with platinum and gold, the most beautiful black (carbon black in expert hands) that is more soft and delicate and has finer details and depth in the shadows than the platinotype process itself. Yet, with all these advantages, there are drawbacks that make professionals chary of working the process.

The Question of Permanency.

The chief drawback is problematical permanency. Problematical is the correct qualifying word, for whereas some C.C. prints appear to be absolutely permanent under severe tests, others fade, go blotchy, or are covered with spots that sometimes appear a few days after toning, though the prints have been apparently treated in all respects in a fashion similar to that of others of proved permanency. That the question of permanency is of the utmost importance to the professional there can be no gainsaying. A good print is an advertisement of value for all time, but a faded, or, in any way deteriorated, print will do more harm than twenty excellent photographs will do good.

Single Versus Double Bath.

From comparative tests made in a practical and not a theoretical way, I found that the paper toned in a single gold bath was less permanent than that toned in the gold bath, followed, after washing, by the chloroplatinite of potassium bath, though the former was not susceptible to spots, partial fading, and sudden deterioration, as is the latter.

The single-bath prints are, in fact, to be depended upon, since, when made with any degree of care, the fading is not apparent for twelve months; and, if then, takes the form of a slight change of tone which gradually gets worse. On the other hand, prints toned in two baths, when made properly, are to all intents and purposes permanent, showing no change after two years' exposure to sun, damp, and sea air, though other prints from apparently no explicable cause will be covered with yellow spots within twenty-four hours, or, maybe, the black tone will turn brown in places after a few weeks.

Defects and Remedies.

A few of the faults common to the process may be detailed as follows:—

Red patches, often taking the form of a finger or thumb mark. They are due to grease on the surface of the print which prevents the solutions acting. They occur through careless handling, or handling with hot or dirty hands. Only a knack of handling the paper is required for their thorough prevention. An old printer will probably not have more than one print in ten thousand spoilt in this way. To minimise the likelihood of these marks appearing, after about ten minutes' washing, the prints may be passed through a bath of $\frac{1}{4}$ oz. bicarbonate of soda to 80 oz. of water. A further washing for five minutes in clean water must follow.

Red spots, other than those caused by grease seldom occur. If they appear it may be due to iron rust in water, or too little washing before gold, or too strong gold bath.

Bronzing is due to too hard negatives, or to too short immersion in the platinum bath. The single gold toner requires a much less contrasty negative than the double bath.

Blisters appear when the baths are of varying temperatures. In winter the prints are sometimes one mass of tiny blisters. They usually dry down, however, and seldom give further trouble.

White spots appear only on the prints toned in gold only, and may be due to too strong hypo, or the prints have been allowed to lie still in the fixing bath. The prints must be continuously moved.

Cracking is at times a serious source of trouble. It occurs chiefly in cold weather and with fresh batches of paper. Fresh tubes should be opened and allowed to ripen for a few days before use. There is no actual remedy.

Black spots can usually be traced to the use of zinc shapes for cutting oval and circular prints, and are formed by the minute particles of zinc falling on paper before toning. All C.C. prints should be toned before cutting out, not only because of black spots, but because the edges of other prints chip and break off. Be sure that when drying off only the best pure blotting paper is used. I have had a print returned to me with most distinct signs of reversed printing on the film side, due probably to momentarily laying a printed page on the pictures before they were thoroughly dry.

Yellow Spots.

All the above faults, however, are of little consequence, easily averted, or of infrequent occurrence. The *bête noir* of the collodion printer is the yellow spot, whose appearance is shrouded in mystery. The known causes are many, but, unfortunately, unknown causes appear to step in when the former are eliminated. Yet, I will endeavour to detail the avoidable risks which are mostly peculiar to the double bath process. The single gold bath seldom produces these spots, and, therefore, as already explained, is more reliable, though, not in a way, so permanent, and certainly not capable of producing the black tones that are the chief attraction of the C.C. paper.

The first washing should be thorough. The first toning—preferably in the borax bath—does not have much influence on the production of spots, but the bath should be slightly alkaline. Washing after toning must be thorough, if the spots are to be avoided. Toning in the platinum bath is not to be feared if the previous washing has been well done, but washing after the platinum is absolutely the most important part of the process. Slackness in carrying out this washing is the great cause of spots and fading; the acid from the platinum bath must be eliminated before fixing if permanence is of the slightest importance. To make assurance sure add some borax solution, or carbonate of soda to the last washing water but three.

Fixing and After.

The fixing bath, as has been pointed out by a correspondent, is seldom advised strong enough by the makers. They recommend 1 oz. to 20 oz. of water, and five minutes' washing, whereas for nearly ten years I have used 4 oz. of h-no to 20 oz. of water, and fixed for a quarter of an hour without the least deterioration.

Be sure that the hypo is alkaline, and, to ensure this, add a few ounces of borax or carbonate of soda solution to it. Also be sure that your hypo is perfectly pure and free from foreign matter. To keep it so, store it so that no impure air can reach it.

Washing after fixing must be of the most ample description. Certainly give ten minutes' hard washing to get rid of the surcharge of hypo immediately after fixing, and wash for at least two hours' in running water, or, preferably, give a further half an hour's hard washing. Now dry off on blotting, or on clean sheet for cutting out. It is better to cut out before the prints are bone dry, and to place the cut out prints in water,

as the paper when once it has become thoroughly dry is liable to crack and to prove refractory, where sticking flat to mount is concerned. Mount with clear, pure starch, made same day, and lay to dry.

Having arrived so far, and judging from other processes, one might reasonably expect that there would be no further cause for fear; but, unfortunately, the supposition is wrong, for at this advanced stage the chance of yellow spots is very great, more especially if the weather be at all damp, or if the season be winter.

The Importance of Quick Drying.

As was pointed out in the JOURNAL about two years ago, and as a recent correspondent has surmised, one of the most frequent causes of yellow spots and cases of fading is the too slow drying of prints. After mounting, the prints must be made bone dry as quickly as possible—if the weather be at all damp the prints *must* be dried in a heated room. The only satisfactory thing about yellow spots produced by slow drying is that they usually show in the course of twenty-four hours. If, unfortunately, you get these prints delivered, the result is disastrous, for the appearance of a print suffering from "the yellow peril" is indeed appalling.

The curious part of this cause of failure is that though slow drying has been recognised in America as a frequent cause of these spots, and hot rolling with a card over the face of the

prints advised as a further preventive, yet the German and English manufacturers say nothing about it in their somewhat meagre directions.

The Non-effect of After-damp.

Another peculiar feature is that though dampness, if prolonged, has an extraordinary effect on the freshly-mounted print, yet when once dry, damp, or even actual wetting, has no effect. I have specimens, first made six or seven years ago, and then exposed in showcases not remarkable for their weather-tightness—in fact, dew frequently soaks the mounts through and through, and this is alternated by strong sunlight—yet, after two years of this, and the remainder of the time on a wall, the prints are as good as the day they were made. In fact, never have I had the slightest trace of fading in showcases, yet prints which may have been left lying about in wrappers are occasionally returned in a heartbreaking condition.

The general conclusion is that collodio paper must be treated with the care due to its special and peculiar susceptibilities. Of course, it is the height of folly to take it up as "just another sort of P.O.P." Considering its comparative newness in this country alongside P.O.P., there is reason to suppose that expert printers have yet to discover one or two things about it, and many workers of it probably blame it for faults which they would never discover if they would recognise a few fundamental facts in regard to the paper. W. FOSTER BRIGHAM.

THE HISTORY OF GELATINE EMULSION PLATES.

[A paper read before the London and Provincial Photographic Association on Thursday, November 2.]

It is with genuine pleasure that I respond to the invitation you have given me to relate the history of gelatine dry plates. The story I have to tell you is the correct version of a tale which has been very much garbled and distorted, not intentionally, I am quite sure, but through carelessness.

Dr. Maddox's "Discovery."

As you all know, Dr. Maddox was awarded the honours of the invention by the Scribes and Pharisees of the profession. They presented him with a gold medal and £400 as a token of their gratitude for the immense benefits he was supposed to have conferred upon the lovers of the gentle art of photography. Every man who contributed to that testimonial did himself credit. He believed what he was told, and demonstrated practically that he had some sense of benefits received. The present generation can hardly imagine how great those benefits are. Those only have a lively sense of the boon they enjoy in using the gelatine plate who can remember the difficulties and vexations of the old wet-plate method, or the primitive dry plate, which was so slow that a man could sit down and smoke his pipe while the landscape was impressing itself on the fettered silver bromide.

But I wonder how many of the contributors to the Maddox testimonial took the trouble to inquire just what the doctor had done. The general idea seems to be that he made a plate similar to those used now, but not quite so good. This is an entire mistake, but Dr. Maddox is not to blame for this. He was perfectly honest in his account of what he did. He laid no claim to having made a great discovery; he simply recorded an abortive experiment which taught one thing excellently well, and that was how not to do it. I could make the world a present of hundreds quite as good if they were worth printing. But see how gullible men are. In Jerome Harrison's "History of Photography," page 63, he says: "Three men, Harrison, Sutton, and Maddox, had clearly recognised the pos-

sibilities of gelatino-bromide emulsion." They had done nothing of the kind, or they would never have dropped it. They met with difficulties, and ran away. Victors do not funk at the first obstacle they meet, and men who clearly recognise great possibilities persevere. The historian goes on to say: "Two of them, Harrison and Maddox, actually prepared such an emulsion with a marked degree of success." Yes; the success was so great that neither of them ever touched it again, and by recording their failure, warned future comers off the road. Harrison, writing in THE BRITISH JOURNAL OF PHOTOGRAPHY in January, 1868, after describing how he made his emulsion, says: "The picture came out very rapidly, and was of great intensity, but the rough and uneven surface of the film 'made it worthless, and there was an end of it.'"

Does this sort of thing advance our arts? It was a decided discouragement, and yet the history proceeds: "At least one worker took the hint," and in the pages of the English trade journals for July, 1873, the following advertisement appears, which was the one reproduced a few weeks back: "One worker took the hint!" Which hint? That it was worthless? The man who said, "It was worthless," came much nearer to success than Dr. Maddox did, though he is set on a monument as the originator of gelatine dry plates. I am very glad to say that I was fortunate enough to miss those precious hints, and never heard of either of them till my own emulsion was beginning to make a stir. And I was accused of meanly trying to sell what the other generously gave away.

Dr. Maddox's Formula.

Let us be perfectly fair! We will have a look at the wonderful experiment which is supposed to have put me on the road to success. On page 61 we have it: "Thirty grains of gelatine were swelled in cold water." Was that the hint? Why, gentlemen, gelatine was used in photography before collodion. "Then it was dissolved by heat, four drachms of pure water

and two drops of aqua regia being added. To this solution eight grains of cadmium bromide and fifteen grains of silver nitrate were added, forming a fine milky emulsion of silver bromide. Without further treatment this was spread upon glass plates and dried."

Now mark what the doctor says: "The plates were tested by exposing them beneath negatives, and gave a faint but clear image when developed with a plain solution of pyrogallie acid; intensification with pyro and silver followed."

There is no suggestion here or hint of any kind that negatives could be made from such plates at all. And the fact is, they cannot be. I defy any man to make a negative by that formula, and, so far as I know, that is the only scrap of information Dr. Maddox ever imparted, and by the faithful it is supposed to be the fountain from which the marvellous expansion of photographic business we are familiar with to-day has flowed. Gentlemen, I will tell you a secret. The great virtue of that article was that it filled a page in that really excellent paper, *THE BRITISH JOURNAL OF PHOTOGRAPHY* when the Editor was in distress. He, good man, was so grateful to his friend for coming to the rescue when he was hard up for copy that he pushed forward this claim when the opportunity came, and though Dr. Maddox never achieved greatness, it was thrust upon him by his admirers. Surely no man on this planet was ever so munificently rewarded for so slight a service. But photographers are pre-eminently a generous lot; it is a joy to be one of them.

Now, if Mr. Traill Taylor could have destroyed all the back numbers of his own journal this action of his might have passed unchallenged. He forgot Harrison and Sutton and Gaudin, who did much more in the way of suggestion than the editor's pet ever dreamt of.

The Obstacle to Emulsion Making.

It is a very extraordinary thing that in this world cleverness is much more common than perseverance. Many men got as far as Maddox and foundered just as he did. I met in my experiments the bogey that scared poor Harrison, but I happened to know the cause and was not frightened. It was the crystallisation of the salts formed by the decomposition of the silver nitrate, which was easily removed by washing the plates in water after the emulsion had set firmly; but this was a troublesome business, though it made good plates. One evening, after I had washed and put about two dozen of plates in the drying cupboard, each standing on a piece of blotting paper to absorb the drainings, I went out for a walk, with dry-plate making on the brain, feeling very weary and wishing that art was easier. I was too tired to enjoy my walk, and sauntered along, hardly knowing what I was doing, when a thought electrified me—a thought which was worth a million of money. It was simply this:—Why not wash the emulsion before putting it on the plates? When set, gelatine is insoluble in cold water. I shouted "Eureka!" and rushed home to try it. But there was still a ticklish problem to solve. When my emulsion was made and had set firmly in a gallipot, it looked like a nice blanc-mange. How was that stiff mass to be broken up so finely that the water could dissolve the salt out of it as easily as from the surface of a coated plate? This problem, which has been a difficulty with many workers, was solved for me as if Providence had arranged it all beforehand. While I was discussing this question with myself, my eye caught sight of some canvas my wife was working on for a pair of slippers. The meshes would allow only a thin thread to pass. The very thing for my purpose! The sensitised jelly was coarsely broken up, put into a canvas bag, and squeezed under water. It went through and sank to the bottom of the pan in very fine threads. One hour in this water removed every trace of salt. The water was filtered away as completely as possible, and then followed the usual coating and drying. The result was a perfect gelatine dry plate much quicker than anything which had been done at

that time, and, to this day, nothing better. Quicker, certainly, but not better.

I very much under-estimated the speed of my first plates. Indeed, this was the general stumbling block in the early days. It was hard to believe that light could work its wonders so rapidly. Therefore, over-exposure was the rule, and flat negatives the result. The plates were as good then as they are now, but how to use them had to be learned, and it took seven years to teach the public the value of dry plates. But from the day that first advertisement of mine appeared, hundreds of eager experimentalists went to work with new ideas of the possibilities, and triumphed.

The Invention of Bromide Paper.

Everybody believes in gelatino-bromide plates now. What do you say to bromide paper? I see in yesterday's "Daily News" that the veteran inventor, Sir J. W. Swan, is credited with the honour of giving our snapshotters their quick plates and their quick-printing bromide paper. We are all greatly indebted to Sir J. W. Swan for many good things; but, if you please, your humble servant was the inventor of bromide paper, and was superintendent of Morgan and Kidd's factory, at Greenwich, for the first year of its existence, and I wrote the first book on the treatment of bromide paper for that firm. It was entitled, "The Gelatino-bromide Worker's Guide."

I am aware that Sir J. W. Swan claims to be the originator of the present method of conferring speed upon emulsions by means of heat. I had an interview with him once, when we talked the matter over, and he described a series of experiments which led him to the conclusion that the only limit to the speed obtainable was the comparative slowness of our shutters. But, I think, that was after Mr. Bennett had produced his sensational pictures. It is difficult to say how much we owe to-day to the vast improvement in developers. But it must not be forgotten in judging these matters that the mechanical law which states that what is gained in power is lost in time holds good in photographic chemistry. What is gained in speed is somehow lost in quality. Gentlemen, that is all I will say at present on gelatino-bromide emulsion plates. But let me have a few words on colour photography.

A Process of Colour Photography.

For many years past the dream of our craft has been the production of pictures in all the glories of Nature's tints. By the primitive colour combinations some wonderful things have been done, but there is no such thing as colour-photography yet. All the single prints are monochromes. I have carefully studied the three-colour process, but the difficulties have seemed to me so formidable that I have never attempted anything in that line, because my aim has been to devise a process which can be worked in the studio without the operator having to learn a new trade, or provide himself with unfamiliar apparatus. I think I have, at last, after many heartbreaking failures and disappointments, succeeded fairly well in working out a new process for producing all the colours of Nature, in proper gradation, by mechanical means.

I have two experimental specimens with me, which I submit to you, still imperfect, but full of promise. Much better things will soon be done when practice has given me more confidence. I believe that when younger and more skilful hands than mine deal with this new process, pictures will be produced that the Royal Academy will not despise. J. BURGESS.

WE have been informed that Mr. F. E. Jones, who was for five years with Messrs. T. Illingworth and Co. and four years with Messrs. L. Trapp and Co., has joined partnership with Mr. E. von Aix, also late of Messrs. Trapp and Co. They have opened a business as photographic materials dealers at 22, Gray's Inn Road, London, W.C., under the style of F. E. Jones and Co.

THE WEEK IN HISTORY.

The Classic of Orthochromatism.

PRECISELY thirty-two years ago to-day was published a paper to which reference has been made by photographic writers more frequently than to any other, viz., that of Vogel on the sensitiveness of plates to the rays usually thought to be chemically inactive. This classical paper was translated in full in "The Photographic News" of December 12, 1873, when it was seen that Vogel's discovery was prompted, or, perhaps, I should say, predicated by English activities in plate-making. The facts as stated by Vogel are as follows:—He received from England some Wortley dry collodio-bromide plates, and found to his astonishment that they were more sensitive at the line E in the green of the spectrum than at F in the blue. He proceeded to experiment further on silver bromide exposed to the solar spectrum, and employed his silver bromide in two ways: (1) Wet, and with solution of silver nitrate adhering to it, and (2) dry, prepared by washing off the silver nitrate and drying the bromide. It was found that the dry bromide had a much greater sensitiveness for colours. With the wet bromide of silver a strong action was observed between G and F (in indigo and blue), but at F it vanished completely. The diminution of sensitiveness from blue to green, observed by Vogel on German plates, being absent from the Wortley plates, it occurred to him that the difference was due to the uranium nitrate and yellow colouring matter contained in the latter, and he found that a Wortley plate, after washing, did not exhibit this increased sensitiveness to green. Impregnating silver bromide with a red dye, Coralline, it was found that the plates were almost as sensitive in the yellow as in the blue. I think I may quote the remainder of Vogel's paper *verbatim*. He writes:—"I had, therefore, discovered a method of producing bromide of silver plates which could be acted upon quite as vigorously by a colour held to be bereft of chemical action—as, for instance, yellow—as by a colour such as indigo, which hitherto has been considered to exert the greatest chemical action. After these experiments I was led to hope that any other dye-body capable of combining with bromine, and which would absorb red vigorously, would also heighten the sensitiveness of bromide of silver for the red rays. Such a substance I found among green aniline colours. These absorbed vigorously the red rays midway between D and C. The absorption stretched with greater concentration further towards D, yellow, green, and blue passing through almost intact. A collodion tinted with this aniline green was found indeed to be sensitive into the red. The sensitiveness diminished from indigo to yellow, and then increased, and on that spot where the absorption band had been remarked there the film was most sensitive to red."

"From these experiments we may conclude, I think, with tolerable accuracy, that it is possible to render bromide of silver sensitive to any desired colour, improving its sensitiveness for certain colours. It is only necessary to add to the bromide of silver a suitable dye which absorbs one chosen colour, but not the others. Perhaps we shall get so far as to photograph the ultra-red spectrum just as we have depicted in the camera the ultra-violet. The photographic inactivity of certain colours, hitherto assumed, which is so often a stumbling-block, would then be obviated. In how far the results are of practical importance the following experiment will show:—A blue band upon a yellow ground was photographed. With an ordinary

iodide of silver collodion plate I obtained a white band upon a black ground. With a bromide of silver Coralline plate upon which blue and yellow acted with equal power nothing could be obtained. I foresaw, and for this reason, I put in front of the lens a yellow glass plate which absorbed the blue light, and allowed the yellow rays to pass through unimpeded, and then I was enabled to obtain, after a sufficiently long exposure, a dark band upon a light ground."

Mirror and Prism.

If anybody is interested in the first use made of the prism for the re-reversal of the image of the lens, one must turn back almost to the beginning of photography. And, of course, it was only natural that the single reversed Daguerreotype should at once suggest the need of such a device to the opticians. Hence we find it the subject of a brief note by M. Cauche on November 11, 1879, before the Paris Academy of Sciences. M. Cauche stated his preference for the prism over the mirror on account of freedom from distortion.

Washing Emulsions.

On Tuesday next another step forward celebrates its thirty-second anniversary, for it was on November 14, 1873, in THE BRITISH JOURNAL OF PHOTOGRAPHY, that the necessity of removing the products of interaction of the silver nitrate and the haloid salt from an emulsion was pointed out. Silver nitrate and potassium bromide, as every schoolboy knows now, give potassium nitrate as well as silver bromide; but this fact did obtain notice in the journals until first remarked by Mr. J. King, of the Bombay Civil Service. Having described the preparation of an emulsion, Mr. King writes:—"The result is a beautiful emulsion containing bromide of silver, a trace of nitrate of silver, and nitrate of potash, which if spread upon a glass plate will give a film fine enough when wet, but which on drying is covered with a wonderful web of crystals, through which nothing but a scarred and seamed negative can struggle into light." Mr. King proposed to remove the crystalline nitrates from the emulsion by the tedious process of dialysis.

The First Pyro-Ammonia Developer.

You have to go back a long way to the genesis of the pyro-ammonia developer, the most lasting of developer varieties, and still the one to which many of us can see no reason for giving the go-by. It was Major Russell, in THE BRITISH JOURNAL OF PHOTOGRAPHY for November 15, 1862, who first suggested it as an improvement for the dry or "preserved" collodion plate. His developer, of course, was a sort of acid silver intensifier, and his use of ammonia was suggested by its employment for fuming dry plates. "Having read," he writes, "the accounts from America of fuming dry plates with ammonia, I set about examining the capabilities of this agent with very promising results. . . . Thinking that the developing action of the fumes of ammonia must be due to their action on the tannin, the first thing I did was to try the effect of mixing a small quantity with a solution of pyrogallol, which is much more unstable. On mixing the pyrogallol and ammonia, and immediately pouring it on an exposed plate, its developing action is very energetic, not only in bringing out the image after very short exposure, but even in some cases producing a considerable though insufficient amount of intensity. HISTORICUS."

WARWICK Competitions.—The result of the October competition is as follows:—First prize, £10: James Moore, Esq., 57, Ellesmere Road, Stockton Heath, Warrington, "Organ Screen, Chester Cathedral." Donation, £5: To the Warrington Photographic Society. Second prize, £5: T. W. Sharpe, Esq., 85, Primrose Terrace, Glossop,

"Font, Glossop Parish Church." Donation, £2 10s.: To the Glossop Y.M.C.A. Photographic Society. This being the last of the series of monthly competitions for the season, a further donation of £10 has been handed to the Belfast Y.M.C.A. Camera Club, who have supplied the largest number of competitors.

THE USE OF PERMANGANATES IN INTENSIFICATION.

[A Communication to the Royal Photographic Society.]

PERMANGANATE has changed its position nowadays, as far as intensification is concerned, and has evolved from auxiliary to principal. Thus we find that many years ago it was used in connection with an iodine method of intensifying; the negative was "bleached" in a solution containing .2 per cent. of iodine and .4 per cent. of potassium iodide, i.e., left until it had assumed a bluish-green tint; it was next immersed in a 3 per cent. solution of potassium permanganate, when the silver iodide produced in the first process caused the precipitation upon the image of manganic oxide. The treatment with permanganate was, however, only of secondary importance, the chief intensification being caused by the increased opacity of the partly rehalogenised image.

Some time ago the use of potassium permanganate was suggested with subsequent development with ferrous oxalate, the red deposit at first formed being decomposed by the oxalate, and manganic oxide or low manganese compounds being formed which gave the required intensification.

By combining partial rehalogenisation, however, with the action of permanganate, a better effect is produced, and the result is an intensification which is of especial advantage in the case of under-exposed negatives, as the details in the shadows are brought up in a most satisfactory way.

The permanganate solution is prepared with hydrochloric acid, and

therefore contains a small percentage of chlorine, as can be at once detected by its smell. The proportion of permanganate to acid may vary from 2: 2 to 2: 1, the latter being most satisfactory.

PERMANGANATE BATH.

Potassium permanganate	2 grammes.
Hydrochloric acid (conc.)	1 cc.
Water	100 cc.s.

The negative, after having been thoroughly washed, is placed in this bath for a period between one and three minutes, during which time the image is transformed into a reddish-pink, and apparently loses very much in density. The clear portions become chiefly discoloured, but no chemical effect seems to take place in them, as on subsequent development they again become clear and white.

A short rinse only, in water, is advisable between the use of the above bath and redevelopment; too long washing appears to lessen the intensification.

Any organic alkaline developer may be used, but hydroquinone with caustic soda is recommended. The red plate, when immersed in the developer, quickly becomes brown, and finally black, and as already stated, the whites again become perfectly clear. A short washing in water concludes the process.

The effect on the gradation, photometrically estimated, is fairly even, but the contrasts are slightly reduced.

T. THORNE BAKER.

THE REASON WHY.*

For many years the professional photographer has been made the target of criticism on account of the lack of art contained in his work as it is placed before the public. I am aware that much of this criticism is just, and that a portion of the fault is properly charged to the photographer, but many fail to consider for a moment that the public may be the greatest violators of the rules of art, and that the photographer must to a certain extent furnish his patrons exactly what each demands.

There are other reasons which enter into the existing conditions, such as the lack of opportunity on the part of the photographer to equip himself early in life with a thorough art education; but this is a small matter compared with that great obstacle—that of the public—which knows exactly what it wants and will have regardless of the advice of the photographer, and if it cannot be served at Smith's studio will transfer its patronage to Jones's, where it can be served if it will pay the price.

I think that it will be generally conceded that the great mass of professional photographers can produce far more artistic work than is now produced if they only had the opportunity. I do not think that any large number of progressive workers of the craft are satisfied with the work they are now producing. It is only fair to the profession to make the assertion that they know that it is contrary to good art, good taste, and the general fitness of things to produce work in which an equal emphasis of light and distinctness is given to all parts of the drapery that should be alone concentrated on the face; that we all know that the face of the model is the important consideration and the draperies secondary and immaterial matters, but when we attempt to make this matter plain to our patrons, especially to women with pretty gowns, and men

who belong to the class of good dressers, we find that to them clothes are weighty considerations, and that the photographer who can best picture with all possible detail the attractiveness of the costume is the one who best fulfils their ideas of art.

It is fair to remember in this connection that the photographer, like the merchant, must sell his wares or close his doors. Rent must be paid; stockdealers' bills must be met, weekly salaries promptly forthcoming, and to do this we must satisfy our patrons and give them what they demand, if we cannot induce them to order what is best.

I am sure that my brothers in the profession would be only too glad to escape from the drudgery of excessive retouching and the almost universal use of the etching-knife in working up the negatives, but, until there is a radical change in the public taste, it seems as though we are chained to the task which we ourselves are in a large degree responsible for in our attempts to please our patrons.

In this connection I have one suggestion to make, and in time it may prove a path of escape. Let each operator, when making a sitting, make a portion of his negatives to illustrate his own ideas of the best work that he can do in the arrangement, lighting, exposure and development, and in submitting proofs be ready, if asked for an opinion, to explain intelligently to his patron why the negatives made in accordance with well-recognised principles of art are the best, but at the same time convey the idea that you are there for the purpose of furnishing what the patron may demand.

Some day there will come to your studio a person who is discerning enough to understand that a portrait is something more than a carefully tabulated inventory of wearing apparel, and you will get an order for some of the work that the masses would reject. It will be a starting in the right direction; and as these orders are repeated

* From "Wilson's Magazine."

the opportunity of displaying in your show-case the portraits of distinguished persons who are willing to accept portraits which show their personality, rather than display their handsome gowns, will have a wonderful influence with the masses, who are ever ready to follow the leader, and the result will be a better art in your work, and an occupation which is more congenial than the catering to a popular demand which is largely in the wrong direction.

G. V. BUCK.

Exhibitions.

CAMBRIDGE PHOTOGRAPHIC SOCIETY.

This exhibition was opened on Tuesday of last week by Sir Robert Ball, at the Guildhall, Cambridge. The judges, Messrs. A. Horsley Hinton and H. Snowden Ward, made the following awards:—

MEMBERS' CLASSES.

Architecture.—Plaques: Rev. H. R. Campion, Ely; D. J. Scott. Hon. mention: Morris S. Heycock and W. H. Hayles. Figure studies.—Plaques: D. J. Scott and Morris S. Heycock. Hon. mention: W. C. Squires. Landscapes, etc.—Plaques: J. Johnson and A. Barrett. Hon. mention: Miss G. J. Robson and W. C. Squires. Still life, etc.—Plaques: W. Farren and H. W. Chapman. Hon. mention: Miss D. M. Sandford and W. H. Hayles. Lantern slides.—Plaques: W. C. Squires ("Youth and Age") and W. Farren ("Flying Gannets"). Hon. mention: Dr. F. J. Allen ("Croscombe") and W. H. Hayles ("Pigs' Flea"). Record and survey.—Plaques: D. J. Scott and W. H. Hayles. Hon. mention: W. H. Hayles.—Silver plaques for best picture in the members' classes: D. J. Scott.

OPEN CLASSES.

Architecture.—Plaques: W. A. Clark, Moseley; and S. G. Kimber, Southampton. Hon. mention: J. W. Johnson, Kettering. Figure studies: Miss N. Hyde, Worcester; and Arthur Marshall, Nottingham. Hon. mention: Dr. J. H. Wilson, Colchester; A. Gordon Smith, Bewdley; Dan. Dunlop, Motherwell; and Miss Enid T. Brailsford, Bradford. Landscape.—Plaques: Basil Schön, Bedford; and Arthur Marshall. Hon. mention: E. B. Wain, Norton-in-the-Moors, Staffs.; and F. Judge, Hastings. Still life.—Plaques: H. W. Chapman, Cambridge; and E. C. Seymour, Watford. Hon. mention: W. Farren, Cambridge; and A. S. Cane, Cambridge. Lantern slides.—Plaques: F. Judge ("October") and F. Tryhorn, Liverpool ("A. Norman Arch"). Hon. mention: J. Ludlam, Leicester ("Winter") and Dr. G. H. Rodman, East Sheen, S.W. ("Pollen of Hollyhock"). Silver plaque for best picture in open classes: Arthur Marshall.

KODAK PICTURES AT THE STRAND GALLERY.

An exhibition of photographs by distinguished Kodak users is now open at 40, Strand, London, and the personality of the photographers is proving as attractive to the visitors as the artistic merits of the pictures themselves. No less than 320 prints are on view, and they testify amply to the extent to which the Kodak is employed by persons of rank. The catalogue bristles with the names of lords and ladies, while a collection of "Royal" Kodak pictures by H.M. the Queen and H.R.H. Princess Victoria are, needless to say, given special prominence. These are good, both technically and pictorially, and in most instances are, of course, unique as regards point of view. Among the portraits is an excellent one of Lord Kelvin, taken by Lady Kelvin, and a characteristic picture of the Earl of Clanwilliam, in full Admiral's dress, by

Lady Beatrice Meade. A number of photographs of archaeological and historical interest, by the Duchess of Manchester, are on view, and of special interest, in connection with the recent war, are the photographs of sunken vessels at the entrance of Port Arthur. Portraits of General Oyama, General Ian Hamilton, and General Kodama, and General Kuropatkin and staff, taken by Sir A. B. Hepburn, pictures by Prince Khilkoff show Lake Baikal and the difficulties of transport there during the late campaign. Among others whose photographs have been secured by Kodaks are Sir Norman and Lady Lockyer, Lady Playfair, Duc d'Orleans, Lady Castlereagh, Sir Frederick Treves, Lady Sarah Wilson, Duchess of Westminster, Dowager Countess of Aylesford, and Lord and Lady Rathdonnell. Altogether the exhibition is one of exceptional interest, and well worthy of a visit.

HACKNEY PHOTOGRAPHIC SOCIETY.

THE seventeenth annual exhibition of the Hackney Photographic Society was opened at the Hackney Baths, N.E., on Wednesday, November 1. The show compares very favourably with its predecessors in point of size, and the inclusion of a great number of works collected from the R.P.S. Exhibition and Salon point to its importance and popularity. Both the open and members' classes were well supported, and no less than 518 pictures were on view. Visitors were well catered for. Attractive stalls of trade exhibits were displayed by: The Adhesive Dry Mounting Co., Ltd., of 27 and 28, Fetter Lane, E.C.; R. and J. Beck, Ltd., of 68, Cornhill, E.C.; Burroughs, Wellcome, and Co., of Snow Hill, E.C.; F. W. Dadd of 192 Mare Street Hackney; Edmunds and Co. of 3, Extra Buildings, Columbia Road, N.E.; C. P. Goerz, of 1-6, Holborn Circus, E.C.; Houghtons Ltd., of 88 and 89, High Holborn, W.C.; T. Illingworth and Co., of Willesden Junction, N.W.; Kodak, Ltd., of Clerkenwell Road, E.C.; Photographic Materials Co., of Rickmansworth; Rawlings and Co., of 406, Mare Street, N.E.; E. F. Stack, of Leyton, Essex; and Wellington and Ward, of Elstree, Herts; and, in addition, instrumental concerts and lantern lectures were given each evening. The judges, Messrs. Reginald, Craigie, A. Horsley Hinton, and Rev. F. C. Lambert, made the following awards:—

Open Classes.—Best Picture in Open Classes: Silver plaque, J. E. Latham. Class G—Portraiture and Figure Studies: Bronze plaques, Miss M. Silverston, Arthur Marshall. Class H—Landscape, Seascape, and River Subjects: Bronze plaques, E. W. Taylor, W. A. I. Hensler. Class I—Architecture: Bronze plaques, R. Summerford, H. W. Bennett. Class J—Animals, etc.: Bronze plaques, E. Seymour, D. W. Kyle. Class K—Stereoscopic: Bronze plaques, H. Wormleighton, F. G. Tryhorn. Class L—Lantern Slides: Bronze plaques, W. A. I. Hensler, E. R. Bull.

Members' Classes.—Best Picture in Members' Classes: Silver plaque, H. W. Lane. Class A—Portraiture and Figure Studies: Bronze plaques, W. A. I. Hensler, J. O. Grant. Class B—Landscape, Seascape, and River Subjects: Bronze plaques, W. H. Fowkes, W. A. I. Hensler; certificate, J. J. Westcott; medal, W. Selfe; certificate, W. J. Chandler. Class C—Architecture: Bronze plaques, S. C. Stean, F. E. Roofs. Class D—Animals, Still Life, etc.: Bronze plaques (2), A. D. Fort; certificate, W. Selfe. Class E—For Pictures of any Subject, etc.—Bronze plaques: G. Topple, A. C. Fort; certificate, A. Hyder. Class F—Lantern Slides: Bronze plaques, W. Selfe, W. A. I. Hensler; certificates, A. J. Linford, W. Selfe.

Trade Section.—Best Display: Silver medal, Messrs. Houghtons Ltd. Most Useful Photographic Novelty: Silver medal, Kodak, Ltd., for "The Premo Reflex Camera."

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between October 25 and 26:—

CINEMATOGRAPHS.—No. 21,476. Improvements in cinematographic cameras and projectors. Ernest Osman Brown, 9, Queen's Road, Bournemouth.

CAMERAS.—No. 21,909. Improvements in photographic cameras. Wilhelm Salow, 111, Hatton Garden, London, E.C.

COLOUR EFFECTS.—No. 21,913. New method of mounting portraits and artistic reproductions generally, particularly photographic, to produce luminous reflections and diaphanous, transparent and brilliant colour effects. Fernand Paul Georges de Neuville, 72, Cannon Street, London, E.C.

SHUTTER.—No. 21,950. Shutter or screen for photographic cameras. William Boyd Henderson, 108, Westbourne Grove, London, W.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

DAYLIGHT CARTRIDGES.—No. 3,474, 1904. The invention is to obviate set-off of numbers and markings from the wrapping paper, and at the same time preserve the general appearance and manner of using the well known cartridges. This is effected by making the covering paper wider than the sensitised film, and locating the indicating and severing markings upon the extending edge of this opaque paper or backing, so that they will not come into contact with the film when the cartridge is wound into a roll. Kodak, Limited, 57-61, Clerkenwell Road, London, E.C.

TELEPHOTO LANTERN LENS.—No. 23,888, 1904. The application of the telephoto principle to a projection lens is thus described in the specification:—Use is made of a positive lens which consists of two or more separated elements, each of which elements may consist of one or more lenses connected together. Between the positive lens and the lantern slide is placed a negative lens, consisting preferably of two lenses cemented together. An adjustment is provided by which the distance of the negative lens from the positive may be varied. The complete lens thus made has a variable focal length according to distance between the negative and positive portions thereof, as, for instance, from 9 in. to 20 in. equivalent focus. It has this further advantage that the distance of the lens itself from the lantern slide is much less than its equivalent focus, and consequently a smaller lantern can be used than would otherwise be the case. The lens is so made that the negative part can be removed and the positive portion used alone as a well corrected lantern lens of shorter focus. Whereas different forms of positive lenses may be employed, the negative lens should preferably have a diameter giving a clear aperture of not less than the focus of the positive lens divided by $3\frac{1}{2}$, and it should preferably have a negative focus of not less than 9-12ths that of the focus of the positive lens. The following is stated as a satisfactory method of making the negative elements. A double concave lens and a concavo-convex lens, one surface of the concave lens being the same curve as that of the convex curve of the concavo-convex lens, are cemented together at this so-called contact curve. The curves of these lenses are so placed that the radius of curvature of the surface which is nearest the lantern slide is approximately in the ratio of 3, that of the contact curve 2, and that of the surface nearest the positive lens 6, the double concave lens being nearer to the lantern

slide than the concavo-convex. Conrad Beck, 68, Cornhill, London, E.C.

CINEMATOGRAPH PICTURES.—No. 21,540, 1904. The patent is for obtaining the effect of animated photographs by the rapid transposition of sheets or plates bearing pictures, or, of mirrors, or reflecting surfaces, mounted upon a binding band and operating positively and successively. Jules Hippolyte Cortes, 15, Francis Street, Tottenham Court Road, London, and Paul Frederick Boehringer, 54, Charleville Road, West Kensington, London, W.

New Material.

"Circoid" Developers and Toners. Sold by Houghtons Ltd., 88-89, High Holborn, London, W.C.

With the establishment in popularity of the ready-made developer or toning bath manufactured in the dry state and needing only solution in water, Messrs. Houghtons, Limited, can feel confident of issuing a series of compressed chemicals in tablet form. "Circoids" will be certain to find numbers of photographers wedded to the time-saving system of the tablet, and, presuming that they are excellent in themselves, they may be recommended as the *ne plus ultra* of convenience. And it is therefore incumbent on us to say that after putting the "Circoids" submitted to us to the test of use, we found them easily soluble and photographically active in their respective applications. We write thus of the pyro-soda and metol-hydroquinone developers and of the combined bath. "Circoids" are sold at a uniform price of 1s. per box, for which sum one can prepare 40 oz. of developer or 20 oz. of tone-fixing solution. In the case of developers, Messrs. Houghtons are making a practice of giving the Watkins factor on the circular of instructions. The hydroquinone has a factor of 9, pyro-soda of 8, and metol-hydroquinone of 16.

CATALOGUES AND TRADE NOTICES.

COLOURED slides of natural history subjects are a new and cheap line with Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C. The slides, coloured, are put up in sets of eight at 2s., and there are some twenty sets to select from.

AN abridged catalogue of lanterns and lantern apparatus has been sent us from J. Lizars, 101 and 102, Buchanan Street, Glasgow. This catalogue contains practically everything necessary for the projection of lantern slides. Mr. Lizars has over 250,000 slides in stock for hiring purposes, and a full catalogue of 250 pages, containing all information, will be sent on receipt of 6d.

THE "Aptus" winter specialties are briefly described in a catalogue just to hand from Messrs. Sharp and Hitchmough, 101 and 103, Dale Street, Liverpool; particulars of enlargers, screens, lenses, lanterns, lamps, condensers, illuminants, etc., are included. A copy will be sent free on application.

For the sake of more precise description, Messrs. John J. Griffin and Sons have renamed the various brands of Velox paper, and at the same time have reduced the prices of several varieties. This series of paper is now divided into "Vigorous," for weak negatives, "Soft" for strong negatives, and "Special," for papers of distinctive matt surface. The worker has thus no legitimate grumble that his Velox is not what his taste desires and his negative demands, although the dealer may not look upon a multiplicity of brands as an unmixed blessing.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
10	Aberdeen Amat. Photo. Assn.	"A Trip to St. Kilda" (Federation Slides) Mr. T. Lupton.
10	Colne Camera Club	"Carbon." Demonstrated. Mr. R. T. Lawson.
10	Leicester Lit. and Philo. Society	"Platotype Printing." Demonstrated. Mr. R. E. Woolmer. <i>Amateur Photographer Prize Lantern Slides</i> , 1905.
10	Barrow Naturalists' Field Club	"The System of the Stars." Illustrated. Variable Stars. Rev. T. E. R. Phillips, M.A.
13	South London Photo. Society	"Lantern Slide Making." Mr. W. Page.
13	Luton Camera Club	Practical Evening on "Auto-Pastel." Organised by Messrs. Staddon and Baker.
13	Southampton Camera Club	"Morocco." Illustrated. Mr. J. H. Avery.
13	Leek and District Photo. Soc.	Exhibition of Members' Prints.
13	Dewsbury Photo. Society	General Discussion on Photographic Matters.
13	Wallasey Amat. Photo. Soc.	Lantern Lecture, "Beautiful Mona."
13	Halifax Camera Club	"Places and People in Westmorland." Mr. Percy Lund.
13	Glasgow Eastern A.P.A.	Annual Exhibition—Last Date for Entries.
13	Sunderland Camera Club	"A Holiday in Algiers, Tunis and Sicily." Illustrated by Lantern Slides. Mr. T. Walton.
13	Oxford Camera Club	Exhibition of the Royal Photographic Society's Prize Slides.
14	Royal Photographic Soc.	"Application of Photography to Investigations of Natural Science." F. Martin Duncan.
14	Worthing Camera Club	1. "Composition and Selection of Pictorial Subjects." Illustrated. Mr. Arthur C. Osborn. 2. "Italy in an Hour." Illustrated by Miss Woodward. Lecture illustrated (any subject).
14	Glasgow Southern Photo. Assn.	"Natural History Records with a Camera." Illustrated. Mr. G. A. Booth, F.L.S., M.B.O.U.
14	Birmingham Photo. Society	"Combination Printing." Mr. A. Poole.
14	St. Helens Camera Club	"Photographic Lens Making," with Samples of Lens Paris and Lantern Slide Illustrations. Mr. Harbottle.
14	Gateshead Camera Club	Rotary Co. Demonstration.
14	Hackney Photographic Society	Bromide Toning Competition. Members. Swaledale. Mr. R. Borrow.
14	Holmfrith Photographic Soc.	"Exposure and Development." Mr. J. W. Stanciliffe.
14	Darlington Camera Club	"A Holiday in Switzerland." Mr. James Emmott, R.O.
14	Otley & Dis. Cam. & Art. Soc.	"Velox and its Application." Messrs. John J. Griffin & Sons, Ltd.
14	Nelson Photographic Society	"Bromide Papers—Printing, Toning and Finishing." Mr. T. W. Brown.
11	Thornton Heath Photo. Soc.	"Three-Colour Photography." Rev. Johnson Barker.
14	Bristol Photographic Club	<i>Amateur Photographer Prize Slides.</i>
15	Worcestershire Camera Club	Judging of Prints and Slides taken on the Outings held during the summer.
15	Coventry Photo. Club	"Orthochromatic Photography." Mr. Arthur Payne, F.C.S., F.R.P.S.
15	G.E.R. Mechanics' Institution	"Old Leeds." Illustrated. Mr. Alf. Matkinson.
15	Cricklewood Photo. Society	"The Stability of Negatives and Prints." Mr. H. W. Bennett.
15	Leeds Camera Club	"The Platinotype Process. Demonstrated. The Platinotype Co. Lantern Night. Members' Slides.
15	North Middlesex Photo. Soc.	"Orthochromatic Plates." Illustrated. Mr. Ernest Human.
15	Tring Camera Club	"Enlargements." Mr. H. Crossley.
15	Redhill and Dis. Camera Club	"Dry Mounting." Demonstrated. Mr. John H. Avery.
15	Edmonton and Dis. Photo. Soc.	"Darwen's Beauty Spots." Mr. F. Wild.
16	Rodley, Parnley, & Calverley Dis.	"A Comic History of Photography." with Illustrations from <i>Punch</i> . (By Permission.) Mr. C. H. Davis.
16	Wimbledon and Dist. Cam. Club	"Engelherz and the Bernese Oberland." Mr. G. Middleton.
16	Darwen Photo. Association	"The Making and Working-up of Bromide Enlargements." Mr. G. F. Bristow, Jnr.
16	London and Prov. Photo. Assn.	"Notes on Photomicrography." Demonstrated. Dr. Rodman.
16	Harrogate Camera Club	"Easter at the Lakes." Mr. F. Gregory Jones.
16	Hull Photographic Society	Members' Night.
16	Richmond Camera Club	"Nature Study with a Camera." Illustrated. Mr. B. H. Bentley, M.A., F.L.S.
16	Liverpool Amateur Ph. Assn.	"The New Oil and Multi-Colour Process." Demonstrated. Mr. G. E. H. Rawlins.
16	Balham Camera Club	"North Wales." Illustrated. Mr. Godfrey Bingley.
16	Sheffield Friends' Sch. Ph. Soc.	Prints for Affiliation Competition, 1905.
16	Southport Photographic Soc.	
16	Padsey and District Photo. Soc.	
16	Chelsea and District Photo. Soc.	

ROYAL PHOTOGRAPHIC SOCIETY.

TUESDAY, October 7. Mr. L. Clift in the chair. Mr. A. Brookman gave what was announced as a "practical demonstration" on "Copying." He dealt more particularly with the copying of oil paintings and black-and-white subjects, and laid it down as a rule that to obtain the best results a long extension camera and a long focus lens were necessary. A perfectly rigid camera of the square type was recommended, and the lecturer drew attention to the inadequate proportions of the modern tripod top. A tripod top equal in size to the baseboard of the camera was essential if perfect rigidity was desired. The tripod should be strong and firm, and to prevent slipping the three legs should be held in position by one of the several devices he showed. The first was a folding T-shaped piece of wood with a series of holes bored in it. The front leg of the tripod was placed in a hole in the tail of the T, and the other two in holes in the cross-piece. Another method was to employ three pieces of light metal shaped like the letter J. These were joined together at the top, so that they could move easily, and formed three grappling irons, which, engaging with the tripod legs, prevented them spreading apart. The third contrivance consisted of three slotted strips of metal, one of which was connected to each leg of the tripod, and all three firmly clamped in any position in the middle by means of a bolt and nut. This small piece of apparatus is already on the market. As regards the lens for copying, Mr. Brookman said there was no question as to the pre-eminence of the modern flat-field anastigmat for the purpose. A.R.R. or even a single lens might be used, but this necessitated such excessive stopping down to secure marginal definition that the exposures, especially when a colour screen was used, became prohibitive. Sharpness, to render every detail of the original, and freedom from fog were essentials for good copying work. To escape the latter, which frequently occurred with long exposures, from reflections inside the camera, it was always best to use a larger camera than was required for the plate employed. Marginal fog from reflected light from the rebate of the dark slide and back of bellows was thus avoided, and in any case better results were obtained if a cone of cardboard, blackened inside, was fitted over the lens to cut off all light except that coming from the picture. When copying a large painting it was necessary, in addition to using as long focus lens as possible so as to get a good distance away, that the camera should be placed pointing directly at the middle of the frame. Mr. Brookman's method of securing this was to use a piece of string, say 12 ft. long, with a drawing pin fastened to one end and a piece of chalk to the other. The pin was fixed to one corner of the frame, the string held taut, and an arc drawn on the floor with the piece of chalk, roughly, about opposite the middle of the picture. The string was then shortened to one-half by tying a loop and another arc drawn opposite the first. The drawing-pin was now transferred to the opposite corner of the frame, and two more arcs drawn on the floor bisecting the first two. The line drawn connecting these two points of intersection pointed at the exact centre of the frame, and on this line the front leg of the tripod should be placed with the lens pointing in the same direction. The two other legs should be placed on a line drawn at right angles to the first line. When copying dark pictures, the glass, if any, should, if possible, be removed. Otherwise a big black screen was necessary to avoid reflections. This should be used in front of camera, with a small hole for lens to peep through, and was another point in favour of long focus lenses. If a short focus lens was used with the screen, too much light would be cut off or the lighting would be uneven.

The ideal conditions for copying would be to use a vertical easel for the picture, and both easel and camera stand to run on small tram lines, so that they were always truly parallel to each other.

Sunlight was bad for copying purposes. A good diffused light gave best results, but the lecturer had employed the arc light and incandescent gas with good results, provided they were well placed and screened from the lens. One point Mr. Brookman insisted on, and that was never turn a picture upside down for copying, especially an oil painting, but always try and copy it in light coming from the same direction as that in which it was painted. The purpose of the artist who had probably considered the effect of each brush mark would be entirely defeated if the picture were copied in the wrong lighting. It was also a fact that an oil painting copied by light coming from the same direction as it was painted in could be more easily copied, as it showed the least "glare" under the circumstances.

Water-colour paintings generally required less exposure than oil paintings. A dark water-colour wanted about one-quarter the exposure of a dark oil painting, and when starting a long exposure it was wise to always note beforehand the time when to leave off, and write it down and stick to it. Always give as full an exposure as possible, and, in the case of black-and-white subjects, a small stop was necessary to avoid clogging of high lights. To examine the picture for glare, the only correct way was to remove the lens and ground glass after focussing, and then look through the camera from the position of the dark slide. To overcome excessive contrasts in copying pictures the lecturer used pieces of black velvet, which he attached by means of wafers to the high lights, such as the face, hands, collars, etc., after a certain exposure had been given, so as to allow the dark portions to "catch up" with a prolonged exposure. For black-and-white work he preferred using a slow photo-mechanical plate; for all colour work he advocated ortho plates, of course, and he preferred colour-sensitising ordinary plates himself in preference to buying them ready sensitised. The dyes he used were pinachrome and pinacyanol. He used the Ilford half-tone plate dyed with the latter for most work, the exposure being increased about three times. A screen was, of course, necessary. Pyro-soda was the developer for negatives, and metol-hydroquinone for transparencies.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Ordinary meeting, November 2, Mr. A. Haddon in the chair. Mr. J. Burgess read a paper on the "History of Gelatine Emulsion Plates." He afterwards showed two specimens of colour photographs printed in two printings from an ordinary negative with a relief akin to that of the Woodbury process. The process was simple, and prints could be repeated without variations. Asked if there was not some hard work on the prints, he said there was, but it was easily detected, and only took some ten minutes. The prints were much admired, and members showed great eagerness for details. Mr. Burgess stated that he intends to publish a book on the subject.

GLASGOW ARCHITECTURAL ASSOCIATION.—A lecture was given at the last meeting of this Association by Mr. Robert F. Sherar, a delegate from the Edinburgh Association, on "Linear Perspective," illustrated by photography. The lecturer said that the researches of the science as such had been practically exhausted by Dr. Brook Taylor and successive writers in the eighteenth century, but it was always possible to improve on the methods of stating facts and of teaching how to apply the theory to practice. He thought that illustrating perspective as he did that night by photography would be something new. He then described the elementary conditions on which the science depended, and distinguished between the perspective appearance of objects as we see them and the perspective image as we draw them on paper. Two photographs of the same building from the same spot were shown, one on the right-hand side of the photographic plate and the other on the left-hand side, which were quite different in the perspective lines, and it was explained that they were both equally correct records of the perspective

appearance as we saw it, but records only. To prove this, Mr. Sherar exhibited a photograph of the first of these two "pictures" taken with the camera placed so that the image of the picture fell on the left-hand side of the photographic plate instead of the right-hand side, and the result was the same as the second picture. From this he laid down the rule that the perspective appearance of objects depended on the position of the spectator, or, in photography, on the lens, and on this only; and that the perspective image depended on the surface on which it was delineated, whether it was a picture plane, vertical or otherwise, or a picture curved, as a panorama, etc.

BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—On Wednesday, November 1, Mr. Ernest Human lectured before the members of this society upon "Combination Printing." He first of all pointed out that the method usually adopted of first making a rough print and then cutting along the horizon line to make two masks was, in any but expert hands, a delusion and a snare, because although the two masks should in theory exactly match and join up in the printing, it was seldom indeed that one did not obtain a series of black and white lines extending into the sky, the reason being the unequal stretching of the paper when damped to place in position upon the negatives. The method he adopted and used was that of, what he would term for want of a better name, "vignetting." To use the method successfully, one should employ larger size printing frames than the negatives in use, as, for instance, 12 x 10 frame for 1-1 plates, 10 x 8 for $\frac{1}{2}$ plates, and so on. In practice the frame was taken, a sheet of clear glass put in and the negative was placed on this so that the hinged back just caught the top of it by, say, some $1\frac{1}{2}$ in., if a whole plate, smaller negatives pro rata. Should it be



desired to extend the lengths of the print by adding extra sky, the extended end was protected by a sheet of opaque paper, the frame was then turned over and a sheet of cardboard with a turned-up edge was fixed into position, so that it covered the horizon line; the whole was then put out to print in the shade. The figure will make this all clear, A A being the frame, B the negative, C the extending protecting paper, D the vignette, and E the hinged back. By the use of the larger frame it was pointed out that extended skies could be easily obtained, foregrounds could be added, or a negative taken landscape way of the plate could often be made a better shaped picture by taking a little out of the middle, or it may be only one end, and by extending the sky making an upright picture of 10 to 11 in. by 7 or 8 in., this very often proving an improvement, both to shape and subject. Thus cattle which got into a picture could by this method of vignetting, be taken out and new grass or foreground put into their place by the simple aid of two printing as for the sky, using the vignette at the reverse end; this method was followed for all papers giving a visible or semi-visible image, for carbon and other papers of that class, marks were made upon the edge of the printing-frame, and the vignette used in the manner described.

For bromide the larger frame was still used, together with the marks, and a sheet of cardboard was carefully brought from the top or bottom of the frame to the horizon line, and then kept upon the move for from 1 to $1\frac{1}{2}$ in., with a to-and-fro movement. Using these methods, skies or foregrounds could be put into pictures. The lecturer then explained at some length the method employed for putting figures into landscapes by the aid of blocking-out and making two

transparencies, from which a new negative was made either the same or an enlarged size. For lantern slides he recommended that the slide be first made, and then used as a mask for making the cloud cover glass one had only then to bind the two together to obtain the finished slide.

WOOLWICH PHOTOGRAPHIC SOCIETY.—On October 26 Mr. J. Spiller, F.R.P.S., lectured before this Society on "Early Photographic Activities at Woolwich," in which nearly half a century ago he took a part. In 1837, when first appointed to the War Department, there were cameras in possession of the Arsenal authorities, particularly in the manufacturing departments, but no one was specially told off to use them. At this stage a course of instruction was initiated at the Royal Artillery Institution, followed by a second class held in 1862. Meanwhile the speaker held a three years' engagement as photographer to the Royal Military Repository, 1858-1861, attending one day a week, and with the help of a small band of "non-com." pupils succeeded in producing a series of gun drill pictures, war material and equipment, engineering operations in or about the Rotunda pond. More than a hundred large-size negatives were taken by the collodion process, printed as usual on albumenised paper and mounted on thin cards for issue to outlying stations. Then in 1860 Shoeburyness wanted records of shot practice against the "Warrior" bulwarks erected on the Essex marshes, so it was arranged to strengthen the local photographic resources and provide for printing from the negatives at Woolwich. By the year 1863 a central photographic establishment at Woolwich was formed under Sir Frederick Abel, the War Department chemist, with the assistance of Mr. Spiller and his already trained military staff, and an account of such proceedings was given at the December meeting of the Photographic Society of London.

WORCESTER CAMERA CLUB AND PHOTOGRAPHIC SOCIETY.—On Wednesday of last week Mr. F. Hornblow gave a demonstration on "Toning Bromide Prints" before the members of this society.

DEVONPORT CAMERA CLUB.—At the Technical Schools on Wednesday of last week the autumn session of the club was inaugurated with an address from the President, Mr. W. T. Treglohan, B.A., on "The Advantages of Photography," premising that there were many who were hesitating as to whether they would take up the work, and were asking themselves the pertinent question: "What shall I gain by it?" He would say, first, that in doing so they would learn the art of seeing. There was not the slightest doubt but that the student of photography soon discovered that he began to see more as he advanced in his experience. He discovered more keenly than before what were the lines of beauty in a scene and in things that were interesting to photograph. And so far as scenes were concerned this led to looking for the discovery of the best point of view. It would soon be borne in upon the learner that in photography it was charm of form rather than of colour that made the greatest impression. Attempts at getting a true rendering of the scene, with its beauty, as colour made it, were very disappointing. But none the less was it desirable to be able to see scenes that would translate into good photographs. In the practice of architectural photography, the training in seeing was most valuable, and enabled the observing photographer to discover greater charms and beauties than the ordinary tourist would do. And the influence of the scene, apart from photography, might be most beneficial and helpful. Photography, too, led to a love of the beautiful, which was a growing and increasing faculty; and in opposition to this was the distasteful work such as was too common in the topographical postcard. Those who favoured portraiture had great need of learning to see, and could not do better than study the best works of the leading portrait or figure painters of these and former days. Nothing was more disappointing in result than

figure work done without thought or care, and the longer the experience the better would the work be if it were thought out on the lines of experience and good taste.

EALING PHOTOGRAPHIC SOCIETY.—In his lecture on "Architectural Photography," which was well illustrated by lantern slides, Mr. H. Creighton Beckett recommended the use of long focus lenses—wide angle lenses should never be used if a long focus one would answer. For exterior work, he found the best results were gained when the subject was lit by weak sunlight, striking it at an angle of about 30 deg. For interior work full, even over-exposure, should be the rule, such exposure as will just render the detail in all but the least important shadows being what is required.

CROYDON CAMERA CLUB.—Mr. John H. Avery presented a triple lecture and demonstration here last week. First came the sulphide toning both for bromide prints, and a number of Messrs. Wellington and Ward's papers were toned a rich sepia. So good, in fact, were the results obtained that the somewhat strong nasal impressions received at the same time were disregarded by all present. The formula recommended for the papers in question is as follows:—A: Bromide of potash, 600 grains; ferricyanide of potash, 400 grains; water (to make) 10 oz. B: Sulphide of soda, *pure*, 1 oz.; water (to make) 10 oz. Take 1 oz. of A to 9 oz. of water, and $\frac{1}{2}$ oz. of B to $9\frac{1}{2}$ oz. of water. The prints are bleached in the former bath, rinsed, and placed in the latter, where they soon acquire a pleasing sepia colour. Prints bleach better, Mr. Avery said, when dried first, and they must be thoroughly freed from hypo. The next item on the programme consisted of the "Dry Mounting Process," and, by means of an inexpensive little machine, the lecturer successfully and most expeditiously mounted a large number of prints, on the thickest cardboard down to tissue paper, without the slightest cockling in any case, and in addition manufactured several plate-sunk mounts out of stiff paper. The third subject proved to be an exposition of the Scott's Studio "Bromide Paper Printing Machine" for art papers. In the discussion which followed on sulphide toning, Mr. H. P. C. Harpur said it was not obligatory to thoroughly free the prints from hypo before bleaching, and, being challenged upon the point, he tore a print into halves, and promptly adjourned to the dark room, placed one half in a strong solution of hypo for a few minutes, washed it for three minutes exactly, and returned. Much interest was evinced as to how the two halves would respectively bleach and tone, and it must be recorded no difference was discoverable. Mr. Avery said this was all very well, "One swallow did not make a summer," and he maintained care should be taken in the direction indicated by him.

At the Aberdeen Photo Art Club last week Mr. G. L. Smith, President, gave a lecture on "Art in Photography." Mr. Smith said in times past it had been common to speak of photography as the art science. He held that in photography itself there was no art, it was a science pure and simple, a difficult science, requiring a knowledge of many things, still a science. The photographer might have the best lens and camera procurable, he might have a thorough knowledge of the technics of his science, yet never be able to produce anything better than a very good photograph. The camera, and all the knowledge connected therewith, were simply the means by which a picture might be made, but unless the user of these had in him the spirit of the artist, and the power of artistic selection, it was vain to suppose that a picture in the true sense of the word would result. It was as natural to suppose that a painter, because possessed of brushes, canvas, and the finest colours, with a thorough knowledge of how to manipulate them, could therefore produce a picture of outstanding excellence. He contended that thorough knowledge in the technics of photography was in the first place essential, but beyond that, the art was in the mind of

the operator, and not in his camera. Could he make his results express some feeling, or thought, or emotion? If he could not he was simply a photographer and not an artist. The true painter could, in a manner, make his picture express the idea he wished to convey by taking away superfluous light and strengthening or suppressing shadow where desirable. The camera represented whatever was before it, and the only power of its user lay in the selection of that part which would best express the thought aimed at.

New Books.

"Photograms of the Year, 1905." London: Dawbarn and Ward, Limited. 2s.

"Give us Art" is the cry of the two contributors who are the first to appear in Mr. Snowden Ward's annual review of pictorial photography. Herr Loescher, speaking for Germany, sees photography passing through a period of imitation art, the "art" which is an external copy of the real thing. M. Demachy writes to the same effect in diagnosing the dead level of pictorial photography. The photographic methods—gum, multiple-gum, and glycerine platinotype—have been out long enough for the seekers after sensation to have exhausted their possibilities. Hence no more seven-days' wonders in the exhibitions, but progress of a kind, M. Demachy thinks, which is towards beautiful lines and quality of colour. It is almost a source of perturbation to us to find M. Demachy and ourselves in agreement on modern tendencies in pictorial photography, yet his implication seems to be that the rapid progress of the last few years has been of a technical kind—in the acquisition of deftness in the methods just mentioned—and that now the movement forward is towards education in art is necessarily painfully slow, and of a kind to be unnoticed by the casual observer. We shall be glad to find M. Demachy right. Our protests in the past against the hectic way in which photographic processes were applied have been frequently expressed. Having allowed practice to run riot in producing things which were not great or good, but only novel or startling, "pictorial photographers" have reason to see happy auguries for the future in the present lack of "tours de force" and works which obtain notoriety.

But our chief concern is with the illustrative, not the literary portion of "Photograms of the Year," and first we would return thanks for the limit which the compilers have set on the catholicity of selection. One finds very few reproductions of a kind to bring photography into ridicule. There is rather more ordinary work than need be, and there are signs of the compilers' desire to associate work of a certain kind with certain workers—witness Van Jan's seascape with the inevitable nude woman—but, for the most part, the volume represents sane, creditable photography, and a study of its pages is a better introduction to current accomplishments than any exhibition.

Portraiture has a large share in the pages, and a professional photographer must be more obtuse than we conceive possible, if he fails to profit from the reproduced work of W. Crooke, William Gill, Speaight, Henry Spink, Miss Warburton, Ralph W. Robinson, Frederick Hollyer, H. A. V. Coles, A. L. Coburn, J. Craig Annan, and Furley Lewis, and from the Germans and Americans, whose work is almost wholly portraiture. And what a suggestion for a window picture is Louis Dick's study on page 45! We signalise the portraiture as of supreme interest to our readers, but the pictorial harvest of landscape and the like is equally gathered between the covers. In fact, the volume embodies its editors' aim to make it "an incentive and an inspiration to every lover of photography." Having in mind that the printing of some issues of "Photograms"

has invited criticism, we ought to add that the present volume is a beautiful production: the non-photographic person will probably prize it as a book for presentation.

"The Photographic Studio and What to Do in It." By H. P. Robinson. Iliffe and Sons, Limited. Price 2s. 6d. Third edition.

Revised by W. Robinson.

Whatever methods and means a newer school of portrait photographers may have discovered for the achievement of successful work, there can be no doubt that the broad principles laid down by the late H. P. Robinson in the first edition of "The Studio and What to Do in It," are still the best to-day. The present edition is the third, and Ralph W. Robinson, himself one of our leading professional photographers, who has undertaken its revision, says in the preface:—"I have found nothing of importance to alter. On the other hand, returning to a careful perusal of the book after twenty years everyday practice in portraiture, I find every point teachable in the art treated in the straightforward and practicable way characteristic of the author." The problems before the professional portraitist to-day are the same as they were when the first edition of the work appeared. Posing and lighting of the sitter, indoor and outdoor single figures and groups, and backgrounds, etc., are matters which are unaffected by improvements in processes and materials, and the advice and instruction given on these subjects and many others are as forcible and to the point now as when the first edition appeared. Beyond the old-time costumes in some of the original illustrations which have been retained, there is therefore nothing to indicate that the book has not been written during the past year. The amateur photographer who does not possess a studio will also derive much instruction from its pages, but to the professional who desires to make the most of the light and space at his disposal, the book should specially appeal.

"Pictures from Nature" is the title of a portfolio of fifteen photogravures made from photographs by Richard and Cherry Kearton. The size of each plate is 15 by 11, and they are very fine reproductions of some of the most popular pictures by these eminent naturalist-photographers. Messrs. Cassell and Co., Limited, are responsible for the production of the portfolio, and all who are interested in Nature, photography, art, or sport, should write to them for full particulars. The price is 10s. 6d., and the publishers have made arrangements with Messrs. Kearton for an edition de luxe, limited to one hundred numbered copies, wherein every picture will be autographed by the brother who secured the photograph. The price of this edition will be two guineas.

Part III. of the "I Go A-walking" Series of Nature books, illustrated by photographs, by Charles Reid, of Wishaw, has been issued. The present number deals with stream and lake side pictures. It is published by T. N. Foulis, 3, Frederick Street, Edinburgh, and is cheap at 6d.

BORDER Occasionally Seen Between Light and Dark Regions on Photographic Prints.—Professor Oliver Lodge writes to "Nature": I have once or twice been asked why photographs are apt to show a line or band or edging along the boundary of a bright and dark region. My assistant, Mr. E. E. Robinson, has thought of the reason, and it may be convenient to publish it. In a developed film the exposed portion perceptibly differs in thickness from the unacted-on portion, and accordingly the linear boundary of two contrasted regions may sometimes act as a cylindrical lens, and during printing either concentrate or disperse the light on the positive immediately beneath it.

THE Aerograph Co., Ltd., after some years' establishment at Memorial Hall Buildings, has removed to new offices at 43, Holborn Viaduct, London, E.C.

News and Notes.

THE NEXT R.P.S. HOUSE EXHIBITION.—A house exhibition will be opened on Friday, 24th inst., at 66, Russell Square. A departure has been made in this instance from the usual one-man shows, inasmuch the exhibition will consist of a selection of the works of the members of the Postal Camera Club. This club is one of the best and strongest of its kind in the country, and the pictures will be remarkable for variety and style. The club was until recently under the secretaryship of Mr. W. R. Bland. His mantle of office has now descended upon Mr. J. C. Warburg, who will formally open the exhibition on Friday fortnight. The press view will be on Saturday, 25th, from 11 to 3, and the private view on the same day from 3 to 6. The exhibition will then remain open until the New Year. Admission by presentation of visiting card.

R.P.S. LECTURE.—The lecture announced for next Tuesday at the Royal Photographic Society, 66, Russell Square, is "The Application of Photography to Investigations of Natural Science," by F. Martin Duncan.

PHOTOGRAPHY at the Society of Arts.—Among the sessional arrangements for lectures at the Society of Arts are several lectures of direct photographic interest. On November 22, Mr. Martin Duncan lectures on "The Cinematograph and its Applications," and a month later, on December 20, Mr. Charles W. Burdick is to discourse on "The Aerograph Method of Distributing Colour." Of the Cantor lectures, which are a feature at the Society of Arts, those on "Fire Risks" and "Fire Extinction," by Professor Vivian B. Lewes, are not without their interest to photographers and the photographic trade. A circular issued from the Society at John Street, Adelphi, London, W.C., will inform the recipient of the other activities of the Society and of the terms of membership.

KOHINOOR Paper.—Inquirers, other than the one who recently addressed us, may be glad to know that this paper—the manufacture of Roland Risse Flörsheim, Germany—is supplied by R. L. Hart, 7, Horsefair Street, Leicester.

PHILIP G. HUNT, of Manchester, notifies us that he has opened at 34, Paternoster Row, a London office for export and colonial business in photographic printing and publishing. Inquiries for samples and prices are invited from the wholesale trade, and will be answered to any part of the world.

ROYAL INSTITUTION.—Professor Herbert Hall Turner, D.Sc., F.R.S., is announced to deliver a Christmas course of lectures on "Astronomy," adapted to a juvenile auditory. The dates of the lectures are December 28 and 30, 1905, January 2, 4, 6, and 9, 1906, at three o'clock.

From a programme of the Croydon Camera Club's Exhibition, which is now open, we see that, apart from the exhibits, many other attractions are offered. To-night Mr. E. A. Salt lectures on "Three-Colour Photography," with special reference to Messrs. Sanger-Shepherd's system. A musical melangé is fixed for tomorrow. On Monday a cinematograph display is to be given by Mr. F. A. Delcomyn. Tuesday is filled with a lecture by Mr. C. R. Stockwell, entitled "A Trip to St. Petersburg and Moscow." On Wednesday (the closing night) Mr. F. J. Mortimer furnishes an illustrated lantern lecture on "Wave Formations" and "Marine Photography." In addition to the foregoing, the Platinotype Company's portrait lamp will work each evening under the direction of Mr. Salt. Its inventor—Mr. W. H. Smith, the President of the club—has evolved a new method of utilising the powerful illuminant employed. Only reflected light is allowed to fall on the sitter, the amount and direction of which can be varied at will. Mr. Smith is also responsible for a series of practical demonstrations on the platinotype, and Mr. J. M. Sellors for expositions of the carbon, or autotype process. The exhibition is held at Horniman's Hall, North End, Croydon, which is easily accessible from either West or East Croydon Stations. We wish its Hon. Secretary, Mr. W. H. Rogers, and all concerned, every success.

DEATH OF W. H. WALMSLEY.—We regret to record the death of Mr. W. H. Walmsley, of Philadelphia, on October 22, after an illness of only one day. The deceased gentleman was well known in photographic circles, and among other literary labours, had written a manual of photo-micrography. His sudden death comes as a painful surprise to ourselves, for little more than a week ago we received from him an article for the forthcoming "Almanac," to which for many years he had been a contributor.

Correspondence.

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * *We do not undertake responsibility for the opinions expressed by our correspondents*

WHENCE COMES THE WORD "PHOTOGRAPH"?

To the Editors.

Gentlemen,—In reference to the first use of the word "photography," I have been making investigations myself, on Dr. Murray's suggestion. The utmost I can say is that I have found no trace myself in any printed matter of an actual earlier use of the word than that in the printed abstract of Sir John's paper, which for other reasons was not actually read to the Royal Society in March, 1839.

That does not justify, nor indeed go so far as to suggest even, that Sir John coined the word. But it is quite a simple idea to suppose that a man of his stamp would use the word almost instinctively, in distinction from the narrower French term, *heliography*. Light, as such, was Sir John's ideal study in physics, and I can well imagine how, when the need for a word sprang up in his mind, he would be the first to attribute the work of light to light, rather than to any luminary that sent it forth.

But adhuc sub judice lis est—though, so far ex parte—Dr. Murray's impartial hypothesis.—Yours faithfully,

W. J. HRSCHHEL.

92, Woodstock Road, Oxford, November 3, 1905.

To the Editors.

Gentlemen,—The only possible answer to Dr. Murray's question may perhaps be that the origin of the word is not known, and cannot now be ascertained. My own impression is that it probably came from France about the same time as the news of Daguerre's discovery. The word "photography" differs but slightly from "heliography," the original name used by Niepce, which would not be likely to be retained, considering the improvements that had been effected in the art and the probable desire to mark it as quite distinct from Niepce's process.

Dr. Murray says that his French friends have failed to trace the French equivalent of the word "photography" before 1839; but that is exactly what one would expect. Photographic processes were in existence before that date, but they did not attract attention. I suppose that very few persons had heard of "heliography" before they heard of "photography." The year 1839 was a year of photographic revelation; great interest was excited, and such a word as "photography" would then take root.

Dr. Murray suggests that Sir John Herschel may, "in the experiments that he had made for several years," have "invented the name photography for his own private use"; but Herschel had not been experimenting in photography for any length of time. I am unable at the moment to verify the date, but I am under the impression that it was in January, 1839, that Herschel first began to experiment in photography, owing to his having heard the rumour of what had been done in Paris. At that time he was unaware that anything had been done in England.

If, on the occasion of reading his paper to the Royal Society (March 14, 1839), he had supposed himself to be using in public, for the first time, a word familiar to himself but not likely to be familiar to his audience, he would probably have called attention to the fact. Even if he had not done so, his friends, and men of science generally, could hardly have failed to notice it, and it would

not have been forgotten just as the fact that he was the first to use the terms "positive" and "negative" in photography, has never been overlooked.

The point which you notice under the heading, "Ex Cathedra," that in the "Athenæum," from 1839 to 1843, the word "photography" is used in connection with Herschel's work only is certainly curious; but those persons who were principally interested in perfecting processes, to which they had given distinctive names, would, at first, find those names sufficient for their own use. Herschel, on the other hand, appears to have experimented more generally over the whole photographic field and would be likely to realise sooner the advantage of using a comprehensive term that had not come to be identified with any particular process.—Yours faithfully,

C. H. TALBOT.

Lacock Abbey, Chippenham.

November 6, 1905.

THE RESTORATION OF DAGUERREOTYPES.

To the Editors.

Gentlemen,—I should like to supplement your article on the restoration of Daguerreotypes by a few practical notes representing the result of personal experience.

Methylated spirit must not be used for the preliminary operation, either rectified spirit or absolute alcohol should be employed. Very little is required, so cost is not a matter of moment.

After the first washing with water, immersion for ten minutes in a fresh hypo fixing bath (4 oz. to the pint) will greatly facilitate the after cleansing operation with cyanide. The tarnish is partly removed by the hypo, and thus less work is left for the cyanide, and though little apparent effect may be produced, I have found that the cyanide invariably acts more rapidly after the hypo bath. The plate should, of course, be washed before the cyanide is applied. Though cyanide varies in strength, it seems to me to be safest to make a solution of ten grains to the ounce, and use that throughout. This prevents the accidental use of too strong a solution; while a ten grain solution I find to be quite effective even in the worst cases. The same solution should not be used too long. I find it best to use fresh solution every two or three minutes.

If the tarnish is very strong, you must not expect it to completely disappear in the cyanide bath. In very bad cases a kind of scar is left, that only disappears when the plate is dried. This mark will again reappear if the plate is again wetted; but it should be quite invisible in the dry image. For sealing I prefer a strong gelatine mountant and thin hard paper. When the binding is dry, I rebind with a second series of strips of the same paper, and then size the binding with gelatine. When this second binding is dry, two or three coats of celluloid varnish are applied.

The picture should be sealed directly after the cleansing operation, as, if left exposed, even for a short time, it becomes slightly dulled. The work must not be done in a laboratory or any place where chemical fumes are about. Chlorine fumes, for example, will speedily destroy the image.

As regards the delicacy of the image and the readiness with which it is removed by rubbing, I am not sure that this is not sometimes exaggerated. I have recently had to deal with some old Daguerreotypes that had been unmounted for years, and had been much handled and knocked about. They were, of course, badly scratched and terribly stained; but the removal of the stains showed that the images were intact. They were chipped in a few places, and salts had formed on the exposed copper, but only in these spots had the image actually disappeared. Scratches are very readily produced by the softest brush or wood pad, hence no attempt should be made to remove anything by friction. A particle of dust may, however, be picked up on the point of a damp brush without causing damage.

My experiences have been confined to untuned images, and with these I have found that cleansing is a perfectly safe and easy operation if reasonable care is taken. I do not think I have ever met with a toned or "gilded" image, and if Messrs. Kent and Lacey would kindly give us some information with regard to such images and their treatment, I, for one, should be very grateful. I imagine that the gold would be removed by the cyanide bath; but does this necessarily involve the "total destruction" of the image? Is retoning possible?—Yours, etc.,

C. WELBORNE PIPER.

46, Shooters' Hill Road, Blackheath, London, S.E.,

November 4, 1905.

To the Editors.

Gentlemen,—Allow me to add my mite on the subject. There are one or two points in your instructions that might be improved.

Alcohol is unnecessary, and in the hands of inexperienced operators may fail. I have in my mind a failure in the hands of my operator; it arose by his flooding the Daguerreotype with methylated alcohol; this precipitated a resinous deposit which I could not remove. My *modus operandi* is as follows:—I place the plate in a strong solution of cyanide potassium (unused) for a few seconds only, or sufficiently long to remove the tarnish; if left a long time in the solution the cyanide will attack the silver too deeply and remove the whole image. All that is now required is to well wash the plate in plain water, and finish with distilled. The plate should then be placed end up on a clean piece of bibulous paper, and allowed to dry spontaneously. If artificial means are employed, there is a danger of markings from a stoppage in drying. Latterly I used to cover the Daguerreotype with a protective coating to prevent further tarnishing. The varnish was composed of bees' or paraffin wax, 2 grains, benzole, 1 oz., carefully filtered. I am pleased to hear that Mr. Kent is still alive. We have other veterans in our midst Mr. Werge for one. I have not heard of the death of Mr. Richard Beard; he and Mr. Claudet were early in the field. Some years ago I amalgamated Mr. Beard's business with my own in King William Street, and I have had the honour of cleaning Daguerreotypes for him. I possess some thousands of his negatives (wet collodion). He personally retired in the fifties.—I remain, Sirs, yours truly,

A. L. HENDERSON.

Smedley's Hydropathic Establishment, Matlock,

November 4, 1905.

THE PERMANENCY OF MATT COLLODION PAPER.

To the Editors.

Gentlemen,—The letters on the permanence of collodio chloride prints have opened a discussion on a most important subject, and, perhaps, my own experience may be useful to others.

It is some years now since I used C.C. paper for ordinary single gold or platinum toning; but I found when using it that the prints toned with alkaline gold were remarkably permanent, and bore exposure to sunshine and damp in show cases in a manner quite surprising. In fact, they kept in better condition, under the same circumstances, than prints on platinum paper. Occasionally prints would be spoilt by pale yellow spots, which appeared only after they had lain all night in blotting paper. The blotters were sold as chemically pure, and the spots did not appear until the blotting paper had been in use for some little time. But I was never able to find out whether the spots were caused by some fungoid growths, such as mould, or mildew, in the paper; or whether chemicals were carried into the blotters by the wet prints. The spots never appeared when fresh blotters were used, and, as soon as a single

spot appeared the sheets were discarded. If a print, having the smallest spot escaped detection and was mounted, in a couple of days the spots increased and almost covered the print. I suspected hypo was the cause; but, as the prints were toned, fixed, and washed on the top floor, were drained on a sheet of glass, and then carried down stairs to a room where no hypo was ever used, or even taken into, I could never trace the cause of the trouble. The silver image was bleached to a pale yellow wherever the spots appeared. I never discovered a spotless print go wrong after mounting.

C.C. paper toned with the single bath is, I think, very fugitive; in fact, I believe all silver prints toned in an acid bath of any kind are impermanent. I have some old ones on plain paper, gelatino chloride and collodio chloride toned with acid platinum, and they have almost faded away. I am not well enough versed in chemistry to explain why this should be so; I give my own conviction founded on experience. Collodio chloride prints toned in a double bath, first alkaline gold followed by acid platinum, seem to be more permanent, and the makers of the various papers assure us that the pictures are permanent; but I have not used that process long enough to speak from my own experience. But I find with these latter a careful watch must be kept on the blotters in which they are dried.

A brother professional was greatly worried some years ago by having large numbers of silver prints returned to him which were covered with yellow marks and spots where the image was bleached, in some cases in large patches. For a long time he was at his wits end to discover the cause, and tried everything he could think of to prevent it; but it still went on. At last it was found. The prints when mounted were rubbed down, not with blotting paper as is usual, but with some ordinary white paper, bought for that purpose, and it was not noticed that the price of the paper had been getting lower and lower during the many years it had been used. The explanation was that at first the paper, when of a higher price, had been fairly pure; but, as time went on, inferior rags, perhaps coloured and dirty, were used in making the paper, chloride of lime was used to bleach the pulp, and hyposulphite of soda, or "antichlor," had to be used to neutralise the chloride of lime. So the carefully washed prints, while wet, were rubbed down with paper containing large quantities of hypo. The moral of this is, how extremely careful we must be in all our manipulations.—Yours faithfully,

HAROLD BAKER.

17, Cannon Street, Birmingham, November 6, 1905.

To the Editors.

Gentlemen,—I looked forward with the keenest interest for the letters on C.C. matt this week, but instead of learning anything I was grievously disappointed. One gentleman says he has had spots, but has not used the paper long, the other that hypo alone is the sole cause—a fact that I cannot reconcile myself to.

My candid opinion is, after working the process for four years off and on—that is, off when spots come, and then reattracted by the superb results the paper is capable of giving (better in my opinion than any other process except carbon) trying it again—that the process is unsuited to the climatic conditions of England, and that here at least it will never be an invariably permanent (I mean for silver) process.

In America, where C.C. matt (platinum-toned) is paramount, the climate is so dry that even platinum paper can be quite carelessly worked in winter; in summer no precautions at all are necessary beyond trying to keep it as cool as possible. Now, as C.C. matt is so sensitive to damp when finished, clearly, the moist atmosphere of England makes against permanency. I believe a C.C. print kept dry

is as permanent as any silver print can be—in fact, I have tested and proved it to be so, but can we guarantee that they will be kept dry after leaving our hands?

I have had prints brought back spotted all over after a few months, and have found that a copy in my possession made and finished at the same time was perfect. Even the prints in my doorway showcase will fade before the studio specimens lose their pristine freshness.

As I work single-handed, I know that no carelessness is to be reckoned with. I do not use blotting paper at all, but after swabbing moisture off face of print with a perfectly clean cloth for each batch, press into contact with waxed paper in mounting.

To sum up, I have found that under any condition a gold-toned only C.C. print is practically as permanent as any other silver print. It is only when gold and platinum together is used that instability is present. I have an opinion that the acid platinum bath rots the film and renders it more susceptible to atmospheric influence.

If one has to remove a small untuned spot which occasionally occurs in these prints one notices how much harder it is to scratch out that spot than the surrounding film, which seems quite friable in comparison.

No doubt careful working is a vital necessity, and I always use a bicarbonate of soda bath after the platinum and before fixing, but I am only waiting for a direct carbon process to be rendered practicable, when I shall abandon C.C. matt for ever. It must be remembered that the bulk of the work of the middle and lower class photographers is placed on the mantel-shelf of the parlour, that sanctum sanctorum of the British housewife, where the chancel house atmosphere is never dissipated by opening the windows or lighting a fire, for fear of dust gaining access, except perhaps for a day or so at Christmas, and an occasional Sunday. Here it is that our prints stand and become spotted and faded, in the damp chill atmosphere, and the poor photographer has to take the blame for roguery which he is not guilty of.—Yours faithfully,

November 4, 1905.

OTHELLO.

B. J. EDWARDS AND CO.

To the Editors.

Gentlemen,—This old-established business having been purchased from the late limited company, the manufacture of isochromatic plates and films and other specialities will in future be under the personal supervision of Mr. B. J. Edwards (the originator and founder of the business), whose name and long experience will be, as in former years, a guarantee of the excellence of all goods supplied.—Yours faithfully,

B. J. EDWARDS AND CO.

Castlebar Works, Ealing Dean, London, W.

November 6, 1905.

THE International Jury of the Liège Exhibition have conferred upon Burroughs, Wellcome and Co. six grand prizes, three diplomas of honour, and three gold medals, for the scientific excellence of their products. A prominent place in the firm's exhibit was given to "Tabloid" photographic chemicals, and an interesting display of prints illustrating processes carried out with the firm's photographic preparations.

We note in the "Express" that Bassano's, Limited, the Bond Street photographers, deny the statement that Mr. De Wend Fenton, who has been "warned off" the Turf, is in any way connected with their business, which is the property of the "Illustrated London News" and "Sketch," Limited.

"Nonna" developer and sepia toning was the subject of an interesting lecture by Mr. W. Sadler to the members of the Edinburgh Photographic Society on the 31st ult.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- W. Hone, 150, Shakespeare Street, Southport, Lancashire. Two Photographs of the Late Canon Blundell.
- D. M. Black, 93, Warton Terrace, Heaton, Newcastle-on-Tyne. Two Photographs of Desmond Dene.
- Mary A. Dugdale, 1, John Street, Bath. Three Photographs of the Church of St. John the Evangelist, South Parade, Bath.
- W. T. Dalton, 108, Chester Road, Northwich, Cheshire. Photograph of Holy Trinity Church, Northwich.
- W. E. Welchman, The Studio, Exchange Street, Retford, Notts. Photograph of one of the First Passenger Tickets issued by the Midland Counties Railway, now the Midland Railway, on July 28, 1838.
- W. H. Parkinson & Co., 115, Newton Street, Bradford. Photograph of English Water Polo Team. Photograph of the Rev. C. Gallacher.
- Miss E. Stewart, 1, Ladysmith Road, Polsloe Park, Exeter. Photograph of Egremont Estate, Silvertown Park, Cullompton, Devon.
- Isaac Perloff, 186, Commercial Road, London, E. Three Photographs:—Mischa Elman, Mr. Mulwary, Rev. P. Thompson.
- J. U. Walsley, 8, King Street, Robin Hood's Bay. Photograph of Rough Sea Washing Over the Old Coastguard Station in Robin Hood's Bay. Photograph, High Tide in Robin Hood's Bay.
- J. Russell, 188, St. Albans Road, Watford, Herts. Photograph of Christ Church Choir, Watford.
- J. H. Cartwright, 171, Orford Lane, Warrington. Photograph (combination), Personal Post Card with "Seaside's Greetings from Warrington," and Eight Views.

REPRODUCTION FEES.—Would you kindly inform me in your "Answers to Correspondents" what is the usual fee to charge a publishing house for allowing them to reproduce postcards from copyright negatives? I am under the impression that it is usual to first charge 10s. 6d. for allowing them to produce 1,000, and afterwards so much per 1,000, but do not know the usual price per 1,000 after the first 1,000.—A. HUBBARD.

The Copyright Union recommend a royalty of 10s. 6d. per 1,000 for half-tone and colotype cards, and £1 1s. for bromide and P.O.P. cards. You will find these and other particulars of reproduction fees in the forthcoming ALMANAC.

E. S. (Peterhead).—We cannot say whether the process will be in professional use shortly. We see no signs that it will, though naturally people do not talk about their plans. We should say that of the processes now on the market it is the most promising commercially.

W. F. L.—If you will study the "Situations Vacant" and "Wanted" columns you will learn more than we can tell you in half a column, and you should then be able to draw your own conclusions.

X-RAY STEREOSCOPY.—In this week's B.J.P. you mention a reprint of a paper by William Cotton, M.D., on "Twin X-ray Representation and the Reflecting Stereoscope." Kindly say if I could obtain a copy, and how, and where.—H. B.

In the "Bristol Medico-Chirurgical Journal" for September, published by Churchill, 7, Great Marlborough Street, London, 1s. 6d.

COPYRIGHT QUERY.—I wish to ask you if I take cabinet negatives from registered pictures to print from for publishing, will I have to get those registered also?—W. HOVE.

If the copyright in the original pictures is registered it will cover the copyright in any reproductions made from it. They need not be registered afresh.

A COPYRIGHT QUESTION.—Would you kindly give an answer to this query:—"Is there any copyright in the idea of postcards, showing the eyes only; we have seen some of people taken this way, and would like to introduce this style to our sitters, providing it is not an infringement of rights?"—PROGRESS.

There can be no copyright in an "idea." There may possibly be a copyright in the pictures you have seen. But, of course, you produce others like them if you wish to do so, and make your pictures copyright should you desire to do it—that is, provided you are not paid for taking them.

BURLINGTON.—We should advise Plate No. 1 and a pyro-metol developer, of the formula given in the ALMANAC. Either Nos. 1 or 2 of the printing papers will be the best. The other is of too rough a surface.

RESIDUES.—1. What method have photographers of extracting gold from toning baths for sale to dealers? 2. Do photographers send waste P.O.P. to dealers in its natural state? 3. What price do dealers pay as a rule for residues?—F. COX.

1. Throw down the gold with solution of proto-sulphate of iron. 2. The refiners will quote for the paper. 3. Impossible to say; an assay must be made. You had better write to one or other of the refiners advertising in our pages.

COPYING BLUE ORIGINALS.—1. What is the best procedure to adopt, both as to plate and developer, to make clear glass and intense black negative from a blue print? Would a yellow screen assist? 2. What is the best method of obtaining equality of illumination of a large plan?—ANASTIGMITE.

1. Use a filter of equal parts of 1-10 per cent. solutions of acid-green and tartrazine, with an iso plate. You will find an article on this subject in the forthcoming ALMANAC. 2. Diffused daylight is the best, or, failing that, a pair of arcs. With gaslights you will find difficulty in illuminating a large plan evenly.

ANXIOUS.—1. The cause of the stain is undoubtedly insufficient washing prior to toning. This must be very thorough. In fact, we advise the immersion of the prints in a 10 per cent. solution of common salt for five minutes, then well washing with subsequent toning. 2. Certainly, but to some extent it depends upon the character of the paper. You can either dilute your bath with an equal quantity of water or, and this is preferable, use tartaric instead of citric acid. 3. To some extent the duration of toning depends upon temperature, but we find that fifteen minutes is a fair average. 4. Certainly, they are as permanent, if not more so.

G. H.—We gave a formula of the kind in our issue of May 19, but we will repeat it:—Potassium iodide, 80 grains; ammonium bromide, 35 grains; ammonium chloride, 10 grains; gelatine, 60 grains; albumen, 1 ounce; distilled water, 10 ounces. Soak the gelatine in the water and dissolve by the aid of heat; add the salts and allow to cool, and then add the albumen. Spread this solution over the paper or canvas with a soft sponge, and when dry sensitise with silver nitrate, 1 ounce, glacial acetic acid, $\frac{1}{2}$ ounce; distilled water, 10 ounces. A small pool of this should be poured on to the canvas or paper and distributed with a clean sponge or cotton wool, and the paper should be exposed wet. The developer is: Gallic acid, 60 grains; lead acetate, 10 grains; distilled

water, 10 ounces, and should be applied with the same sponge as the sensitiser is distributed, or a little silver solution should be added to above. For sepia tones it would be advisable to bleach with ferricyanide, and then apply sodium sulphide solution, about 1 per cent.

RETOUCHING (Reply to J. T.).—You will become an excellent retoucher when you learn to respect the modelling more than you now do. Your work is soft, solid in texture, and generally well blended, but the negatives have not given you fair scope. Bring the features out with additional lighting, and respect dimples and other distinctive marks. Get your effect with as little work as possible, and let it be in the right place. Smothering the faces with retouching usually eradicates strength and form, and only adds waxy prettiness, which in the case of male studies is simply (to our taste) detestable and unnatural.

PINHOLE APPARATUS.—About 1893-95, Mr. J. Favre Brandt, of Yokohama, made an apparatus for pinhole photography, which became known under his name. Can you tell me if this can be got anywhere?—C. FRED POLLOCK.

We believe from Adams and Co., 26, Charing Cross Road, London, W.C.

COPYRIGHT.—1. I have two prints of the pictures "Heads of Angels" by Sir Joshua Reynolds, in the National Gallery, and "The Light of the World," by Holman Hunt. I wish to copy these down to postcard size, and use the negs. for producing Christmas postcards. Can you inform me whether the sale of such cards would be an infringement of the law? 2. I see from the forms supplied by the Registrar of Copyright that the fee charged for a search is 1s., but am not clear as to whether this is simply the charge for use of the Registry only, or whether they will, for that sum, make a search to discover whether anything is copyrighted or not. 3. Can you tell me what their rules are in this respect, and also (if they do not undertake searches) to whom I could apply in London to make the search for me, and what fee would be charged?—SYLVIA.

1. If there is a copyright in the prints, as most probably there is, you would certainly be infringing the law by reproducing them in any form whatever. 2. The 1s. fee is for permission to search the register, and this you must do yourself, or get some one to do it for you. The Office does not undertake to make searches. 3. Perhaps you could get some friend in London; we know of no one who would undertake the work.

STUDIO QUERY.—I shall esteem it a favour if you will let me know whether I should have to get sanction from the council, or any other body, to place a portable studio in the back of my premises?—J. M.

We cannot say, but most likely you would. The local building laws vary in different districts, so also do the terms of tenancy upon which premises are let. We should advise you, first to see if there is any objection on the part of the landlord, and then consult the district surveyor before putting up the erection. He will tell you if the studio will contravene the local building laws.

OF THE ROYAL ARMS.—When out in India, I sent some photographs to her late Majesty Queen Victoria, and she wrote graciously accepting them. I want to ask if I could put the Royal coat of arms on my cards in consequence. If not, could I put: "Patronised by her late Majesty Queen Victoria"? I should be very much obliged to know which would be the correct thing to do.—MAGNET.

The fact that the late Queen Victoria accepted the photo-

graphs certainly does not entitle you to use the Royal Arms. To do that you must obtain the Royal Warrant, and that you will not do on the strength that her late Majesty merely accepted some of your pictures. You can hardly say that you were "patronised" by the late Queen, though she accepted your photographs.

P. M. KAY.—Guiterman and Co., 35-36, Aldermanbury, London E.C.

W. G. PAYNE.—You have only to "reduce" them with, say, Farmer's solution. Consult an elementary text-book.

J. WALSH.—The acid fixing is doubtless the cause. If you must have an acid bath, use a proper formula, such as hypo. 4 oz., potass metabisulphite $\frac{1}{2}$ oz., water 20 oz., or one or other of those given in the "Almanac." We will act on your suggestion.

A LECTURE QUERY.—Will you kindly inform me in the correspondence column on the following points for the purpose of illustrating a lecture on the "Art of Photography" in December next? 1. The publishers and prices of one or two reliable works on the history of photography, with details of early processes. 4. The names and addresses of some of our leading pictorial workers.—REGULAR SUBSCRIBER.

1. "Photography: Its History, etc.," by A. Brothers, 21s. "The Story of Photography," 1s., from Dawbarn and Ward, Ltd., 6, Farringdon Avenue, E.C. 4. See the catalogues of the Royal Photographic Society's Exhibition and the Photographic Salon.

LANCASHIRE and Cheshire Photographic Union.—The first council meeting of this union was held in the Manchester Amateurs' Rooms on Saturday, the 4th inst., when delegates representing twenty-eight societies in Lancashire and Cheshire met to elect officers, etc. The following are the officers and judges elected for the year commencing January 1 next, viz.:—President, Dr. C. Thurstan Holland, of Liverpool; vice-presidents, Rev. H. W. Dick, of Manchester; Mr. T. Lee Syms, Leigh; Dr. Brennan, Stockport; and Dr. Crump, Burnley. Hon. secretary lantern slide section, Mr. T. Hudson, Nelson. Hon. secretary print folio section, Dr. A. T. Lakin, Manchester. Hon. selection judges for slides and prints, Dr. C. T. Holland, Rev. H. W. Dick, Messrs. S. L. Coulthurst, C. F. Inston, J. J. Rothwell, and F. Whitaker, with power to add to their numbers; hon. judges for societies' competitions and exhibitions, Rev. H. W. Dick, Dr. C. T. Holland, Dr. Ellis, Dr. Crump, Dr. Lakin, and Messrs. S. L. Coulthurst, F. Anyon, T. Lee Syms, C. F. Inston, J. W. Wade, J. Shaw, A. E. Bellingham, T. Glazebrook, Tullock Cheyne and A. W. Cooper. The hon. secretary and treasurer is Mr. W. Tansley, 22, Chapel Place, Liverpool.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

THE whole literary and advertisement contents of the ALMANAC, it is satisfactory to state, are now passing rapidly through the printers' hands. The task of producing 25,000 copies of a volume of 1,616 pages is, however, no light one, and it will be December 1 before the printed ALMANAC can be delivered to the public. Individuals who have not yet ordered should do so at once through a dealer or bookseller, otherwise they will most probably be disappointed in obtaining a copy. The features of the ALMANAC are sufficiently well known, but attention may be specially directed to certain constituents of the forthcoming volume:—

1. *A Contents*, serving as a guide to the pages, and showing at a glance in which portion a given item of information is to be sought.
2. *An Index* of nearly every individual fact, formula, and paragraph, serving to take the consultant to his subject at once.
3. *Photographic Copyright*. A popular exposition of the subject in its present-day applications.
4. *Epitome of Progress*, classified and codified. A review of the year's work in technical and scientific photography; in which everything on a given subject is assembled at one place in the volume.
5. *Contributed Articles* by leading writers.
6. *Frontispiece*, in Barnet Platino-Matt bromide paper, of Miss Billie Burke.

The Tables, Formulæ, and other features of the volume have been revised and re-arranged, and, it is hoped, will meet with the approval of every one of the 25,000 prospective readers of the 1906 ALMANAC, which in mere size, the publishers must confess, is greater than any of its forty-four predecessors.

EX CATHEDRA.

The Daguerreotype Process.

The article on the "Restoration" of Daguerreotypes in our issue of the 3rd inst., has brought us two or three letters on the subject, two of which were published last week, and one the week before. In the latter a statement is made which may mislead some readers. The writer says that the treatment we described would not answer with a non-gilded picture. Again, Mr. C. Welborne Piper, giving his experience, in reply to that letter, writes: "My experiences have been confined to untuned images, and with these I have found that cleansing is a perfectly safe and easy operation if reasonable care is taken. I do not think I have ever met with a toned or 'gilded' image." If Mr. Piper will permit our saying it, we doubt very much if he has ever met with a Daguerreotype that was not "gilded," seeing that he has been successful in cleansing them with cyanide of potassium. We have seen thousands of these pictures, and have only met with one case in which gilding had not been done, and that was a plate in the possession of the Photographic Club which was thought to have been made by Daguerre himself; at any rate, it was one of the very earliest Daguerreotypes. Within about eighteen months of the publication of Daguerre's paper, Fizeau published the method of toning—"gilding" it was then termed—the image with gold, which not only enhanced its stability, but conferred a far greater brilliancy on the picture, and from that time it was universally adopted by everyone who worked the process. It may be taken for granted that, subsequent to the publication of Fizeau's method (1841) no Daguerreotypes were turned out that were not toned with gold, and comparatively very few were produced prior to that advance. We allude to these historical facts as showing the misconceptions existing in the minds of modern writers on some of the old and obsolete photographic processes. Mr. Piper says that methylated spirit must not be used for the preliminary operation. As a matter of fact, we have never used any other in the many scores of pictures we have "restored," but it has been free from the mineral spirit. We strongly suspect that the methylated alcohol used by Mr. Henderson's operator was really methylated finish, hence the resinous deposit which he failed to remove.

Pyro-soda—A Warning.

In the Court of Appeal, one day last week, a case was heard that should be of interest to photographers who employ the pyro-soda developer, and draw their supplies of the carbonate of soda (washing soda) from the oilshops. The case, briefly put, was this. Under the Merchandise Marks Act a retail oilman was convicted by the magistrates at Tunbridge Wells and fined ten shillings for selling soda

crystals (washing soda) which contained from 34 to 63 per cent. of sulphate of soda—Glauber's salts. The point for the appellant was that there had been no false description, inasmuch as what were sold were soda crystals, though the crystals were largely those of sulphate of soda. What is known in the trade as "soda crystals" is carbonate of soda—commonly called washing soda. In the end the appeal was dismissed, and the conviction affirmed, with costs. The case has a photographic interest. Many, in making up their pyro-soda developer, purchase the carbonate of soda at the nearest oilshop; or many amateurs, possibly, draw it from the domestic supply. This, as a rule, answers well; indeed, in the formulæ issued by many plate-makers washing soda is prescribed. It is cheaper than the crystallised carbonate of soda of the chemist, and answers, to all intents and purposes, just as well if it be tolerably pure. But in view of the fact that sulphate of soda is a restrainer of development, such adulterated carbonate as the one referred to above cannot be admitted, for while we are adding the accelerator we are at the same time also adding a retarder. A photographer who unknowingly gets hold of a bad sample of carbonate will probably blame his exposure, the temperature, or the long-suffering manufacturer before he locates the source of the trouble. Considering that pure crystallised carbonate of soda is not an expensive article, we should advise its invariable adoption. We always employ it ourselves, and would recommend our readers to do the same.

Colour-Photography Mysteries.

An irritating report is printed in the current issue of "Wilson's." The New York Camera Club had a visit, on October 12, from Mr. W. C. Smith, the inventor of the "Solgram" tricolour process. According to the report, Mr. Smith "treated his subject in a very masterly manner," and, after explaining the method of the "Solgram," "concluded by washing off a picture in its first stage which had been printed in a few minutes by the Cooper-Hewitt light." But in what the process consists we are left to guess, except in so far as the following illuminating passage explains matters:—"It is only necessary to print the picture in its initial stage for a few minutes, wash with water which gives a red and white picture, or, rather, a foundation for a picture. It is then dried, coated with a solution, again printed and washed, and a third coating applied which, after exposure, is subjected to a further washing, finally giving a photograph in colour." Judging as best we may from this description, we have heard of processes which must be very like the "Solgram" method, which, nevertheless, appears to make all the usual claims to novelty and simplicity so often repeated in prospectuses of colour processes.

Flashlight Liability.

A case of some importance to photographic dealers has recently come before an Australian Court. Our readers may recollect that some time ago we alluded to the damages obtained by a photographer from Messrs. Harrington and Co., of Sydney, on account of some "magnesium powder" which in his use had proved explosive. Messrs. Harrington have now taken action against Messrs. G. W. Small and Co., who supplied them with the powder, and obtained damages for £75, the sum claimed being £300. Messrs. Small's defence was that they had no such explosive material in stock, and had not at any time supplied an explosive powder for pure magnesium. The case is an instance of the liability of the vendor, and would probably obtain similar judgment were an incident of the kind to transpire in this country. No doubt Messrs. Small were themselves buyers of the magnesium, and by the long-winded methods of the

law they may be able to obtain compensation or damages from the next liable party.

Christmas Side Lines.

We think that a good deal more might be done in the average business to increase the turnover during a busy season by pushing somewhat the sale of frames suitable for the photographs sent out. In one business we know, every tissue has neatly printed in red the announcement that a variety of frames to suit the photograph it encloses may be obtained. A valuable advertisement is thus secured at a most trifling cost. Many small portraits look exceedingly well in one of the fumed-wood circle or oval frames, and if only one is sold with each dozen portraits the profit during a month of the busy season mounts up to a decent sum. The receptionist may feel her way in the selection of such frames, as very little experience will enable her to decide what will sell most readily. In general, we think a fairly good article will be found most suitable. Cheap frames of all kinds are now sold in such quantities by the large drapery and other stores that the photographer can hardly buy them any cheaper than the public. Something out of the ordinary run in quality of workmanship and delicacy of design, something which obviously, at a glance, enhances the appearance of the print, is what is required. More attention, too, might be given to tinting photographs. The amount of work required to slightly colour a dozen cabinets is comparatively small, but the increase in the price which can be obtained shows a good profit on the time expended. In many cases the difficulty arises that no colourist is kept, but we believe there are many fairly good colourists who could undertake such work at their own homes and return it promptly.

Shellac.

A recent paper before the Pharmaceutical Society touches on a number of points which may be noted by those who have occasion to employ shellac for varnish making or other photographic purposes. The author, Mr. John C. Umney, speaks of the large extent to which shellac is at present adulterated in commerce, and, indeed, can find no better description of the activity shown in this direction than "a fine art." One rough solubility test for the purity of shellac is petroleum ether, which should not dissolve more than 5 or 6 per cent. of it, and can be used as an approximate means of distinguishing between common resin and shellac. Bleached shellac, often directed for photographic varnishes, is not, however, so suitable as the pure, raw article, and details of the bleaching processes given by Mr. Umney will show why this should be the case.

Bleached Shellac.

There are two processes in common use for bleaching shellac. The cheaper method consists in dissolving the shellac in alkali, adding a solution of sodium hypochlorite, freshly prepared, and reprecipitating the shellac by addition of sulphuric acid. The bleached shellac is then well washed with hot water and "pulled" to free it from adhering water. Shellac bleached in this way does not form a clear solution in alcohol, as it still retains the natural wax. Moreover, it becomes insoluble in course of time, especially if not thoroughly washed. The second method is more costly, as it is more tedious, and certain trade secrets are connected with the manufacture. The wax is separated by filtering the alkaline solution, but the method of bleaching is substantially the same as in the first method, except that hydrochloric acid is used for precipitating purposes. Bleached shellac prepared by this method dissolves almost entirely in alcohol, and retains its solubility for a considerable length of time.

SPOTS ON C.C. PAPER.

THE correspondence which has arisen in our columns on this subject is interesting and also important from the point of view of the professional photographer, for if the prints turned out by him prove within the short period of a few weeks to be fugitive, he may lose considerably in reputation and business. There is, however, one fact, which we think has an important bearing on this question, and that is that this is the fourth year in succession that this defect on collodio-chloride paper has been ventilated in our columns at this particular period of the year.

We lay special stress on this point because it may possibly lead to a clue which will enable us to set the matter right.

There is another fact which, whilst not one of the factors in every case that is reported, apparently is established in the majority, and that is that these spots arise more particularly when the prints are first treated to a gold bath and then with a platinum bath.

If we consider *seriatim* the constituents of a sheet of collodio-chloride paper, we may perhaps arrive at a better understanding.

In the first place we have the raw paper, in regard to which there is no proof that it is any worse in quality for collodio-chloride than for gelatino-chloride emulsion. Next this raw paper is coated with an emulsion of barium sulphate, commonly known as baryta, in gelatine, with usually a hardening agent, such as alum.

Next we have the chloride emulsion itself, which, as a rule, contains, besides silver chloride, an organic salt of silver with some free organic acid, either citric or tartaric. Now, it is obvious that here we have no conditions differing from gelatino-chloride paper, save in the vehicle for the silver salts.

It has been suggested that there is also used a substratum to make the sensitive emulsion adhere to the paper. This may be so, we cannot say definitely, for, naturally, such a fact might be considered a trade secret. But we can at least say that, possibly save when an extremely horny collodion is used, and in the case of a glossy surface baryta paper—certainly judging from our own experiments with matt baryta paper—anything in the nature of a substratum is quite unnecessary.

Practically, then, we have in collodio-chloride paper absolutely the same conditions that prevail in gelatino-chloride, yet we do not hear of the particular spots being met with in the use of the latter.

There is one other fact which we should mention, and that is that it is stated, and we repeat the statement with all reservations, that baryta paper is now treated with citric acid in order to prevent the paper turning yellow. This may or may not be so. Certainly some samples of commercial baryta paper which we have tested show no acidity. Then, again, is there any proof that one class of this paper is sold for gelatine and another for collodion emulsions? There is no proof, and the probabilities are all against such a thing happening.

This being the case, then, why do we meet with these spots on collodion papers and not on gelatine? From what we have already said, it would seem obvious that the only possible explanation is in the vehicle. But, has it not been accepted for many years—more years than most of us can recall—that collodion is an absolutely inert substance as regards all silver salts, whilst, on the other hand, gelatine is not so?

Obviously, then, we must acquit the vehicle itself of any charge, and we may dismiss it without a stain upon its character. Briefly, we may dismiss the emulsion itself

—that is, the other ingredients—because they are practically the same as in a gelatine emulsion.

Thus, by a process of elimination, we are led to the methods of treatment. The particular defect of which we are writing usually occurs when the prints are first toned with gold and then with platinum. The former bath is usually alkaline or neutral, and the second always an acid one; not that this is of much importance, only that it necessitates washing in between. The important point is, however, that unless the print and the underlying film of gelatine are absolutely freed from soluble silver salts, a chloroplatinite of silver is formed, which is quite insoluble, and is also readily reduced by light. We have here, therefore, a possible cause of general yellowing. Is it probable that the spots are primarily due to the formation of this silver salt? Another point is that chloroplatinites coagulate gelatine, and are very tenaciously retained by the same, so that the gelatine of the baryta emulsion might retain traces of this salt, which would give rise to local trouble.

It may possibly be thought this is rather a far-fetched idea, the spots being so local, but do we not see an almost similar case of spots—possibly not exactly of the same character—occurring in albumen and other silver prints, which suffer from so-called sulphurisation.

The platinum bath being acid, it is obviously essential that we either make our fixing bath alkaline or wash out every trace of acid, otherwise we may get sulphurisation. Then, again, we may get a combination of platinum and hypo, which is extremely insoluble—that is, if the prints are not well washed after toning, and as the collodion is an absolutely inert vehicle, both as regards silver and platinum, it is obvious that the only thing that is likely to hold the platinum salt tenaciously is the gelatine of the baryta paper.

We do not lay special stress upon these points, but have rather advanced them that our readers may see that the subject is somewhat complicated, and if those who have met with these spots would let us know through our correspondence column their method of treatment, we might, by eliminating point after point, arrive at some satisfactory conclusion.

We have now to return to that particular fact on which we laid stress at the commencement of these notes, namely, "this is the fourth year in succession that this defect on collodio-chloride paper has been ventilated in our columns at this particular period of the year."

It is hardly necessary for us to do more than say that at the particular moment of writing, it is raining, and has been almost continuously for twenty-four hours. The ground is sodden with moisture, the air laden with it, and everyone who has recently tried to dry either negatives or prints quickly knows full well that now it takes more than double the time that it did three months ago. Hence it would appear that long continued damp plays no small part in the formation of these spots. If this is admitted, and we must confess the evidence, though somewhat circumstantial, is decidedly in its favour, then how much more likely are we to meet this trouble when prints are mounted. For at the back we have a thick card and a colloid vehicle as mountant, which naturally would retain moisture much longer than the print hung up to dry. As a matter of fact, we imprison moisture between the collodion film, on the one hand, and the thick and possibly glazed surface of the card on the other, and thus give the best possible chance for any latent mischief to develop.

This very last phrase that we have used may lead some to say that we presume that the mischief is latent, and therefore it must be present in unmounted prints, and

only requires congenial environment to manifest its presence. We believe this to be so, and that if a batch of prints treated absolutely alike were divided into two parts, the one mounted and the other left unmounted, and the former showed spots in a short time, then we believe that the unmounted prints, if mounted, would develop exactly the same symptoms.

Others may at once conclude from this that it is the mountant and card that may be at fault. It hardly seems probable that a number of men scattered throughout the country should be all simultaneously using the same make of cards and mountant. The disease seems too general to be ascribed to these methods.

The letters which have already appeared all point to the advisability of rapid drying, whether the prints be mounted or not, and, so far, this is the only advice we can give our readers. When the prints have been sufficiently washed, remove from the water, squeegee well with a roller squeegee, protecting them with thin celluloid or waxed parchment paper, mount, and dry quickly.

There are other points upon which it is hardly necessary for us to lay stress, namely, short, but effective washing. Long continued soaking in running water, or unnecessarily repeated changes of water—that is, up to four or five hours—are quite unnecessary, and the only result can be a partial disintegration of the baryta-bearing gelatine film.

We shall be glad to hear further from our readers on the subject, but would ask them to distinguish between yellow patches and small circular spots. To anyone with a little leisure and an inquiring mind, *plus* a microscope, we would suggest a little examination of prints affected by these fell diseases, and we would further suggest that after examining the surface of the print, the collodion image should be stripped or dissolved off and the baryta coating examined. We also shall be glad to receive samples, both of the yellow patch and "spotted fever" prints, with full details as to their production, in order that we may make a few investigations on our own account.

"PHOTOGRAMS" OF 1906.

Do you want a pocket Salon, a portable R.P.S., and a "tabloid" St. Louis all rolled into one? And *minus* the exhibition headache. Then buy "Photograms of the Year 1905." It will cost you a halfpenny a day for a month and a half; but can you afford to be left behind in the race of life for the sake of—

Tut-tut. I am forgetting myself, and unconsciously falling into the inimitable style of my favourite author. Please pardon the lapse. Truth to tell, I was imperceptibly influenced by an advertisement which caught my eye a moment ago, on page xxxv. of the very volume which I have set out to eulogise. It exclaims, in the largest, of underlined type: "CAN YOU WRITE ON LIVE PHOTOGRAPHIC TOPICS?" and proceeds to add that a certain Transatlantic contemporary "is always glad to receive articles on practical and timely photographic subject. Have you some pet 'wrinkle' for doing them?" . . . "Send it along, so that your co-workers may have the benefit of your ideas." I fancy that effusions on defunct photographic topics flow somewhat more easily from my pen than on "live" ones, whatever they may be; but in this instance I really pride myself that I have a "pet wrinkle" to offer. "Our co-workers" will find it embalmed in Sentence Three of Paragraph One, above.

But I am wandering from the point, as the negative said when it slithered off the retouching desk. Still, there is no doubt that the advertisement pages of a book like "Photograms of the Year" are often very nearly as edifying as the main contents. In the volume which lies before us, for instance, there are the usual number of pretty girls—with the usual variety of attire, from the Adamite fashions to that of the Photo-Secession cave-dwellers and the Tale of Unsold (beg pardon, Isolde) strips of string and paint. But the most absolutely stunning of the whole bevy is the damsel who is coaxing her digits into a kid glove on ad. page xxvi. and trying to see whether her hat is on straight by squinting at its reflection in the Videx finder on page xxvii. Undoubtedly, as the footnote exclaims, this "dims all others" in the "beauty and elegance of the form in which it is presented." I am quite unable to understand the haste to escape of the gentleman on page xxv., who is so flummoxed that he cannot even stop till the chairs have been taken out of his way. How *gauche* of him!

Enough of the fascinating ads., though I had fain devoted

a few lines to the touching scene on page xxi., and likewise yearn to pause and ponder on what "The World's Background Headquarters" (tantalisingly mentioned, without explanation, on page xxxix.) may be. Duty calls. We must turn at once to the main contents of the book.

The publishers will be the first to excuse me if I hint that, broadly speaking, the pictures are more vitally enthralling than the reading matter, excellent, and even exciting, though the latter is. It is doubtless harrowing to learn, for example, that the members of the Danish Royal Family are "passionate amateur photographers," and one wonders tremblingly whether the picture on the same page as this statement (74) represents one of these unfortunate monarchs in the frenzy of a seizure, and if so, whether the individual who had the temerity to snap him thus escaped in safety. The chronicler is silent, although speaking on the same page of "increasing the small number of amateur photographers" (by which we presume he refers to the murder of some of them by tempestuous sovereigns) he says, significantly, "the taste for this sport began to spread amongst the general public" which is bad hearing for any who are not (like the gentleman named lower down) "less eminent in the way of technical virtuosity." It is alarming, too, to be told that the Danish art critics refuse to take photography seriously. We suffer from a similar plague in England, and (when we come to think of it) for much the same reason which our author gives. (See page 78.) Danish amateurs, he moans plaintively, "snap away lively" (by the way, what a vivid picture "snap away lively" calls up! Surely our Transatlantic contemporary would have appreciated this) —"snap away lively at everything they see; at one time they take two pictures on one plate, and another time none at all." (Candidly, now, are the art critics so stony-souled as to refuse to regard even the latter course of procedure with approval?) "A church spire they take on the broad side, and a cow on the short side." (Never knew before that a cow had a short side. But perhaps Danish breeds of cattle are peculiar in this respect.) "I have even met amateur photographers, who have had a camera for years, and who have taken all the pictures on one side, because they have never thought, that only by turning the camera over, they could photograph on the other."

This is dreadful. We must organise an excursion of the Photographic Convention to Denmark, to show the benighted

inhabitants how to turn their camera over and photograph on the other side.

However, as I had already hinted when the article on "The Pictorial Effort in Denmark" (well named) enticed me off the track, the best part of "Photograms" two shillingsworth is not the reading matter, but the pictures, which include every kind, from the ones which are printed right way up to the ones which probably are. Ripping is the only word which I can apply to the blocks, which in several instances are a sight better than the originals—if so Philistine an expression of opinion be permitted. Some of the aforementioned pretty girls, sifted liberally through the book by a cunning editor, who is evidently determined to prevent the purchaser from getting even momentarily tired, are positively worth framing. If Mlle. Laguarde "aix" (page 106), at sight of such a model as her "Pierette"—well, I ache too; and as for the little lady on page 13—we have sent to Cook's to ask the fare to Coswig. Enough said.

Talking of portrait studies, what a wealth of expression may be observed in these throughout this book! Speaking likenesses many of them are—but it is just as well we can't hear what they're saying. The French for "Drat them fuddy-graffers" is, I am sure, unmusical, but I cannot help thinking it struck the tympanum of M. Charles Sollet when he immortalised the aged person who saves the cost of hair-restorer by using a duster, on page 8. And look at the cherubically chubby couple on page 16! Mama is murmuring, "Don't worry, dearie, if you've not got as many chins as I have. Your cheek feels promising, anyhow." Or take the sisters on page 19, who are grumbling, "If you'd only given us time to do our hair, we'd look much better-tempered." Or the "indifferent" kid on page 22. Indifferent? Of course he—or—she is indifferent. He—or she—is thinking, "Kisses are all very fine; but what I want is my clothes!" Or the bored urchin on page 45. Hear him groan, "How much longer have I got to play the fool like this?" Or the unhappy girl on page 78, who shrieks in despair, "If the world tilts any more, I shall fall off; but I'm more worried still about that boat on the horizon." With figure-studies such as these, the letterpress seems almost superfluous. Even Mr. Carter's "nervous English," which treats of such entrancing topics as "chemical grubs" in "scullery picture galleries" (page 108), is less eloquent than the illustrations that provide a text for his sermon.

Some of the pictures I do not approve of, and apparently the excited cypress tree on page 58 shares my opinion of the advisedly-vignetted "Perfume" which faces it, and squirms

accordingly. Is it fair, I ask also, to "register" (as the "Photogram" authors are so fond of expressing it) the agonies of a cow (page 86) which, like Bunyan's hero, has fallen into the slough, and is plaintively mooring to its old pal in the distance, "Won't you come and help to tug me out?" And why immortalise for posterity so flagrant a case of cruelty to easels as that on page 83, where Mr. Hopkins is almost audibly muttering, "Dash it all, hitting the thing seems to do no good. It's nearly as fuzzy as a photograph!" And wherefore thus publicly announce (page 111) that there is such a thing as a silly book by J. M. C. Grove? (Mem., to ask at the "Times" place in Bond Street for it. Perhaps it's an essay on the art of getting accepted at the Salon.)

Yes; there is no denying that some of the picture-titles are more enlightening than discreet. One on page 131 is a case in point. We are only too gratified to know from it that the fog is clearing away from the First American Salon; but recent remarks in an organ of the Press less well-informed than the editors of "Photograms" would have led us to suppose quite the reverse; and I question whether it was wise to refer to the matter at all. However, titles are often obscurer than they sound. For instance, does that on page 67 allude to the model, or her genial friend upon the table—or to the photographer? And who, I ask, is Marie Basse? (page 11). She sounds a most interesting young lady, and we have no doubt that she may have been at Boulogne some time or another, but the most careful scrutiny of M. Bucquet's picture fails to reveal her whereabouts. And why does Mrs. Cadby call her picture (page 100) "The Cat that Walked by Himself"? Positively he did nothing of the kind, for it is obvious that he was accompanied by a photographer. And talking of animals, we have heard of an ox in a teacup; but "Photograms" can go one better than that, inasmuch as Mr. Esendero (page 112) has got two of them on his plate.

I could continue captious criticism of "Photograms of the Year 1905" for pages and pages more, but the editorial blue pencil hovers aloft over my manuscript, so I must reluctantly desist. And after all, this book is, as I have said, simply a sort of composite exhibition (a jolly fine one, too!), and, as its foreword sapiently whispers, "It is better to do good photography than to abuse an exhibition's management, or impute evil motives to its supporters." I sit abashed—clear though my conscience is of any crime but incorrigible frivolity. Or rather, I don't sit; on the contrary, I jump up and hasten to the dark room to "do" some "good photography," in the hopes that it may have the honour of appearing in the pages of "Photograms of 1906."

SOLOMON SAGE.

THE WEEK IN HISTORY.

Herschel on November 17, 1842.

EXACTLY sixty-three years ago to-day Sir John Herschel communicated to the Royal Society what is described in the "Proceedings" as a postscript to a paper on the action of the rays of the solar spectrum on vegetable colours. Only a very brief abstract appears in the "Proceedings," but the paper adds some notes to the lengthy one on the iron and other processes which Sir John had read before the Royal Society several months previously. One of these was chrysotype, the process which is the lineal ancestor of platinotype. The ferrous image obtained by exposing a ferric salt to light was treated with gold chloride, and a picture in that metal thus obtained. Sir John Herschel's investigations into the printing possibilities of iron and other salts were marvellously widespread, and probably many of the facts brought to light by him are unknown to the modern worker.

Dry Gelatino-Bromide Emulsion.

Of the various guises under which the gelatine dry plate process was introduced to photographers, one celebrates its thirty-second anniversary on November 20. On that date, in 1873, Mr. R. Kennett patented what he termed his dried "pellicle." Mr. Burgess, in THE BRITISH JOURNAL OF PHOTOGRAPHY for August 15 of that year had written that: "The weak point of the gelatino-bromide emulsion is its liability to decompose. . . . In a moderate temperature it will keep for weeks, but in spite of all the antiseptics I am acquainted with, it will ferment if the thermometer rises above 70 deg. Fahr. I have therefore confined myself to the making of dry plates which will keep any time." Mr. Burgess here strikes at once the track which photographic industry has followed, and on July 18, 1873, appeared the first advertisement of gelatine dry plates ("The Week in History," July 14).

Mr. Kennett's improvement—it was an improvement at the time—was to avoid fermentation of the emulsion by drying it. This he did by heating the emulsion (after washing it) in flat dishes until it was reduced to a thick paste; when cold it was stripped from the dishes and placed in suitable frames in a drying closet. When required for use, it was only necessary to dissolve the pellicle in water and coat the glass plates with it.

"Process" in the Daguerreotype Days

Photo-engraving being the genesis of Daguerreotype, and evolved from it by the slow processes which Niepce and Daguerre, and afterwards the latter alone, worked out, it is curious to note that one of the first modifications of Daguerre's process took the form of a reversion to the original. In other words, the single-picture method of Daguerre in the hands of Claudet became the photo-mechanical process which the latter patented in 1843—on November 21. Claudet based his photo-engraving on the chemical composition of the Daguerreotype picture, viz., a more or less white image of (mercury) amalgam on a black surface of polished silver. Certain acid mixtures

he found would attack the silver, but not the amalgam. He employed "a mixed acid composed of water, nitric acid, nitrate of potash, and common salt in certain proportions, which, being poured upon a Daguerreotype picture, attacks the pure silver, forming a chloride of that metal, and does not affect the white parts, which are protected by the mercury, but this action does not continue long. Then, by treatment with ammonia, the chloride of silver is dissolved and washed off, and the metal being again in its naked state, or cleansed from the chloride, it can be attacked afresh by the same acid."

Claudet, in this same patent (No. 9,957, 1843), describes the production of a grain by submitting the plate to a boiling concentrated emulsion of caustic potash, by which "the state of its surface is so modified that the acid spares or leaves in the parts which it attacks a great number of points, which form the grain of the engraving." And, further, to increase the resistant properties of the plate, he applies the electro-deposition of gold on its surface. Gilded Daguerreotypes came into vogue, however, for reasons other than their amenity to the making of a permanent engraved plate.

HISTORICAL.

APPARATUS FOR FOREIGN MARKETS.

[The following notes form the substance of a letter sent to us for publication by a manufacturer, to whom they were addressed in the first instance by a customer in the Malay States. In publishing them we may be allowed to re-echo the wish of the writer that British makers of apparatus would hasten to realise the peculiar requirements of a hot, damp climate such as prevails in many countries most remote from sources of supply. The failure of manufacturers to appreciate the ordeals to which cameras, etc., are submitted goes towards stifling photography of the amateur kind, but, as the writer continues, the foreign merchants are displaying great interest in everything suitable for foreign climates, and are, to a great extent, ousting British goods from the market.—EDS., B.J.P.]

CAMERAS should be made of well-seasoned teak. No leather covering should be used, as it goes quite rotten in a few months. All points should be screwed together with brass screws. No glue should be used, as glued points fall to pieces in a very short time; in fact, I have seen the glue dripping out of the joints in a few days after arrival. No iron whatever should be used if it is possible to do without it. All plate-carriers for changing boxes should be made of brass, not iron. I saw some plate-carriers about a month ago (which had not been very long here) eaten away by rust to such an extent that they were quite useless. The bellows should be fixed to the camera by brass plates and brass screws, so that it can be easily taken off for renewal and cleaning. A leather bellows will become quite covered with mould in a single night, if there is rain about, and therefore it

is necessary to have it fixed in such a way that it can be taken quickly off for cleaning purposes.

Focal-plane shutters, etc., should be all built on the same lines as stated above, easily removed if necessary. I have been in this country about twenty years, and have seen many amateurs give up photography in disgust all on account of trouble caused by cameras not having been built to stand the climate.

I bought a focal-plane camera a few months ago. I bought it here, as I was in a hurry at the time. I have had to pay pretty heavy for my hurry, as I took only about a couple of dozen photographs with it before it became quite useless, all on account of glue, iron, leather, etc. It was a beautifully-finished camera, but it would not stand this climate, so after all my expense I am at present without a camera.

Makers or exporters who discharge orders, say, for scientific expedition parties, should beware of supplying for tropical use anything that will rust, or glue or leather, if it can be possibly done without; and in case aluminium fittings are thought of, it should be known that it stands tropical climates very little better than iron. I know this, as we have a lot of instruments sent out for the use of the Government Department, in which I work, fitted with this metal; the result is that there are parts of them which have never been used, as they are useless.

My dark-slides have a lot of metal about them, and I find whenever I want to use them I have to dust out a lot of powder, and repaint them with dead-black, before they can be used.

W. T. W.

PHOTOGRAPHIC CHRISTMAS CARDS.

[The recent letter from Mr. J. Leisk referring to a method of producing Christmas cards of a kind suitable to the season has brought us a number of requests for a description of the process in detail. We therefore reproduce Mr. Leisk's article from the ALMANAC of 1901.—EDS., B.J.P.]

THERE is nothing novel in the idea of a photographic Christmas card for specially-designed mounts with appropriate mottoes are sold, on which photographs may be pasted; but to the true lover of the art who prefers to have the whole thing photographic, and his own work, there is ample scope for the exercise of originality in both taste and design in the method I am about to describe.

The idea is to surround a photographic portrait or view with an

ornamental border bearing a suitable motto, both being printed on the same paper, so that the border frames the picture, which appears as if seen through it.

To proceed, make a draft board by arranging three or more rough boards together, and fasten by nailing other pieces across the back, and let the size be proportionate to the length and breadth of the plate you intend to use, 34 by 26 inches corresponds to the quarter-plate, and is sufficiently near to suit a half-plate also; on this board paste a sheet of cream or light-grey wrapping paper.

The proportions being the same, it follows that any design placed on a board constructed as above will, when photographed, have the same relative proportions in the resulting negative that it has on the board, you therefore begin by outlining in pencil a suitable space in the centre

of such form as your taste may dictate for the portrait, group, or view, leaving a sufficient margin outside on which to arrange the border. Next, having decided on the motto or Christmas wish, procure a number of small twigs of trees, currant bushes or the like, forked pieces, etc., all with the bark on. Cut these up and arrange them into rustic letters forming the desired words, and when complete proceed to attach them with glue to the border portion of the board, arranging the words in lines or curves according to taste, and put aside to dry.

The next step is to attach the border, the arrangement and design of which must be left to individual taste. It may be formed of sprays of creeping plants or any pretty leaves, with flowers, fruit, etc., attached by small tacks or black pins, care being taken not to cover the motto or to cross the outlined centre with the decorations, and as soon as finished it should be placed upright in a side light, the centre of the board being exactly on a level with the camera lens, and at such distance that the image of the board shall *almost* cover the ground glass focussing screen, sharply focussed, and two or three plates exposed to secure correct exposure.

Assuming that a satisfactory negative has been obtained, take a print from it on P.O.P. the size of the negative, and when printed sufficiently to show the pencil line round the central space remove it, and, with a sharp knife cut out the centre along this line, and expose both the mask and disc thus obtained to plain daylight to blacken as much as possible. Then paste the disc (blackened side up) over the back of the negative, and carefully adjust it in register over the part to which it corresponds.

Next, having selected the negative which is to form the subject of the card, attach the mask in like manner to the back of it (dark side up), and so adjust it that the desired portion of the subject shows through the central opening. Both negatives are now placed in the printing frames, and a print taken from each, when one print will have a blank centre and the other a blank border, but these are now transposed, each to the other negative, care being taken by looking through them to see that the register is correct before closing the printing frame when a second exposure is made, which completes the printing of two copies, and so on. Having the two negatives, it takes no longer time to make two prints than it would printing from a single negative.

The object of placing the mask and disc on the backs of the negatives is to cause a slight vignetting through the thickness of the glass which causes the print and border to blend together, and prevents any slight error in the register being observed.

If our border design be arranged the vertical way of the board for portraits, and another the horizontal way for views, and a negative made from each, it follows that quite a number of subjects may be printed with the same borders, and when tired of one design fresh ones can be made with little trouble and at a nominal cost.

J. LEISK.

New Society for Margate.—A photographic and scientific society has been formed at Margate. At a meeting on Thursday, Dr. Warwick Brown was elected president, Dr. T. S. Rowe and Dr. Blagdon Richards vice-presidents, and the committee was formed as follows:—Dr. A. Rowe, Mr. F. Stanley, Mr. F. Dannon, Mr. F. Reeves, Mr. G. M. Macfarlane, Mr. S. Shea, Mr. A. Hobday, Mr. L. Adutt and Mr. G. E. Houghton. Mr. H. R. Gibbs was elected as hon. secretary, and Mr. F. M. Dunstan as hon. treasurer. Rules were adopted, and it was decided to hold meetings on the first and third Wednesdays in the month at Mr. Houghton's studio.

VACANT DATES.—Mr. Woodhouse Parkinson, hon. sec. of the Whitby Camera Club, writes us that he would be glad to hear of any lectures or demonstrations to fill a few vacant dates. His address is Ocean Road, West Cliff, Whitby.

EXAMINATIONS IN PHOTOGRAPHY.

From the report of the Examinations Board of the City and Guilds of London Institute we see that at the examination held in May last 118 candidates presented themselves out of 648 registered as students in classes. Of these the proportions of successes and failures were as follows:—Ordinary Grade—first class 16, second class 37, fail 50; Honours Grade—first class 5, second class 6, fail 4: a total percentage of failure of 45.7.

The questions set in the written paper of the "pure photography" section of the Ordinary Grade were as follows:—

1. If you were buying a high-class new lens for general purposes, what qualities would you require to have, and how would you test it to ascertain whether it really possessed them? (30 marks.)
2. It might happen that although the image was sharply defined on the focussing screen, the developed image on the photographic plate was not sharp. What are the possible causes of this difference, and how would you find out to which cause the defect was due in any particular case? (25.)
3. What are the more common defects in wet collodion negatives, and what are their causes and remedies? (25.)
4. Describe fully how you would develop, fix, wash, and dry a length of roll film exposed in a hand camera in a very bright light. Give the formulæ for your developer and fixing bath respectively. (30.)
5. Describe, with sketches if possible, the arrangement of glass and blinds that you prefer in the portrait studio. Describe your favourite method of lighting the sitter for a "head and bust" portrait. (25.)
6. If you have to photograph a group of people out of doors, what kind of background and lighting do you prefer, and how would you arrange the people composing the group? Give reasons. (25.)
7. You are required to produce on bromide paper a photographic copy of a line drawing. Describe fully the various steps in the production of the negative and print, and give formulæ for the various solutions used. Give reasons for any special procedure or precautions. (30.)
8. Describe how you would wash thoroughly (a) negatives and (b) prints, if running water were not obtainable. Give reasons for your methods. (25.)
9. What do you know about the properties of formalin and its uses in photography? (20.)
10. What are the uses of metabisulphites in photography, and what are their advantages and disadvantages as compared with ordinary sulphites? Give a formula for a developer made up with potassium metabisulphite. (25.)
11. Describe the stains most commonly met with on gelatino-bromide negatives, gelatino-bromide prints, and gelatino-chloride prints. State in what cases they can be removed, and how. Explain the causes of each stain as far as you can. (30.)

In the photo-mechanical processes section the questions were:—

1. Describe the camera, lenses, and appliances necessary for the production of negatives for half-tone blocks. (35.)
2. What is the object of employing diaphragms, or stops, in the making of negatives? Describe the use of irregular-shaped stops for half-tone negatives. (35.)
3. What are the constituents of a silver bath for the wet collodion process? (30.)
4. What intensifiers are in general use for the making of negatives for process blocks (a) by the wet collodion, (b) collodion emulsion, and (c) dry-plate process? (40.)
5. Describe the processes of printing on metal, for line blocks or zinc, and half-tone blocks on copper. (35.)
6. Give a short description of preparing negatives for the three-colour process by both the direct and indirect methods. (40.)

7. How are blocks made from three-colour negatives? State shortly the methods of printing on metal, etching and proofing. (40.)

8. Describe generally the process of etching line blocks on zinc. (40.)

9. Describe generally the process of etching half-tone blocks on copper or zinc. (40.)

10. State what you know about the printing of three-colour blocks; the kind of inks and paper, the order of printing, and how the separate printings are registered. (40.)

In the Honours Grade (pure photography) the questions were as follows:—

1. What do you know about the action of light on mixtures of potassium bichromate with organic substances? In what photographic processes is this action utilised, and in what way? (30.)

2. Describe fully the preparation of collodio-bromide emulsion for lantern slides. Describe also the method of developing the exposed plates, and give formulæ for the developers you use. (25.)

3. Describe all the adjustments required when enlarging by artificial light in order to secure (a) good definition, and (b) uniform illumination. Give reasons, and illustrate your answer by diagrams. Mention any special difficulties that may arise with particular sources of light, such as incandescent gas, and explain how you would surmount them. (30.)

4. Describe printing processes for copying engineers' drawings (a) as white lines on a black ground, (b) black lines on a white ground, and (c) white lines on a blue ground. Explain the chemical reactions on which the several processes are based. (30.)

5. Describe as fully as you can the relative advantages and disadvantages of pyrogallol on the one hand, and the newer developers on the other, for the development of negatives on gelatino-bromide plates for (a) portraits, and (b) landscapes. (25.)

6. Explain fully how you would develop plates which were somewhat stale, and the exposures of which were uncertain. Give reasons. (25.)

7. What do you know about the appearance and properties of the following substances, and their respective uses in photography:—Formalin, potassium metabisulphite, cadmium bromide, zinc bromide, acetone, glucose, dextrin, hydrogen peroxide? (25.)

8. How would you prepare a rapid gelatino-bromide emulsion? Explain the reasons for the various steps in the process, and state what chemical changes take place. (25.)

9. Describe in detail the production of a photographic transparency in natural colours by the three-colour process. Explain the principles on which the method depends. (30.)

10. What do you know about the theory and practice of printing on platinum? What are the advantages and disadvantages of the process? (20.)

11. Describe the construction, action, and use of a telephoto lens. Illustrate your answer by diagrams. (25.)

12. Discuss as fully as you can the resemblances and differences between the effects on the photographic image of the use of (a) a rising and swing camera front, with a fixed back, and (b) a rising but rigid camera front and a swing back. (25.)

In the photo-mechanical sections (Honours Grade) the students were asked:—

1. Describe the apparatus and appliances required for the production of negatives for line, half-tone, and three-colour blocks. (40.)

2. In the making of negatives for half-tone blocks, what essential qualities are necessary in order to produce the maximum of picture effect as apart from simply breaking up the subject into dots? Give details of working. (40.)

3. Describe fully the working of (a) the wet collodion process, (b) the collodion emulsion process, and (c) the dry-plate process, for the making of negatives for line and half-tone blocks. (40.)

4. What is the effect or advantage (if any) of employing elongated or irregular-shaped diaphragms in the preparation of negatives for three-colour blocks? (30.)

5. Have the colours used in "light filters" for three-colour negative any effect on the focal length of separate images, and if so, what steps may be taken to make the pictures coincide? (40.)

6. Describe fully, giving formulæ, the methods of preparing negatives for three-colour blocks by the direct and indirect processes. (40.)

7. Give formulæ and details of working for the printing on metal of negatives for line and half-tone blocks. (35.)

8. Describe fully the process of etching line blocks on zinc and copper. (40.)

9. Describe fully the process of etching half-tone blocks on copper and zinc. (40.)

10. Describe fully the process of etching of three-colour blocks on copper or zinc. (40.)

11. Give formulæ for the preparation of both liquid and dry light filters for three-colour negatives, and state which colour sensations are affected by each separate filter. (50.)

The practical examination in the Honours Grade, section A. (pure photography), consisted of two of the following exercises:—

1. Develop, fix, and wash the two exposed plates supplied. From the best of them, whilst still wet, make a print on bromide paper.

2. Photograph the drawing supplied, using a camera on an ordinary tripod. Make the longest side of the drawing 5 ins. Develop the plate so as to obtain strong contrasts.

3. Prepare lantern slides by contact and prints on "gas-light" paper from each of the two negatives supplied.

In the photo-mechanical processes section the exercises were selected from the following:—

1. Line Block.—Make a negative from a line drawing by the wet collodion process. (40.)

Print a line negative on zinc by the albumen process. (40.)

Etch a line block on zinc from a prepared plate. (50.)

2. Half-tone Block.—Make a half-tone negative from a photograph or wash drawing. (40.)

Print a half-tone negative on copper by the enameline process, and "burn in" the plate. (40.)

Etch a half-tone block from a prepared plate. (40.)

3. Three-colour Blocks.—Make a set of half-tone three-colour negatives, by the direct method, from a coloured original. (50.)

Make a set of continuous tone or plain three-colour negatives, by the indirect process, from a coloured original. (50.)

GRANTHAM Industrial and Fine Art Exhibition. —The nineteenth annual exhibition has been fixed for January 17, 18, and 19, with His Grace the Duke of Portland as President for the year. There are 111 classes for competition, including painting in oil and water colours, photography, carving, etc. Particulars and schedules can be obtained from Mr. George Jackson, Launder Terrace, Grantham.

A NEW Camera Club.—A meeting of the newly formed club in connection with the central Presbyterian Association was held last week in the Assembly Buildings, Belfast. Mr. J. A. Culbert was elected hon. treasurer, and Mr. James Gamble hon. secretary to the club.

SOME specimens of enlargements in black and white have been submitted to us by the Portrait Artists' Association, 33, Theobald's Road, Holborn, W.C., whose work we can describe as excellent, even at the extremely low prices charged for them. The firm, of course, must be the best judge of its own policy, but we could wish to see a revolt against the extraordinarily low prices which are frequently charged for hand-finished enlargements.

Exhibition.

CROYDON CAMERA CLUB.

THE eighth annual exhibition of this Club was held at the Horniman Hall, Croydon, from the 8th to 15th inst. Taking the exhibition as a whole, the show may fairly be considered as a strong one, the members' work showing a distinct and gratifying all-round advance. There were no less than eleven classes, which might have been reduced with advantage. In the championship class—very weak in point of numbers Mr. A. Marshall gains the silver-gilt plaque for "A Dusty Day." In Class B (Landscape, etc.) a somewhat poor one, Mr. F. Judge bears off the highest award for a small print entitled "September," somewhat sombre in tone, but of nice composition and feeling, whilst Mr. A. T. Bunce takes the second for an atmospheric rendering of the Thames Embankment. A gum print by Mr. J. S. Atherton in this section deserves notice, not only for its remarkably close resemblance—intentional or otherwise—to a water-colour drawing in monochrome. Class C (Portraiture and Figure Studies) is much stronger than the preceding. Mr. A. Marshall again scores a silver plaque, with a representation of two fisher maids, apparently quite unconscious of the presence of a camera. The repetition of the quaintly outlined sails, of a series of stationary fishing smacks, gives a certain originality to a well composed and happily thought-out picture. Mr. Oscar Hardee secures the bronze with a clever portrait of a lady. Class D (Architecture) is somewhat weak numerically, and fairly level in merit throughout. Mr. J. Dunlop and Mr. S. G. Kimber each obtain a bronze plaque. The Rev. H. Dick and Mr. E. Seymour in Class E (Lantern Slides) bear off the honours in the order named; whilst Miss J. E. Allan obtains a bronze plaque in Class F (for ladies only). The foregoing were all open classes, the last five available only to pictures which had not gained a previous award in any open class. The following applies to members' work only. Class G (Landscape, etc.), the silver medal goes to Mr. H. P. C. Harpur, for "The Bridge," to some extent a self-made subject, but cleverly treated by a clever worker. This picture, however, does not improve with further acquaintance. Mr. C. H. Austin receives the bronze for a breezy representation of a sailing fishing boat, full of life and go, and of excellent quality. This class is certainly stronger than its equivalent in the open class, and comprises many pictures which considerations of space alone prevent us from noticing. Messrs. Harpur and Austin again receive the two awards in Class H (Portraiture), the latter taking first place with a well-rendered child study, and the former the second place with a happy portrayal of two Dutch Meisjes. Some of the portraits in this class are very poor indeed, and it is a pity the Hanging Committee did not see their way to excluding them. Mr. G. L'Epine Smith, in Class I (Architecture, etc.), takes the bronze plaque (the silver having been withheld) with a gum print, "A Study in Straight Lines." In Class J (Any Subject) Mr. F. J. Terry is awarded the silver plaque for a rich carbon print of Bosham, having quite a painter-like quality. The bronze is gained by Mr. C. B. Tahourdin for a good technical print, but of unfortunate colour. In Class K (Lantern Slides) Mr. Harpur again scores, followed at no great distance by Mr. Walter Wood. The judges were Messrs. Henry W. Bennett and James A. Sinclair.

In addition to the exhibits, lantern and other entertainments and lectures were given in the evenings, together with carbon and platinotype demonstrations at intervals. The platinotype portrait lamp was also in full swing, and we were much struck by a modification in its working, planned for the occasion by its inventor,

Mr. W. H. Smith, and which we hope to refer to in more detail at a later date.

The exhibition, although excellent in every way, did not appear to have been sufficiently advertised. Beyond one small solitary poster crowded with printed matter, at a by no means prominent entrance, no further indication of the existence of the show was in evidence. This lack of publicity is likely to have made itself felt in the attendance.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between October 30 and November 4.

ROLL FILMS.—No. 22,104. Improvements in means for rolling photographic films. La Société Anonyme Périphote et Photorama, 23, Southampton Buildings, London. [Date applied for under Patents Act, 1901, November 5, 1904, being date of application in France.]

PRINTING FRAME.—No. 22,219. An improved photographic printing frame. Frank Ingham, 88, High Holborn, London.

VIEW FINDERS.—No. 22,259. Improvements in finders for camera. Gustav Geiger, 6, Lord Street, Liverpool.

FLASHLIGHT.—No. 22,294. Improvements in or connected with flashlight photography. Harry Kirby, Tower Chambers, Halifax.

DAYLIGHT-LOADING CAMERA.—No. 22,339. A daylight-loading camera for plates and flat films. Frederick Thomas Stokes, 55, Chancery Lane, London.

PRINTING FRAMES.—No. 22,366. Improvements in photographic printing frames, W. L. Parkinson, 62, Dale Street, Liverpool.

ENLARGING APPARATUS.—No. 22,469. Improvements in negative-holders for photographic enlarging apparatus. W. T. Turner, J. W. Turner, and Robert Hope, 4, Clayton Square, Liverpool.

COLOUR EFFECTS.—No. 22,580. A process of reproducing photographs in natural colours. Edward John Browne, 7, Bendemere Road, Putney, London.

PRINTING FRAMES.—No. 22,582. Improvements in photographic printing frames. William Ecker, junr., 18, Fulham Place, Paddington, London.

CAMERA ATTACHMENTS.—No. 23,590. Improvements in and relating to attachments for photographic cameras. Nicholas Wladimiroff, 111, Hatton Garden, London. [Date applied for under Patent Act, 1901, November 5, 1904, being date of application in France.]

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PLATE and Film Developing Apparatus.—No. 6,657, 1905. The patent is for a portable developing box having entrances and exits for developer, etc., and having red glass screens through which the plate or film may be inspected during development. The novelty of the claim is in the application to such a box of a red glass slide set at a suitable distance above the red glass bottom and grooves for receiving a dark slide while the plate or film is being transferred from it to the box; of a covering slide for the red glass slide, the covering slide being furnished with an inspection aperture glazed with yellow glass and provided with an opaque covering flap. Louis Gritte, Lacontiere Seine-et-Marne, France.

APPARATUS for Developing, etc., without a Dark-room.—No. 24,910.

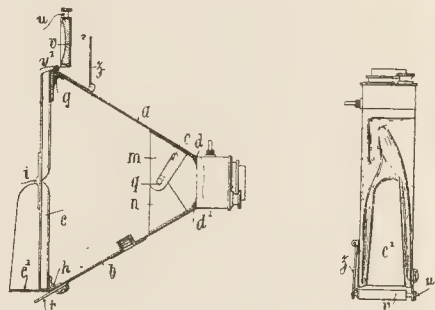
1904. The claim is for a developing device in which variously coloured slides can be introduced between the eye-piece and a developing chamber to prevent the access of injurious light to the developing chamber so as to render it possible to make the sides of the bath of colourless glass, celluloid, or the like; also for a bath for use in the developing chamber described in the specification of Letters Patent No. 19,164, of 1904. This bath consists of two side parts, each provided with a glass or celluloid plate, and of a gasket, or packing of rubber or the like which can be compressed between these two side parts so as to ensure that the bath is liquid tight; and for use in connection with the developing chamber described in the specification of Letters Patent No. 19,164, of 1904. The dark slide is of materials not affected by the chemicals used and consists of a frame closed on each side by a sliding plate hermetically closing it so as to prevent the light from getting access to the sensitised plate contained therein. The dark slide can be hung directly in the bath and the development is effected after raising the two side plates without removing the sensitised plate from the dark slide. Hans Tirmann and Hugo Tirmann, of Pielach, near Melk. Province of Lower Austria.

CAMERA Improvements.—No. 4,515, 1905. The patent is for providing a camera in which the body can be racked right up to the front for the purpose of obtaining a "short focus." As at present constructed, when the body of the camera is racked or pushed up to the front or the front racked or pushed back to the body for a "short focus," the bottom of the body or the racking pinion comes into contact with the front stretchers, which stops them at a distance of from about 1 in. to $1\frac{1}{2}$ in. apart, a distance which does not permit of such a "short focus" being obtained as is sometimes required. Also in cameras constructed with the front stretchers inclined forward from the front, though a "short focus" can be obtained the long focus is correspondingly reduced. This invention is designed to overcome both these objections, and consists essentially in mounting the front and front stretchers on a bracket of elbow shape or a bracket formed with a slot or recess under or into which the racking pinion or clamping rod, and the bottom of the camera body can slide so that the body may be racked or moved close up against the front, or where no racking pinion or clamping rod coming against the stretchers is used the bottom of the camera body may be slotted so that the front stretchers or the plate on which they are mounted may slide or fit into same as the camera is moved forward. The Thornton-Pickard Manufacturing Company, Limited, Altrincham, and G. A. Pickard, of the same address.

PRINTING Frames.—No. 3,192, 1905. The patent is for a printing frame enabling the whole of the print to be examined, whilst being printed without shifting it. One end of the frame is provided with two blocks, serving, in conjunction with the inner faces of the sides, as stops for the negative and for the sheet of sensitised paper. The opposite end of the frame is combined with the clamping bar of a length corresponding to the space between the two sides. This bar is movable upon a screw which passes right through it and is held in place by a wing nut which tightens the bar against the end of the frame. The clamping-bar is rabbeted throughout its length so as to leave a space between it and the end of the frame sufficient to receive one of the edges of the negative plate and sheet of paper. Two pins serve to guide the clamping-bar in its movement and to hold it in the desired position. The plate and the sensitised paper are thus secured by one of their edges by

means of the rabbeted part of the clamping-bar, they are thus covered, as in ordinary frames, with a board held in place by a locking arrangement consisting of a pivoted bar combined with a spring upon which it presses. To use the frame the spring pressure-bar is first turned on its pivot and the covering board removed. The nut is then slightly loosened so as to allow the clamping-bar to be raised to a small extent, one of the edges of the negative is placed between the end of the frame and the edge of the clamping-bar, and the sheet of paper to be printed is similarly placed in position. The nut is screwed up again in order to clip the plate and the sheet of paper, which are thus fixed, and the board is replaced on the top and fixed by means of the pressure-bar. To examine the proof during the printing the back-board is removed, and the paper can be lifted without any disarrangement taking place of either the print or the plate. Louis Gritte, Lacontière, Seine-et-Marne, France.

FOLDING Photographic Camera.—No. 4,831, 1905. The patent is for a folding pocket camera. It consists of an articulated structure forming the frame which is adapted to receive a dark slide or be combined with a magazine plate or film carrier. This frame is capable of folding closely and without loss of space between the two rigid sections and in the manner of a purse, and when folded is kept shut by the aid of a combined finder which acts as a clasp. When the camera or frame is



opened its shape is maintained by a hinged sheath or slide guide which receives the dark slide or plate magazine or film carrier. This sheath is formed with a three-sided extension or surround, the hinged sheath acting in conjunction with guide plates arranged at each side, which secure absolute rigidity when the camera is opened. In order to ensure rigidity and to guide the folding and opening movements of the front parts of the metallic sides *a b* with respect to the rest of the articulated frame, slotted guide plates *m n* are fixed in pairs to each of the inner faces of the side plates *a b* and out of the way of the rays from the lens. One of these guide plates in each pair of the right and left set is formed with a slot at *o*, in which slides a pin *g*, carried by the other guide plate in each pair. Thus the slotted guide plates and the pin plates guide each other and the guiding and stiffening means are wholly independent of the sides or rigid side supports. The slotted guide plate arrangement ensures the perfect guiding of the parts in opening and closing, preserving the whole structure perfectly rigid, both vertically and laterally, and preventing one-half deviating from the other in their respective movements. The lower part of the rear frame or sheath *c* is prolonged on its exterior on three sides or is formed with a sort of surround *c'* which, when the camera is folded, envelopes the upper half of the rear frame or structure *c*, which forms part of the sheath or guiding means for

the slide or plate carrier. This upper half it protects both laterally and across the entrance slot, and prevents the admission of dust into the camera when closed and carried in the pocket or otherwise. This extension or three-sided surround *c* also protects the light proof stuff where it covers when folded. When the camera is shut or folded it is maintained clasped by the instrumentality of a suitably designed finder such as *v*, which is hinged at *v'* upon the edge of the upper side *a*, or upon a plate secured thereto, so that said finder *v* can be turned down and clasped to the lower side *b* by a button or fastening *u*, which engages a slotted catch plate *t*, mounted on the lower side *b*. The fastening means carried by the pivoted finder and lower side of the camera may be varied. The pivoted finder bridges the end space between the stiff sections *a* *b*, and makes an efficient clasp. Emile Pipon, 218, Boulevard Raspail, Paris.

New Materials.

A New Grade Griffin's Bromide Paper. Made by J. J. Griffin and Sons, Limited, 20-26, Sardinia Street, London, W.C.

The good qualities of Messrs. Griffin's bromide papers are already too well known to need further commendation from us. A new variety has now been placed on the market, and prints made on it exhibit the same points of excellence made familiar by the firm's other grades. The new paper is named "Natural Surface," and its characteristics are the richness of the blacks obtainable and the purity of the whites. An amidol developer is recommended, and with this there appears no difficulty in obtaining in the print all that the negative has to give. The surface of the new paper can hardly be described as matt, as there is the slightest possible indication of gloss. This tends to give great depth to the shadows, and, at the same time, assists the detail in high lights and half tones. The prints have a peculiarly lustrous appearance, which is very effective, and should prove acceptable to every photographer who, while disliking a glazed surface paper, does not want one so rough that the finer details of his work are lost. The paper is sold in 6d. packets up to 6 by 4½ in., and in 1s. packets up to 10 by 8. Larger sizes are sold in handy packets of four pieces each up to 25 by 21 at popular prices.

Christmas Card Mounts. Sold by Houghtons, Limited.

Messrs. Houghtons' list of cards we have reviewed already, and we have said of it that, in so far as half-tone illustration is able, it puts the selection before the reader. The missing element of colour in the reproductions is supplied, but only inadequately, by the written description under each design. Nothing but half-tones in colour will completely meet the case, but we may, perhaps, step into the breach with Messrs. Houghtons and endeavour to convey to the distant purchaser the effect of some cards which have particularly pleased us. For example, No. 1727, cold brown with a pale green lettering ("Greetings") is quite dignified and refined. No. 1735 is in lavender grey with white insertion, as they say in St. Paul's Churchyard, and the words "With Best Wishes" in neat gilt lettering completes a dainty mount, feminine in character. But No. 1732 is bold and strong, vivid red with a little black and a good deal of white—a card to offer with the preceding, if one would range from opposite to opposite of tastes. No. 1720 is neat: like all those before us, it is a neat folder of the slip-in kind; nut-brown with gold lettering, and tied with a ribbon of darker brown. No. 1759 is another grey and gold, produced in good taste. We may say that the prices of the mounts run about 1s. 9d. to 4s. per dozen.

and for one thing above all others are Messrs. Houghtons to be thanked. They have cut the "greeting" down to a crisp phrase on each card. No stanzas from Tennyson, or perfervid lines from the poet-to-order at half-a-crown a time.

New Books.

"Beasties Courageous." By Douglas English, B.A. London: S. H. Bousfield and Co., Ltd. 5s.

It is difficult to decide, after perusing this latest production, from the camera and pen of Douglas English, whether his photographs of "beasties courageous" or the delightful little stories he has woven around them calls for the greater amount of praise.

That Mr. English is a master in his own department of nature photography needs no telling, and the present example of his patient industry and skill with the camera but enhances a previous high reputation.

Never before, perhaps, have the habits and lives and characters of our unconsidered little friends, the mice, voles, toads, and other field-folk, been so cunningly and delightfully put before us, and it is with more than ordinary interest we follow "the daring of the woodmouse," "the unjust tribulations of the toads," or "the vengeance of Jump-Jim-Crow." Every reader of "Beasties Courageous" will, we are sure, give in the future more than a passing thought to the little people whose world is here so cleverly portrayed, and if only this end is achieved our author has done something to be proud of.

A note of tragedy and mystery, too, is struck in the chapter, "The Keeper's Tree," that betokens a power of literary ability giving promise for the future in fields other than those inhabited by natural history specimens, and it is with genuine regret one lays down the volume after reading the concluding adventures of "Coubulo and Penelope." We congratulate the author on this book, and look with pleasurable interest for his next. As a gift-book, we can conceive nothing more acceptable. It contains fifty-six pages of illustrations on plate paper, and a photogravure frontispiece.

"THE PHOTO-MINIATURE."—No. 73 of Mr. John A. Tennant's monographs on photography concerns panoramic work, and is briefly historical and commendably practical. It contains some useful hints on the photography of tall buildings in narrow streets by making several negatives. The "P.-M." is supplied by Messrs. Dawbarn and Ward for 6d.

"THE Magazine of Fine Arts" is the title of a sumptuously gotten-up periodical that makes its first appearance this month from the house of George Newnes, Limited, Southampton Street, Strand, W.C. This new magazine will be concerned chiefly with the best in the art of many centuries, and the treasure stores of every country in the world will be drawn upon. Arts and crafts that are old in years, but as fresh as a new discovery to the majority of art lovers, will be dealt with in its pages by British and foreign experts capable of imparting valuable information in a readable manner. An ambitious programme truly, but, on the standard of the first number, capable of achievement. The illustrations, both in colours and monochrome, are numerous and good, and they should render the magazine valuable to collectors of artistic objects, as well as to art students, who will appreciate an illustrated review of the fine and decorative arts of other days. Published at 1s. per month, this production should succeed.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
17.....	Redhill and District Cam. Club	Annual Exhibition and Conversazione.
17.....	Aberdeen Amat. Photo. Assn.	"Toning, Trimming, and Mounting." Mr. J. Milne.
17.....	Colne Camera Club.....	"Lakeland: with Cycle and Camera and Motor Experiences." Mr. G. Thistlethwaite.
18.....	Aberdeen Photo Art Club	Lantern Evening.
18.....	Widnes Photographic Society.....	"Minerals." Mr. H. T. Mannington.
20.....	Scarborough and Dis. Ph. Soc.	Yorkshire Photographic Union Portfolio of Prints.
20.....	Bowes Park and Dis. Ph. Soc...	"Flower and Fruit Photography." Mr. E. Seymour. Competition: Prints with Clouds taken on same Negative as Landscapes.
20.....	Heaton & Dis. Camera Club	"Portraiture." Lecture by Leading Expert and Medalist.
20.....	Wandsworth Camera Club	The Affiliation Competition Slides for 1903.
20.....	Stafford Photographic Society..	"Intensification and Reduction." Mr. Herbert A. E. Hey.
20.....	Stafford & Forest Hill Ph. Soc.	"Gun Bichromate." Mr. M. Arbuthnot.
20.....	Leek and District Photo. Soc...	Lantern Lecture. Mr. Nithsdale.
20.....	Dewsbury Photo. Society	"Stereoscopic Photography." Mr. O. P. Goerz.
20.....	South London Photo. Society ...	"Zigzag Papers and Illingworth Carbon Tissues." Messrs. T. Illingworth & Co., Ltd.
20.....	Luton Camera Club	"Visual v. Factorial Development." Messrs. W. Warren and Cox.
21.....	Royal Photographic Soc.	"Homesick Across the World." Mr. A. H. Dunning, F.R.G.S., F.R.P.S.
21.....	Brentford Photo. Society	"Carbon and Auto-paste." Demonstrated. The Auto-paste Co.
21.....	Newcastle-on-Tyne Photo. Assn.	Royal Affiliation Slides (1904), Amateur Photographic Slides, and Members' Lantern Night.
21.....	Halifax Camera Club	"Retouching." Mr. John Way.
21.....	Jersey Photographic Society ...	"Intensification and Reduction." Mr. J. McIntosh.
21.....	Leeds Photographic Society	"Napies." Eruptions of Vesuvius, Destruction of Pompeii, Pompeii Unearthed. Mr. Thos. E. Green.
21.....	Burton-on-Trent Nat. His. Soc.	Competition: Lantern Slides.
21.....	Glasgow Southern Photo. Assn.	"How a Lens is Made." Kindly lent by Taylor, Taylor, & Hobson, Ltd.
21.....	Darlington Camera Club	Choice of Printing Papers and Exhibition of Varieties, with Criticism thereon.
21.....	Sheffield Photographic Society	"Focus Competition Prize Slides—Stories Without Words."
21.....	Otley & Dis. Cam. & Art Soc.	Open Night.
21.....	Manchester Amat. Photo. Soc.	"Pictures with the Goerz Lens," a Collection of 112 Slides, including the Winning Prints in the Goerz Competition.
21.....	Birmingham Photo. Society. ...	"Exposure." Illustrated. Mr. Alfred Watkins.
21.....	Hackney Photographic Society	Excursion Prints Judged and Criticised.
21.....	St. Helens Camera Club	"Photomicrography." Mr. J. Donnellan.
21.....	Thornton Heath Photo. Soc.	"Carbon Printing." Mr. H. P. C. Harpur.
21.....	Nelson Photographic Society ...	Selection of Lantern Slides from Burnley Camera Club.
21-22.....	Southampton Camera Club	The Annual Exhibition.
22.....	G.E.R. Mechanics' Institution...	"Development." Demonstrated. Mr. H. W. Bennett, F.R.P.S.
22.....	Coventry Photo. Club	"The Cinematograph and its Applications." Mr. F. Martin-Duncan.
22.....	Society of Arts	"Picture Postcard Photography." Demonstrated. Mr. A. Edwards.
22.....	Leeds Camera Club.....	Smoking Concert and Presentation of Awards gained at Exhibition. Greyhound Hotel, 8.30 p.m.
22.....	Croydon Camera Club.....	"Rotary Papers." Demonstrated.
22.....	Acton Photographic Society ...	"London to North Cornwall," with Glimpes of interesting places in Surrey, Hampshire, Dorset, Somerset, and Devonshire, with 230 Slides. Mr. Godfrey Bingley.
22.....	Huddersfield Nat. and Ph. Soc.	"The Architecture of our Ancient Parish Churches" Illustrated. Mr. J. Wallace Watts.
22.....	Leicester & Leicestershire P. Soc.	"Exposure." Mr. H. W. Bennett, F.R.P.S.
22.....	South Essex Camera Club	"Dark Room Illumination." Mr. S. H. Bentley.
22.....	North Middlesex Photo. Soc.	"Carbon Printing on Barnet Carbon Tissues for Amateurs." Messrs. Wilde and Woolcott.
22.....	Cricklewood Photo. Society.....	Display of Focus Prize Slides. Lanternist, Mr. Frank Grace.
22.....	Tring Camera Club.....	"Photo-Engraving as a Business." Mr. Arthur Cox (Arthur Cox Illustrating Co., Ltd., Birmingham).
23.....	Bolt Court School of Ph. Eng.	"Printing and Toning of P.O.P." Demonstrated. Mr. W. S. Parrish.
23.....	Hull Photographic Society	

MEETINGS OF SOCIETIES FOR NEXT WEEK (Continued).

Nov.	Name of Society.	Subject.
23.....	Richmond Camera Club.....	"Australia." Major Latham.
23.....	London and Prov. Photo. Assn.	"Hints to would-be Picture Makers." Mr. H. Snowden Ward.
23.....	Balham Camera Club	Members' Lantern Night. Exhibition of Members' Slides.
23.....	Harrogate Camera Club	Focus Stories Without Words.
23.....	Liverpool Amateur Ph. Assn.	Exhibition Lantern Slides, Royal Photographic Society.
23.....	Rugby Photographic Society ...	"Notes on Pictorial Matters." Mr. G. A. Towers.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, 14th. The President, Major-General Waterhouse, in the chair. Mr. F. Martin Duncan gave a lecture on "The Applications of Photography to Investigations in Natural Science," in which he demonstrated rather than discussed the immense value of photographic record in the study of natural history. His lecture, in other words, was a talk on many interesting subjects of the animal and vegetable kingdoms, studied and photographed by himself during the past twenty years. The growth and fructification of plants, the study of micro-organisms, no less than the domestic amenities of the octopus and the blood-curdling devils of the insectivorous plants, were made the subject of a most fascinating discourse, illustrated with a series of lantern slides, which in no single instance failed to illustrate the lecturer's words. Mr. Duncan stated that he had devised a method of photographing minute transparent bacilli under the microscope, which dispensed with the drastic processes of heating and hot staining, by which the structure of the objects was probably greatly altered. He exhibited a specimen slide, wherein each bacillus rod was seen to contain certain cells and other structure; but he gave no details of the method.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.—A meeting of the General Committee was held at 51, Baker Street, W., on Friday, November 15. Present, Messrs. F. A. Bridge, A. Ellis, S. H. Fry, H. E. Hull, M. Jaccotte, A. Mackie, H. S. Mendelssohn, D. Procter, E. Scamell, R. Fellows Willson, and P. Lankester (Tunbridge Wells). Mr. Alfred Ellis, Past-President, in the chair. The adjourned discussion took place upon the certificate scheme. The fact that members in advertising for assistants rarely think to notify that certificated assistants would have the preference was commented on, and it was decided to take all available means of reminding them of their duty in this direction. With a view to elicit the opinions of assistants themselves as to any desirability of modifying the terms or conditions of the granting of certificates, it was decided to write to all those assistants who had applied for prospectuses and had not subsequently taken up certificates to enquire the reason of their not proceeding further, and to invite suggestions for making the conditions generally acceptable. The Assistant Secretary reported that a dispute between a member and a firm of manufacturers of apparatus had been settled by the Hon. Secretary in a manner satisfactory to both sides.

PHOTOGRAPHIC CLUB.—On November 8 Mr. A. Bedding gave an illustrated lecture on "The Tower of London" to the members of this club. His views included many unfamiliar parts of the Tower. On November 15 the annual supper was held at the headquarters, Red Cross Hotel, Paternoster Square, E.C.

HULL PHOTOGRAPHIC SOCIETY.—Mr. T. T. Dyson gave a lecture on "Enlarged Negatives" to the members of this Society, at the rooms in Gray Street, Hull, on Thursday of last week. The lecturer said that before making an enlargement of any kind it is as well to decide what part of the original negative to include in the

finished print. A very convenient method of dealing with this operation was (after making a trial print in any process most convenient) to take a pair of right-angular masks cut out of a piece of flat, stiff paper, and these may be adjusted over the print until the most pleasing result has been obtained. The masks are really in appearance like the letter L, one being reversed so as to form a square frame, the opening of which can be varied. The paper should be, say, $1\frac{1}{2}$ in. to 2 in. wide, and the actual size of the letter 3 in. to 12 in. if for half-plate negatives. When it had been finally decided what part of the original photograph had to be included in the finished picture, the next step was to mark off the negative, so that only the selected portion might be printed on the transparency. This should always be done, as it went a long way towards making the finished result either a success or a failure. The next step was to polish the surface of the negative with a piece of soft rag moistened with methylated spirit, and carefully rub over the film until its surface became bright and smooth. The metal-polish reducer could be used for the same purpose in the same way (finally removing the grease with a piece of rag moistened with benzine), but it acted very much quicker, and consequently required more attention. The idea was to clean the film and not reduce it, continuous rubbing would bring about—both being often used for optical reduction. The metal polish-reducer is made up of a 2d. box of Globe Metal Polish, 2 oz. of olive oil, and 2 oz. of Terebine, the whole mixed together into a thick cream and filtered through a piece of fine muslin. The object of polishing the negative and transparency was to remove or reduce the granulation (so often present upon the surface of the gelatine) to a minimum, which, if allowed to remain, would enlarge, and so show upon the finished picture. A suitable transparency for enlarging from should contain all the gradations that could be seen in the original negative; no part should be clear glass, and yet the deepest shadows should be sufficiently transparent to allow the light to pass through and impress the plate before the other parts have gone too far. The lecturer preferred a slow, ordinary plate for the transparency, because it could be treated locally both by chemical and mechanical means, also because by varying the exposure and the developer it was possible to get soft results from hard or contrasty negatives, and so it was not difficult to get suitable transparencies from negatives of various printing qualities. The former must be soft, and contain all the gradation seen in the original, and not of the lantern slide type, as they were not suitable to enlarge from. The transparency could be made by contact or by projection, the latter being favoured. It was both convenient and economical when commencing to sacrifice a plate for the purpose of ascertaining the correct exposure, by giving a number of same in strips, covering up the negative with a piece of card, and giving first five, then ten, fifteen, twenty, and twenty-five seconds. A non-staining developer (1 part sodinol and 30 parts water being recommended for the transparency) should be used, and mix sufficient for two plates—the trial and the final—so that both will be developed in the same strength and temperature. From the transparency thus secured the enlarged negative could be made in the usual way, observing the same precautions.

The report for session 1904-5 of the Dundee and East of Scotland Photographic Association, which has been put in the hands of the members, states that a successful year has been concluded. Over 500 negatives had been selected in the survey department as suitable for the work, so that the total number of prints in this section was over 1,500. The Association was indebted to the Town Council for a second grant of £50, and an application for a similar sum to admit of the work being carried on had been sent in. Considerably more than £100 had already been expended, and it was calculated that a further

sum of £100 would be required to complete the work. During the year the membership had increased from 142 to 150.

WHITBY CAMERA CLUB.—The eighth annual meeting of this Club was held on Friday evening, November 10. The report showed the Club to be financially sound, self-supporting, and with an increased membership. The following officers were elected for the ensuing year:—President, William Brown; Vice-Presidents, John Bruce and G. S. French; Hon. Critic, F. M. Sutcliffe, F.R.P.S.; Hon. Lanternist, E. Hall; Hon. Assistant Lanternist, H. A. Burnell; Hon. Secretary, Woodhouse Parkinson, Ocean Road, Whitby.

THE FEDERATION OF THE PHOTOGRAPHIC SOCIETIES OF NORTHUMBERLAND AND DURHAM.—A meeting of the Council of this Federation was held in the rooms of the Literary and Philosophical Society, Newcastle-on-Tyne, on Wednesday, November 8. Mr. W. S. Corder was elected President. The Secretary reported that the Federation consisted of fourteen Societies, with a membership of over 800. A lecture syllabus had been sent out to the various societies. It was decided that the annual re-union this session take the form of a dinner, to be held in Newcastle early in the next year, when one of the leading photographers of the country will be invited as guest. A lantern slide competition will be held on similar lines to the one last year. Mr. Arthur Payne, F.R.P.S., founder of the Federation, whose efforts are largely responsible for the flourishing condition of the same, was elected a life member of the Council. A new society, the Dudley and District Camera Club (Northumberland) was admitted to the Federation. The Hon. Sec. is John B. Scott, 1, Bedford Place, North Shields.

ST. ALBANS PHOTOGRAPHIC SOCIETY.—Lecturing on the 10th inst. on "Velox and its New Applications," Mr. A. W. Green described the varieties of the Velox paper suited for different classes of negatives, and introduced the "Nobra" developer for the production of glossy prints free from markings. He concluded by giving the following as toning formulæ which were found satisfactory with Velox:—(1) The copper bath of Mr. Fergusson. It is the most satisfactory of the one-solution toning baths, as the results are moderately lasting, but the colour, as a rule, is inclined to a red rather than a sepia: A.—Copper sulphate, 30 grains; potassium citrate neutral, 120 grains; water, 10 ozs. B.—Potassium ferricyanide, 25 grains; potassium citrate neutral, 120 grains; water, 10 ozs. Mix in equal parts and immerse the print. The colour quickly becomes warmer in tone, and may be removed whenever the colour desired is secured. A bright red can be obtained with this formula. (2) A "Sulphide" toning method, one based on the original formula of Mr. Blake-Smith. In this process the prints are first bleached in a mixture of iodine and potassium iodide, and then darkened by plunging into a solution of sodium sulphide. The drawback here, in the case of Velox, is that with the iodine bleaching process there is a decided tendency to staining. In place of it is used a mixture of ferricyanide and Bromide of potassium. The formula recommended is as follows:—A.—Potassium ferricyanide, 1 oz.; water, 9 ozs.; bromide of potassium, 30 grains. B.—Sodium sulphide, 1 oz.; water, 15 ozs. This solution will keep fairly well, and is easy to make up. The procedure is very simple and exceedingly fascinating. The prints, which should be either very well washed or treated with hypax or some other hypo-eliminator, are placed in the bleaching bath, in one minute or so the image is almost completely bleached away, now rinse in water and place in the sulphur bath. The print immediately assumes a rich sepia tone without staining of any sort. A few minutes' washing completes the process.

WATFORD PHOTOGRAPHIC SOCIETY.—The following have been elected officers for the current year:—President, H. Snowden Ward, F.R.P.S.; vice-presidents, Lady Ebury, Dr. A. E. Cox, and C. R. Girardot; Committee, Miss Kate Smith, Dr. C. H. Hall, M. Bate-man, J. Cullen, H. Langford Lewis; hon. lanternist, F. D. Ogden;

hon. treasurer, C. E. Head; hon. secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

EDINBURGH PHOTOGRAPHIC SOCIETY.—At the monthly meeting of this society on Wednesday of last week, the Rev. H. N. Bonnar gave a lecture on "Some Methods of Photographing Wild Birds." The lecturer dwelt on the necessity of knowing or learning the habits of birds, how to distinguish their eggs, where they usually nest, and how long the eggs take to hatch out, together with the habits of the young ones, whether they are able to run about the first day, or whether they need be nursed and acquire strength, etc., so that proper precautions might be taken to come at the correct time to get a successful photograph. Emphasis was placed on the absolute necessity of using the very fastest plates procurable, then the most suitable camera, and an account given of the different methods of making the exposure, such as long bulb and tube focal plane, electric release, etc. He emphasised the necessity of disguising the camera with suitable foliage to make it appear as like the surroundings as possible, and counselled making all preparations, such as erecting tripod, etc., as far away from the scene of action as possible, to avoid disturbing the birds; and, above all, and through all the lecture, ran the one cardinal virtue—patience. He concluded by showing a large number of good slides of wild birds and their various haunts, some of the plates having been taken by the bird itself actually releasing the shutter by an ingenious arrangement of straw and twine.

LEEDS PHOTOGRAPHIC SOCIETY.—On November 7, at the Law Institute, Leeds, Mr. Harry Wade gave an interesting demonstration of Oil Printing before the members of this society. The lecturer said the process depended upon the repelling action that a moist film of chromated gelatine exerts towards oily pigments or inks, which action becomes modified by exposure to light, the parts most affected acquiring an affinity for the ink in direct proportion to the light action. Paper is coated with hard gelatine, sensitised with potassium bichromate, dried, printed in daylight, washed free from bichromate salt, and then "rolled up" with printer's ink. Although single transfer paper has been recommended, Mr. Wade deprecated its use as the gelatine is over-hardened; he preferred to coat his own paper. A stout paper should be chosen; thin material would not stand the rough usage the print has to undergo while wet; a smooth-surfaced cartridge answers well, cut a little larger than the print required, to allow handling when inking, as the roller has a tendency to pick it up. It is coated with a hot 10 per cent. solution of hard gelatine, either by floating or flowing. The demonstrator adopted the latter method, supporting the paper on a sheet of glass, pouring a pool of hot gelatine in the centre, tilting until the paper was covered to the edges, and then pouring off the superfluous solution, just in the same way one would varnish a negative. Dry paper may be coated in this way, but it is better to damp it first, as in the former case the inking roller has a tendency to pick up the gelatine from its support. The coated film should be thin, otherwise the gelatine swells too much in the high lights, and there is a difficulty in getting contact with the finer details when rolling up. Mr. Wade instanced the branches of trees against a blank sky, which become recessed and do not receive their due proportion of ink. The film is allowed to set, then the paper hung up by a corner to dry. It is sensitised by immersion in a 5 per cent. solution of potassium bichromate for two or three minutes—stronger solutions do not seem to influence the results—and again dried. The printing speed of the paper is rather quicker than P.O.P., a decided advantage in winter. A thin negative is required, full of detail and gradation in the high lights, as one which would give a fair result on bromide paper. The paper should be exposed until the details in the high lights show faintly, a little experience, as

with platinotype, which it resembles, will help to gauge the correct depth. The best results are obtained on paper freshly sensitised—within 24 hours—although it may be kept coated with the plain gelatine for any length of time. The print as it comes from the frame is washed in cold water for half an hour until the yellow colour of the bichromate is discharged. It can either be inked up at this stage or dried and worked up afterwards, at convenience; in the latter case it will require a thorough soaking in warm water to saturate the gelatine, before inking up is commenced; the results are not technically so good as by the former method. The originator of the process recommended solid oil colours, but the demonstrator found ordinary letterpress inks equally good. In using solid colours, the outer surface should be scraped away and the soft interior worked up on a glass slab with a little turpentine to the consistency of a thick cream, finally distributed evenly with a roller. To apply the ink Mr. Wade used two rollers, one of large, and the other small, diameter, made of gelatine; also an ordinary rubber squeegee. The damp print—wiped to remove excess of water—is rolled with the roller until inked all over; on continuing to roll the ink lifts somewhat from the high lights, and the picture begins to appear. By using the smaller diameter rollers the ink is picked up more quickly. The process of applying and removing the ink alternately allows the operator to build up the desired effects, heavy pressure giving strength to the prints. The image can be removed at any time by a rag soaked in turpentine, and a fresh start made. New gelatine rollers are very tacky, picking up too much ink; this can be remedied by rolling in powdered alum, which hardens the surface. If the print will not take up the pigment, is a sign of under-exposure or too thick an ink; should it take the colour all over and refuse to give it up, then over-exposure, or too thin an ink is the cause. Mr. Wade successfully manipulated several prints, and also passed round examples in various colours, whose technical qualities were much admired, resembling carbon prints very closely.

CATALOGUES AND TRADE NOTICES.

A CATALOGUE of Mr. F. E. Ives' optical specialties reaches us from his sales agent, Mr. Albert B. Porter, 324, Dearborn Street, Chicago, U.S.A., and is a pamphlet which will probably be welcomed by those occupied with colour photography. It lists the prices of the Ives' new replicas of diffraction gratings, spectrographs, etc. Mr. Porter will send it free of charge.

WE have received a couple of well illustrated lists of lanterns and accessories and a series of "chic" Christmas photographic cards from Kodak, Limited. A postcard to 57-61, Clerkenwell Road, E.C., will bring a copy of each.

FROM Mr. Samuel J. Beckett, of 20, Baker Street, W., we have received a very complete list of lantern slides for hire. These slides embrace a wide range of subjects for travel-lectures. Most of the countries and capitals of Europe are represented, and readings are supplied to go with the different series. A new lecture on Norway sent for our inspection is representative of the other readings. It is concise and descriptive, is in notebook form, folding from the top, and it is printed on one side only of the page in bold type, so that the matter can be easily followed in a dim light, and, moreover, the page from which one reads remains always in the same position. The lantern list also contains some excellent "pointers for lecturers." Every amateur lantern lecturer should get a copy.

EXHIBITION prospectuses have been sent us from the Boston Camera Club (Hon. Secs., H. M. Hames and R. W. Halliday, 65, West Street, Boston, Lancs.), the Watford Camera Club (Hon. Sec., E. H. Jackson, 100, High Street, Watford), and the Lancaster Photographic Society (Hon. Sec., R. T. Simpson, 10 North Road, Lancaster).

Commercial & Legal Intelligence

No Case Made Out.—At Cardiff Police-court on Saturday last Alfred Williams was charged on remand with obtaining money by false pretences from Charles Shapcott, Emily Bryant, and Bessie Bryant. The allegation was that prisoner had been employed by Mr. Ballard, a photographer, to get orders. He obtained orders from the parties named in the charge, and received small sums of money on account, but he had not handed over the orders with the money. Prisoner questioned the witnesses with some astuteness to show that he had not acted fraudulently, and the magistrates decided that no case had been made out, and discharged him.

Theft of "Sticky-Back" Tickets.—Frank Chard, aged fourteen, was charged, on remand, at the Bristol Police-court, with stealing a number of receipt forms, value 5d., the property of H. O. Seaman, photographer, of 27, Castle Street, and with obtaining by false pretences 1s. from Mary Ann Burge, of 2, Goodhind Street, and 8d. from Mary Ann Johns, of 2, Gloucester Street, St. Jude's. Mrs. Burge stated that Chard asked her to buy some tickets by which she would be able to have her photograph taken at half-price—twelve "sticky-backs" for sixpence instead of a shilling. She understood the boy obtained a commission, and bought two tickets. On going to Mr. Seaman's she found the tickets were of no use. Mary Ann Johns said she bought three tickets from the boy for 8d. The photographs, she understood, were 3d. a dozen. An assistant to Mr. Seaman stated that the tickets were taken from the counter when witness and Mr. Seaman were absent. About twenty tickets from two stolen books were presented. No canvassers were employed. The boy pleaded guilty, and said he was sorry and did not know what made him do it. The remaining tickets were found at his home, 6, Lower Castle Street, and accused had given a man 6s. to keep for him. He had been discharged from two situations on account of dishonesty. The Bench decided to send the lad to Kingswood Reformatory for five years.

Re John Wm. Calvert, of 58, Stonefall Avenue, Starbeck, and carrying on business at Stonefall Terrace, Starbeck, and 16, Chapel Street, Harrogate.—The above-named debtor appeared for his public examination at the York Bankruptcy Court on Friday, before the Registrar. The statement of affairs filed by the debtor disclosed liabilities amounting to £104 16s. 10d., and a deficiency of £91 12s. 3d., the assets amounting to only £13 4s. 7d. "Heavy rents and rates, falling off of trade, and some bad debts," was given as the cause of the failure. In answer to questions put by the Official Receiver, debtor said he began business at Boroughbridge as a painter and decorator about nine years ago, and continued for three years, afterwards removing to Starbeck. The latter business was successful for the first two years, but declined very much in the past four years. It was his venture as a photographer at Chapel Street, Harrogate, that contributed the most largely to his insolvency, the rates and rents being very heavy. He had hoped to sell the business, but had not done so. The examination was adjourned for formal completion.

An application for discharge from bankruptcy was made before his Honour, Judge Parry, at the Manchester County Court, last week, by Franz Baum, photographer, of Manchester and Bolton. It was reported by the Official Receiver that the receiving order was made on a creditor's petition on November 26, 1904, and the liabilities proved amounted to £509. No dividend had been paid, and the assets were insufficient to meet the expenses of the bank-

ruptcy. The Official Receiver submitted that the bankrupt had omitted to keep proper books of account, that he had contributed to his bankruptcy by rash and hazardous speculations, and that three months previous to his bankruptcy he gave undue preference to one of his creditors. The bankrupt contended that he had not wittingly committed any offence against the Bankruptcy Act. His Honour suspended the discharge for three years.

BARRAUDS, LIMITED.—This company has been registered with a capital of £1,500 in £1 shares, to acquire and carry on the business of a photographer, and dealer in works of art and vertu, etc., now carried on under the style of Philip Barraud, at 92, Bold Street, Liverpool, and to adopt an agreement between Philip Barraud and L. Dedwydd. There will be no initial public issue. The qualification of the directors is £10 in shares, and the first directors are to be P. Barraud and L. Dedwydd. The registered offices are at 92, Bold Street, Liverpool.

H. A. WEST AND CO., LTD.—Registered November 2. Capital £1,500, in £1 shares. Objects: To take over the business of a chemist and druggist carried on by H. A. West at 15, St. Stephen's Road, Norwich, as Lowe and Co., and to carry on the same and the business of opticians, dealers in photographic and scientific apparatus and materials, etc. No initial public issue. Registered office, 15, St. Stephen's Road, Norwich.

An Impudent Theft.—At the Guildhall Police-court, on Wednesday last, George East, of no occupation, was charged, before Sir John Bell, with wilfully smashing a plateglass window at Messrs. Beck and Co., Limited, opticians, of Cornhill, doing damage to the extent of £4, and, further, with stealing a number of nautical instruments from the window. A constable on duty in Cornhill that morning saw the accused take off one of his boots, and with the heel of it smash the window. Putting his arm through the hole he abstracted several of the instruments, and was running away when the officer stopped him. The prisoner was remanded.

At the Gloucester County Court on Tuesday of last week, Joseph Baggett, photographer, of Conduit Street, Gloucester, made an application for an administration order, which was granted.

A FIRST meeting of creditors of William Marsden Harrison, photographer, Falmouth, Truro, Redruth, and Helston, was held on Monday of last week at Truro. Debtor's statement showed gross liabilities £2,063, of which £611 was expected to rank, and an estimated surplus of £1,122. His assets included property £586, book debts estimated to produce £150, and surplus from securities in hands of creditors fully secured £159. He attributed his failure to pressure by creditors, general depression in trade, and the great reduction in the sale of photographic views caused by publication of picture postcards. The Official Receiver, in his observations, said debtor filed his petition in consequence of pressure by two trade creditors, who issued writs against him for £84 and £73 respectively. He commenced business in Falmouth in 1876, and in 1879 filed a petition for the liquidation of his affairs. His liabilities were then £887, and his assets were estimated at £620. A first and final dividend of 1s. 5d. in the £ was declared in 1880, and he obtained his discharge in 1881. The following year he again started business at Falmouth with a free capital of about £50 in cash, and continued in business there and at the branch establishments until the present receiving order was made. The assets included £500 expected to be derived under the will of his deceased mother. The surplus of £1,122 over total liabilities appeared to be somewhat uncertain. The debtor had not been adjudicated a bankrupt, and the business had been carried on with the approval of the principal

creditors until that date with a view to disposing of it as a going concern. He estimated his profits during the past three years from the photographic business at from £300 to £400 a year. The meeting approved the course adopted by the Official Receiver, passed a resolution in favour of the adjudication of debtor as a bankrupt, and appointed a trustee and committee of inspection, and decided to retain the present staff, as well as the service of debtor, the latter to receive £3 a week.

News and Notes.

B. J. EDWARDS and Co.—We are pleased to hear that this old-established firm is again coming to the fore in the manufacture of plates and films, and the fact that Mr. Edwards himself is now personally taking an active part in the firm's productions can be regarded as a contributory cause of revived activity and a guarantee for future excellence. Mr. J. W. P. Rawlins is the general manager, and he will see that everything on the business side is promptly and efficiently attended to.

At the Third Scottish National Photographic Salon, to be held at the Victoria Art Galleries, Dundee, in 1906, the walls are to be hung with a representative collection of Mr. Evan's work; while Herr M. Matthias, a German worker of note, is also arranging for a special display. No doubt those invitation collections will be a great treat to the Scottish pictorialists who can visit the Salon at Dundee.

THE Cripplegate Photographic Society.—This flourishing City Society, with its headquarters at the handsome Cripplegate Institute, Golden Lane, E.C., only needs to be a little better known to local and other photographic workers to become one of the foremost societies of its kind in the London area. Possessed of ample accommodation for its meetings, and a permanent and well-equipped enlarging and dark room, the members must find little to grumble at in return for their subscription. Grumbling is the prerogative of every member of every photographic society, but in the case of the Cripplegate Society the most inveterate grumbler must find his occupation gone, especially when he contemplates the list of fixtures that the indefatigable Hon. Sec., J. B. Parnham, has got together for the forthcoming winter session. "Gum Bichromate," by J. C. S. Mummery; "Enlarged Negatives," by Bertram C. Wickison; "Intensification and Reduction," by J. McIntosh; "The Hand Camera," by W. L. Wastell; "Figure Photography," by E. H. R. Hillsworth; "Retouching," by H. Gordon Stollard; "Photography with the Microscope," by J. I. Pigg; "Pictorial Photography," by A. Horsley Hinton; "Marine Photography," by F. J. Mortimer; and lectures by Alex. Mackie and R. Child Bayley are among the items in the programme, which is fully filled until May next. The "Members' Book," in which full particulars of the Society are contained, is one of the neatest and handiest of the many winter programmes and year-books we have seen this season. It is compact in size, and, in addition to the information mentioned, has a good amount of space for notes and diary. The Hon. Sec. will be pleased to forward particulars of membership, etc., on application to him at 5, Reighton Road, Upper Clapton, N.E. The annual exhibition, which will be held in the large hall of the Institute is fixed for March 12-15, 1906, and entry forms will be ready shortly.

MR. THOMAS G. AMES (formerly representative of Messrs. B. J. Edwards and Co., Ltd.) is now representing Messrs. Elliott and Sons, of Barnet, in the North of England, Scotland, and Ireland.

BORDER Occasionally seen between Light and Dark Regions on Photographic Plates.—Two correspondents writing to "Nature" on

this subject, do not entirely concur in the view of Sir Oliver Lodge (reprinted in our last issue). Professor F. J. Allen writes:—The reason mentioned by Sir Oliver Lodge for the border seen between light and dark regions on photographs is not the only one. In the denser regions of a negative the developer gets more exhausted or restrained than in the thinner regions, and this affects the adjacent parts. At the junction of a dense and a thin area the edge of the thin part is made thinner by the restraining compounds (bromide, oxidised pyrogallol, etc.) derived from the denser part, while, on the contrary, the edge of the denser part is made denser by the less exhausted developer flowing from the thin area. This effect is apt to be the more marked when the developer is already well restrained, as by staleness or the addition of much bromide. R. Child Bayley says that the explanation does not take into consideration the following facts: (1) The "perceptible difference in thickness" between the acted-on and unacted-on portions of a negative is only perceptible to our unaided senses when certain developers are employed containing substances which act powerfully on the gelatine. Most modern negatives certainly have no perceptible difference in thickness, certainly not enough difference to give rise to so marked an effect as that referred to. (2) The difference in thickness is most marked in the "carbon" transparencies from which many enlarged negatives are made. Here it can be both seen and felt; in the other case it cannot. We might therefore expect this cylindrical lens effect to be most marked when using such a transparency, but the careful comparison of a number of enlarged negatives made in these two methods reveals not the slightest difference between them. In my own mind I have always accounted for the phenomenon in the following way: The sensitive film ordinarily can only be approached by the developer from its outward face, hence the action over an area where the light action has been the same is uniform. But if that area is bordered by one where there has been little or no light action, the developer absorbed by such parts is not spent in doing any or much work in those parts, and, so far as any lateral diffusion is concerned, is practically fresh developer. Hence the borders of an exposed portion, where it comes against an unexposed portion, are attacked by fresh developer diffusing both from the front and from the unexposed part, and we should therefore expect to find a border line of greater density there, as, in fact, we do. For a similar reason we should expect to find a less dense line on the border of the more transparent portion, as is the case, though it is not often so noticeable as the former. That this is the true explanation is, I think, made manifest by the fact that the line in question can be quite easily distinguished on plates exposed in Spurge's actinometer, where there is certainly no opportunity of a "cylindrical lens effect," and especially when development has been pushed far.

THE Worthing Camera Club's new rooms in Liverpool Terrace were opened by the president, Colonel A. Henty, last week. A dark room has been fitted up, and an enlarging apparatus provided.

THE Lancashire and Cheshire Photographic Union.—As previously announced in these pages, a Photographic Union has been in course of formation for the societies in the counties of Lancashire and Cheshire. The matter has now been finally settled, and the following particulars are to hand from the hon. sec.:—Officers for 1906—President: Dr. C. Thurston Holland; vice-presidents: Rev H. W. Dick (Manchester), Dr. Brennan (Stockport), Dr. Crump (Burnley), T. Lee Syms (Leigh). Lantern Slide Section—Hon. sec.: T. Hudson, 6, Rigby Street, Nelson. Print Folio Section—Hon. sec.: Dr. A. T. Lakin, Lightbowne Road, Moston, Manchester. Jury of Selection for Union Prints and Slides: Dr. C. T. Holland.

Rev. H. W. Dick, Messrs. S. L. Coulthurst, C. F. Inston, J. J. Rothwell, and F. Whitaker. Judges available for Union Societies' Competitions and Exhibitions: Dr. C. T. Holland, Rev. H. W. Dick, Dr. Crump, Dr. A. T. Lakin, Dr. Ellis, Messrs. S. L. Coulthurst, F. Anyon, T. Lee Syms, J. W. Wade, A. E. Bellingham, C. F. Inston, T. Glazebrook, J. Shaw, Tullock Cheyne, and A. W. Cooper. The societies comprising the Union are:—Accrington Photographic, Ashton-under-Lyne Photographic, Barrow-in-Furness Photographic, Birkenhead Photographic, Blackburn Photographic, Bolton Photographic, Bootle Photographic, Burnley Camera Club, Bury Athenaeum Photographic, Colne Camera Club, Crompton Camera Club, Darwen Photographic, Duckinfield Photographic, Everton Camera Club, Leigh Photographic, Liverpool Photographic, Manchester Photographic, Nelson Photographic, St. Helens Camera Club, St. Mathew's (Bootle) Camera Club, Sale Photographic, Salford Park Photographic, Simpson Memorial Camera Club, Southport Photographic, Stockport Photographic, Wallasey Photographic, Walton Photographic, and Widnes Photographic. The Hon. Business Secretary and Treasurer is W. Tansley, 22, Chapel Place, Liverpool.

A NEW KNIGHT.—We note the name of Edward Cecil Hertslet among the recipients of Birthday Honours. He has served the Foreign Office for over 37 years, and has been British Consul at Antwerp and Havre. Interest for our readers in the new knighthood centres in the fact that Mr. Hertslet was British Member of the International Jury Photographic Section at the Paris Exhibition.

THE Second American Salon.—We learn from an American contemporary that the standard of work submitted to the jurors of the forthcoming American Salon is very high, and superior to last year's exhibit. This, together with the large entry received, speaks most encouragingly for its success. The work submitted to various centres is now en route to New York.

DURING the last few days many suggestions have been made that the "Venus and Cupid" by Velasquez, which is now on view at Messrs. Agnew's gallery, should be added to the excellent series of works by that master in the National Gallery. It can hardly be said that there is any chance of anything resulting from these suggestions unless some wealthy art lover, or group of art lovers, can be induced to purchase the canvas and present it to the nation. The habitual parsimony of the British Government in art matters, observes the "Globe," makes it extremely improbable that the Treasury will respond to a request for the acquisition of a picture which certainly ought not to be allowed to leave this country. When great opportunities occur the National Gallery has to let them slip because practically it is supported by charity, and has to look to outside assistance for funds which will sufficiently supplement its inadequate grant to enable it to carry on its work with passable efficiency. The contributions of the charitable are hardly likely to put it in a position to secure a masterpiece by Velasquez which is coveted by the whole world.

THE thirty-fifth volume of the "Studio," which has just been published, is lacking in none of the characteristics which have made this magazine for some years past so conspicuously successful. One of the most noteworthy merits of the "Studio" has always been its consistency in advocating the claims to attention of all art that is correctly and sincerely original, and in this volume there is no sign of departure from a policy which is commendably enlightened and broad-minded. The articles included in it cover the widest possible ground, and sum up an astonishing number of phases of artistic activity, not forgetting photography; and the illustrations, always excellently reproduced, show well what is being done by art workers all over the world. The array of special plates in colour is an admirable feature of the publication.

Correspondence.

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * *We do not undertake responsibility for the opinions expressed by our correspondents*

DEVELOPING P.O.P.

To the Editors.

Gentlemen.—I have been trying your formula for developing P.O.P. ("B.J.," October 20, p. 822). I find this gives a brown tone, but it may be that I did not use the right quantity of citric acid, as you do not give the quantity. I did not like the brown tone, so I tried the formula as follows, given in "Photography":—Metol $\frac{3}{4}$ grain, water $1\frac{1}{2}$ oz., glacial acetic acid 85 minims, solution of citric acid (96 grains to 1 oz.) 85 minims, solution of potass bichromate (10 grains to 1 oz.) 3 to 5 drops. The tone given with this is just like gold toning bath, but it takes a long time to develop, and the prints lose a lot in the hypo. Can you tell me how to quicken this formula without altering the tone? Also, is ten minutes in the hypo bath sufficient (hypo 3 oz. to pint)? I have a large quantity of P.O.P. postcards to turn out between this and Christmas. Can I develop these in large batches as with gold toning, or must they be done a few at a time.—I remain yours faithfully,

E. A. BARTLETT.

7, High Street, Leamington,

November 10, 1905.

[We insert our correspondent's letter here thinking that perhaps others who have experimented with P.O.P. developers may help him out of their experience. Cautious increase of the bichromate should quicken development, but will certainly affect the tone. We should advise reducing the citric and acetic acids instead. A ten minutes' immersion in the hypo is adequate. In regard to the development of postcards, our experience of every developer for the purpose is that the back of the print is discoloured, a defect of the process which matters nothing in the case of prints to be mounted, but unfits it for postcards.—Eds., B.J.P.]

DETAIL IN GUM.

To the Editors.

Gentlemen.—It has often been urged against the process of gum bichromate that it is incapable of rendering fine detail, requires a specially thin negative, and, apart from multiple coating, lacks depth and range from deepest shadows to purest high lights.

Your opinion, therefore, on the little prints enclosed, produced solely for this purpose, may prove of interest to your readers, for I have always contended that this method of single-coated printing is capable of giving as clean and sharp an image as any other matt surface process. The prints, all from plucky, sharp, fairly dense negatives, just such as many professionals aim at, and half a dozen other prints almost practically identical, were obtained at the same time with almost dreary monotony.—Yours, etc.,

J. PAGE CROFT.

Quadrant Chambers, Birmingham.

[The prints sent by Mr. Croft are from negatives of black-and-white line sketches, and are excellent reproductions of this class of original.—Eds., B.J.P.]

PLUMBING FOR PHOTOGRAPHERS.

To the Editors.

Gentlemen.—Mr. W. Foster Brigham's article on "Plumbing for Photographers" is interesting, but his idea in the matter of the syphon is very crude. He says, in effect: "Put one end of a length

of tubing into the sink, let the other end hang down outside over a pail, then put this end into the mouth—or someone else's mouth—and suck out the air." If I may be allowed to say so, a very dirty, unhealthy, and unnecessary proceeding for one's own or anyone else's mouth. Of course, the proper way is to immerse the whole of the tubing in water, close the ends under water, some assistance being necessary with thick tubing; one end, the lower, must at all events be closed. The elongated portion may now be removed to any convenient place lower than the sink, and on unclosing the ends (one of which will be held or secured to the sink) the water flows and empties.—Yours truly,

November 11, 1905.

J. PIKE.

THE PERMANENCY OF MATT COLLODION PRINTS.

To the Editors.

Gentlemen,—Some time ago, perhaps a year, or even two, not being able to go to the meetings myself, I sent to the Secretary of the London and Provincial Association a sample, or samples, of fading of commercial collodion chloride paper, with the request that they should be shown at a meeting and returned to me. Whether they were shown or not I have not heard; they never came back to me. They were finished with all the care I could bestow upon them. There was no mistaking the prints had gone, in quite a short time. There is no need for surprise that some samples of C.C. paper should be so fugitive when we consider the composition they are coated with and the quality of the support. I have in my possession C.C. prints made by Mr. Bruce, of Duns, about twenty-five years ago, they were—he informed me at the time—made upon paper from abroad. They are as good now as they were when new. But they are glossy (there is no difficulty in matting a C.C. glossy paper, simply requires putting down on "smoothed" opal). It it the attempt to matt C.C. and sell it at a price comparable with P.O.P.—the great yearning for anything and everything that is low priced—that has brought about this cry against the process. Collodion paper cannot be made good at a very low figure. Moreover, one must not forget that it is unfair to condemn a process because perhaps only one or two samples of commercial papers are faulty.—Yours truly,

ALF. J. BROWN.

Walthamstow.

November 15, 1905.

To the Editors.

Gentlemen,—Referring to the discussion on this subject which is going on in your columns, I may mention that the "Aristo Manual" issued by the American Aristotype Company goes very fully into the manipulation of C.C. papers, and fully clears up all the points mentioned by your various correspondents. I have no doubt that Mr. H. M. Fell, 57-61, Clerkenwell Road, E.C. the representative of the company in this country, will be pleased to send a copy to any inquirer.—Yours faithfully,

November 14, 1905.

KODAK, LTD.

pp. J. Brown.

To the Editors.

Gentlemen,—The trouble with C.C. papers complained of by the various correspondents under the above heading comes from several causes. Whenever yellowish spots appear in the prints after mounting—it may be the next day or some time after—in ninety-nine cases out of a hundred they are caused by the moisture not being thoroughly dried out of the interior of the mounts. When prints are supposed to be dry and are stacked up for spotting, and later placed together in packages, this moisture draws through the mass of mounts so stacked or placed in packages, and carries with it the impurities in the mount, the colouring matter of the mount, or

acid generated by damp paste. These various impurities, carried through the prints, attack the image, more often in spots, but sometimes the whole print is affected. The cure for this trouble is easy and absolutely certain.

Firstly, never lay prints flat on a table to dry after mounting, but always place them in a rack so that the air can get to the back as well as the face of the prints.

Secondly, when surface dry, give them the same chances as any other silver prints, and run them through a hot burnisher with thin smooth cardboard to protect the face of the print from a polishing roll. Have the burnisher hot, not warm. This will heat the mount and thoroughly dry out all moisture from the interior of the same, and will also shape the card much better than a cold burnisher. Those who use a "Globe" enameller can easily take off the top back cog by unscrewing the centre screw of the same and slipping the cog off. When this is done prints can be run through the burnishing rolls without any cardboard protection as both rolls will then run alike and will not burnish.

How long do you think it would be before P.O.P. or albumen prints would show this trouble if they were not burnished? Ever quicker than C.C. In burnishing these other papers the mount is heated and all the moisture is thereby dried out. A great many people do not realise this, but they will readily bring it to mind when they stop to think how often apparently dry mounted prints on being run through a hot burnisher for the first two or three times, become quite soft, and as the burnishing is continued the mounts become more solid and firm. In other words they are being dried. If this plan be pursued, and the mounts are once thoroughly dried, there will never be any further trouble owing to yellow spots from this cause.

Yellow spots can also come from leaving prints in damp blotters or stacking prints in blotters and leaving them there for some hours, but spots produced in this way are very often much smaller than those caused by moisture in the interior of the mount.

When wishing to dry C.C. prints before mounting, squeegee the water out, lay them out on clean dry blotters, place clean blotters over the face of them, and lay them out to dry. Never place two or more lots of blotters with prints between them on top of each other. The trouble generally comes from piling a number of blotters containing prints on top of each other. The effect of this is that any acids, bleaching chemicals, or hypo in the blotters are released and disseminated through the mass, affecting the prints lying in between. The same troubles will likewise happen to albumen prints, as any old worker knows full well. All blotters, after being used, should be hung up by clips on a line to dry before being stacked away for use again.

In reading the letter from "Othello," I must differ from him as to the difference in the climatic conditions in America and England, as in certain portions of America where C.C. paper is used and worked most successfully, i.e., in the New England States, and also in Oregon on the Pacific Coast, the amount of moisture in the air is fully as great as in England, and in the latter place on the Pacific Coast I am inclined to think it is greater, as all houses with wooden instead of tile roofs will have a very heavy coating of green moss on them within a year or two of being built, from the amount of moisture in the air. C.C. papers will work in any climate, but are more specially suited to a climate like England, with considerable dampness; but ordinary precautions must be taken to thoroughly dry out the moisture in the mounts. If "Othello" will use the hot burnisher, as suggested, he will be free from most of his troubles with yellow spots.

The experience of Mr. Bertram T. Hewson I quite agree with. If care and cleanliness are used in working C.C. papers they will be found to be all that the manufacturers claim for them, and with-

out any exceptions as permanent as any other process with paper as a base for the emulsion.

C.C. is an ideal paper for the professional photographer, and the photographer or printer who learns to work C.C. and gives as much thought and care to it as he would to any other process will find it will repay him for all his trouble in certainty of result and beautiful effects.—Yours respectfully,

H. MATTHEWS.

November 14, 1905.

TRUMPETING!

To the Editors.

Gentlemen,—I have read with great interest in your pages a paper read by Mr. J. Burgess before the London and Provincial Photographic Association, and I am astonished that there is a photographic worker living who has so much brass in his composition. Gold and silver are the metals most associated with photography—"speech is silvern, silence is golden." Brass is associated with the trumpet and trombone, and all three are visible in this paper. Those of us who are scribes will highly value the appreciation Mr. Burgess gives us in connection with the honours done Dr. Maddox. Were all the people who helped in that matter—fools? Did nobody know beside Mr. Burgess what he (Mr. Burgess) had done? He says men are gullible, and he says that, too, now, when he tries to upset honour done another man. It is clear nobody knew anything but one man, and he never spoke—presumably. Surely proof could have been forthcoming if the wrong man was being honoured. Editors do not, as a rule, tell the man-in-the-street that they got certain copy because they were wanting matter to fill a certain space. And Traill Taylor was not a garrulous man in that way. He was a human like the rest of us, and he was an honest man, too. The aspersion Mr. Burgess makes surely was unnecessary. Of course, it is easy enough to go on and on when the first step is made. And so bromide paper was not invented by the inventor, but by somebody else. This, of course, may be true, but people are so gullible, so Mr. Burgess says. What one regrets to see in this is the I, I, I, of it. "I am the trumpeter." Mr. Burgess is, so he says, the inventor of a "new process for producing all the colours of Nature, in proper gradation, by mechanical means." We do not wish to miss this, even if it is not a photographic process, but hand finished, as some say. There are a lot of sceptics in the world though we are such a gullible lot.

O!

MAKERS' FORMULÆ.

To the Editors.

Gentlemen,—Can you inform me if photographic formulæ for developers are generally apothecaries weight or avoirdupois? I have just written to Elliott and Sons, and they reply that their formulæ are avoirdupois; Marion and Co., on the contrary, reply that their formula for P.S. plates is apothecaries. I need hardly point out to you that here lies a stumbling-block to photographers. As a matter of fact, I have used apothecaries' weight for all my formulæ.

I suggest to you it is a matter that the BRITISH JOURNAL should take up, and either get uniformity or an announcement published by the various makers.—Yours faithfully,

C. P.

November 11, 1905.

[We are afraid there is no prevailing custom. Our own preference is for the use in formulæ only of ounces (avoirdupois) and grains (solid measure), and fluid ounces and minims (fluid measure). A number of leading makers are fairly consistent in adhering to some such system as this, which gives a formula incapable of two different readings. In preparing the forthcoming "Almanac" for the press we have sought to safeguard every formula from misinterpretation, but the vagaries of formula-makers makes the task one of no slight difficulty.—Eds., B.J.P.]

Answers to Correspondents.

- *^{*} All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *^{*} Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *^{*} Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- *^{*} For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

A. Laurens, 10, Pollet Street, Guernsey. Photograph of Group of the Duke of Connaught, Generals Campbell and Leslie, Captain Campbell, Mrs. Campbell, Miss Campbell, Mr. Campbell, and Major Murray.

J. Bowe, Union House, High Street, Plumstead, London. Photograph of the Rev. F. Cowen.

P. Peters, 1, Bland's Cliff, Scarborough. Photograph entitled "A Wave that Stopped the Tram, Scarborough."

J. Weir, 9, Elliot Street, Hillhead, Glasgow. Photograph entitled "Taking the Bains to Weir's."

Salter & Sons, The Studio, High Street, Broseley, Salop. Photograph, Iron Bridge, Salop.

FLASHLIGHT.—I have had several photos to take at night, and every photo I take there is a shadow showing at the side of face. I am using the Todd-Forret magnesium flash lamp, costing 12s. 6d. I should feel obliged if you could tell me how I can avoid the shadow. I put the lamp on the camera. Should the lamp be direct in front, or at sides, or does it require more than one lamp?—F. MALTHOUSE.

You use the lamp in the very worst position for good portraiture, and the shadows you complain of are caused by the figures being too near the background. Two lamps are better than one, but as you are using only one, place it seven or eight feet up and three or four feet to the right or left of camera. In addition to this use a reflector of white paper or calico for the shadow side of the face. Do not include this in the picture, and arrange the light so that its direct rays do not impinge on the surface of the lens.

HIGHLAND LADDIE.—The two developers are quite different, and you had better make the solutions as directed for the latter (pyro-soda). Failing this you should use the stock pyro solution given in the forthcoming "Almanac," and suitable for either amonia or soda.

COPYRIGHT IN PORTRAIT.—I invited a gentleman to sit for his photograph, which he did. I did not charge him, but gave him a few copies. 1. Is the copyright mine, although I did not mention anything to him about it being my copyright? 2. Is it necessary to get a written statement assigning copyright to me? 3. As I understand it, I could not publish his portrait without his permission. 4. Can he issue it without mine? I may say that I have not registered it yet.—ENFREW.

1. Yes. 2. You should do so. 3. His permission is not required. 4. No. You should register the photograph, as you would be able to obtain penalties for any infringement before registration. See the article on "Photographic Copyright" in the forthcoming "Almanac."

A. A. A.—We should advise you to write to a few of the leading makers.

REMOVING SILVER STAINS.—Will you kindly state procedure for removing silver stains from negatives? I have a negative which is a particularly bad case, it was being printed in glossy C.C. paper, but was unfortunately left out and got wet, the

paper in consequence sticking to the negative, and although the negative was varnished, and it was at once put into spirit for the removal of varnish with the hope of saving the negative, it is found that the surface of the printing paper seems to have eaten into or combined with the film of the negative, leaving absolutely opaque patches.—H. W. B.

If the varnish has been entirely removed and the negative is perfectly dry, rub the stained portions with pumice powder, and then place in a bath of strong hypo. If this fails to remove the markings, wash and dry the negative and place it for ten minutes in potass. iodide solution (20 gr. per oz.). Wash and transfer to potass. cyanide solution (30 gr. per oz.) rubbing with cotton wool. The last named solution is very poisonous.

REDUCING HIGH LIGHTS.—Will you tell me of a satisfactory way of reducing opacity of high lights, such as windows, etc., which could not have possibly been blocked out during exposure? I find by rubbing down the parts with spirits that it is very difficult to get it all the same density; some parts being rubbed slightly more than others. Also, that if by using pyro-soda and hydroquinone developers more than once (say using 6 oz. of developer for three 12 by 10s) is it detrimental to the last plate developed?—A. E. H.

1. The best plan for you to adopt is the bleaching and re-development method. Immerse the negative in chromic acid 30 grains, potassium bromide 60 grains, water 10 ounces, and allow it to remain until the image is thoroughly bleached. Wash thoroughly for ten minutes, and proceed to develop with any clean acting developer, well diluted. If, after a few seconds' application, the plate is examined from the back, it will be seen that the whole of the shadow detail has been blackened, and the half-tones and high lights only partially so. Continue the action until only the halated high lights remain white, then plunge the negative into a strong hypo solution, which will dissolve out the unacted-on silver bromide and leave every portion of the window of a printable density. Experiment on useless negatives first, as experience is needed to tell exactly when to stop development, which can be conducted by daylight. 2 The pyro-soda should not be used for more than one plate. Hydroquinone developer may be used several times until exhausted.

TINTING PRINTS.—Please publish in next issue a cheap and effective compound for tinting gelatine prints, allowing that nothing is sufficiently permanent to stand sunlight for many months, such as aniline for colour, borax for adulteration, and gum to bind—soluble in water—DAUBER.

If you will look through the advertisement pages of this journal you will find several reliable series of photo-tints advertised, which should meet your requirements.

PERPLEXED.—There is no fault to find with your toning bath, but we should certainly advise the addition of $\frac{1}{4}$ oz. of liquor ammonia, 880, or $\frac{1}{4}$ oz. of carbonate of soda to every pint of your fixing bath; for, as you do not wash your prints prior to toning, there is some possibility of some acid, which is always present in the emulsion, being carried into it, and you would thus have a possible cause of fading. Your washing, however, is needlessly long, and to this we should ascribe the whole of your trouble. Doubtless you have the B.J. for March 31, 1905, if so, read the note on "Short versus Long Washing." Refer also to our issue for July 28, p. 583, "The Fixing and Washing of Prints." This last article particularly should cause you to alter your method of washing. Your mountant is a little too fluid, and if not kept well corked would be a probable cause

of trouble, as it would be liable to turn acid and attack the image. With regard to your lens query. The new lens you mention certainly covers the plate much better at a larger aperture; in fact we may say that it would cover at full aperture. It has also a longer focus, which is an advantage for cabinet work. The new lens working at $f/6$ is absolutely the same rapidly as the portrait working at $f/6$.

LENS QUERY.—What is the best kind of lens to use for general portrait work in a studio 21 ft. long by 12 ft. broad? I have a cabinet portrait lens by Grubb, of Dublin, but the focus is only 6 $\frac{1}{2}$ in., and I have the impression that I might work with a better lens. Would you advise the use of two lenses—one of a longer focus for single figures, and a shorter focus lens for groups, and if so what kind of lenses? I may say that I find no great depth in the focus, but no doubt that is the case with most portrait lenses. The lens is a very old one, and perhaps a more up-to-date lens would be advisable.—PORTRAIT LENS.

The most useful instrument for portraiture is the portrait lens, because it is so much quicker than any other form. The one you have is, no doubt, a carte, and not a cabinet lens, its equivalent focus is but 6 $\frac{1}{2}$ in. No portrait lens of that focus can be expected to cover the cabinet size. A lens of about 11 in. focus will require from 16 to 17 ft. between sitter and camera, and that would be the most convenient to use in a studio 21 ft. long.

A CORRESPONDENT writes:—"I shall be glad if you can tell me the name of the maker of the 'Midnight Sun' New Improved Photographic Arc Lamp (Patent)."

We cannot say; but will hand any replies on to the inquirer.

AMERICA.—We cannot say. Better address an inquiry to one of our American contemporaries, the names and addresses of which you will find in the ALMANAC.

J. H. E.—1. Albumen or P.O.P. 2. It is the usual method. 3. Nothing; dyes, more or less permanent, are selected. 4. No, but you can get a pamphlet from Jonathan Fallowfield.

S. WALES.—Try Jonathan Fallowfield.

VICAR AND SEXTON.—Kindly tell me who is the rightful owner of the following copyrights. The vicar has made copyright a photograph of his church, and wishes to assign it to me for work done. The sexton tells me he gave orders for the photograph to be taken, and he did so for the purpose of selling copies for the benefit of the church. He paid the photographer out of the money raised. Is not the vicar the rightful owner? The man is a servant of his, and work done for the church is the vicar's property.

The copyright belongs to the one who paid the photographer for taking the picture. If the sexton did that as a speculation of his own the copyright belongs to him.

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EX CATHEDRA.

A Notable Demonstration at the RPS. Members of the Royal Photographic Society and their friends should look forward with interest to December 5, when Sir William Abney will give a practical demonstration of three-colour photography. It is certain that every one who was present when Sir William Abney exhibited a number of his results in three-colour at the New Gallery, will desire to attend the demonstration, at which Sir William will confine himself to practical ways and means. Not every scientific investigator of photography can claim any proficiency in practical photography, and anybody who may have thought that in Sir William Abney's case science outruns practice will be interested in witnessing his skill in that most delicate of processes—three-colour.

* * *

A Belated Suggestion. The handsome "Magazine of Fine Arts," which we received last week on the appearance of its first number, shows itself lamentably in the dark of what photography is doing. We find it advocating, apparently as something new, the systematic photography of objects of artistic and archaeological interest in the British Isles. "It is a little curious," it writes, "that the almost universal interest taken by present-day people in the artistic and archaeological remnants from past ages should not have suggested the advisability of some effort to provide future generations with things which would in the same way be interesting to them." And this after all the National Photographic Record Association has done!

* * *

Working Platinotype. It would be difficult to imagine more trying climatic conditions for working the platinotype process than those obtaining at the present time. The atmosphere is heavily charged with moisture, and negatives are cold enough to readily condense the moisture of a warmer air. One of the safest methods of daylight printing is to employ box-bottom printing frames with stout plate-glass fronts and rubber pads a size larger than the negatives in use, and to avoid opening the frames at all gauging the exposure to light by means of an actinometer. Of course it is only when these difficulties have been anticipated and provision made for this system of working that it can be employed when the exigencies of weather demand. In businesses where the amount of platinotype printing is considerable we think it would pay to fit up a single tube of the mercury-vapour lamp, arranging it vertically so as to hold the printing frames in a hexagonal stand around the tube. Quite a number of frames might be printed at the same time, and if the work were carried on in a dark room kept constantly warm and dry, uniformity of results is and increased output would soon repay the cost of the

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

The whole edition of 25,000 copies of the 1906 ALMANAC is now approaching completion, and its issue to the trade is a matter of a few days. As the orders already placed for the forthcoming volume show that the demand exceeds even that for previous years, the publishers request dealers and individuals who have not yet ordered to do so at once, otherwise they will most probably be disappointed in obtaining a copy. Purchasers of single copies are asked to deal through a bookseller or photographic depot.

The features of the ALMANAC are sufficiently well known, but attention may be specially directed to certain constituents of the forthcoming volume:—

1. *Contents*, serving as a guide to the pages, and showing at a glance in which portion a given item of information is to be sought.
2. *An Index* of nearly every individual fact, formula, and paragraph, serving to take the consultant to his subject at once.
3. *Photographic Copyright*. A popular exposition of the subject in its present-day applications.
4. *Epitome of Progress*, classified and codified. A review of the year's work in technical and scientific photography; in which everything on a given subject is assembled at one place in the volume.
5. *Contributed Articles* by leading writers.
6. *A Frontispiece*, in Barnet Platino-Matt bromide paper, of Miss Billie Burke.

The Tables, Formulæ, and other features of the volume have been revised and re-arranged, and, it is hoped, will meet with the approval of every one of the 25,000 prospective readers of the 1906 ALMANAC, which in mere size, the publishers must confess, is greater than any of its forty-four predecessors.

lamp and compensate for the expenditure on current. Where neither of the above suggestions is practicable, the method of adding a small proportion of potassium bichromate to the developing solution may be tried. It has given in our hands excellent results with negatives too soft in contrast and with slightly over-exposed prints, or prints which have absorbed a little moisture in printing. Thirty-five minims of a saturated solution of bichromate of potash are added to 10 ounces of the ordinary oxalate developing bath. The effect is not so much to lighten the print, for the shadows appear scarcely affected in depth, but to increase the contrast, lightening the half-tones and lighter tints and clearing up the whites. Muddiness is entirely removed. We have not been able to secure such marked results with sepia paper as with the black.

A Seasonable Precaution. The exceptionally cold weather for this time of year which we have had in most parts of the country during the last week has been sufficient to set the "weather-wise" predicting that we shall have a long and severe winter. Weather prophets for the past few years, when a spell of low temperature has set in towards the end of November, have predicted the same thing, but, alas! for the prophets, their predictions have not been fulfilled. It is several years now since we had what some are pleased to call "a good, old-fashioned winter." A season of that description is all very well in its way, but it is not altogether an unmixed blessing, more particularly when, as was the case with many a few years ago, it is accompanied by a frozen water supply that may last for weeks. Frozen pipes may usually be avoided if timely precautions are taken, and the trouble involved is so slight that even if it is found that they were not necessary the time can scarcely be considered as wasted.

Frozen Water Pipes.

Here are a few practical hints that may be useful. In the first instance the supply from the street main should be considered. If the pipe is laid deeply in the ground there is little likelihood of its becoming frozen, but it will be well to protect the main cock by stuffing the access to it with some old felt carpeting. Should it, however, be laid near the surface it may require some protection in the case of a hard frost, and a good one is some five or six inches of old stable manure well trodden down. All outside pipes should at once receive protection. At most ironmongers' a thick felt is sold specially for the purpose. Two or three thicknesses of this, wound round, or nailed over, the pipes afford good protection, felt being an excellent non-conductor of heat. Failing felt, some hay-bands, obtainable at the corn-chandler's, answer nearly as well. If the water is supplied to a cistern, the latter should be seen to. If out of doors it should be well covered up with old carpet or straw, or both. If indoors, it will, except in a few cases, require no consideration, the heat of the building being usually sufficient to prevent the water from freezing; but the pipes from it, if they go to outbuildings, may require protection, and the felt just mentioned is the best for the purpose. It is a good plan during a hard frost to empty the pipes every night, and this may be done without wasting the water in the cistern. The neatest way of doing it is to have a stop-cock just below the cistern, with an air-cock a little below that. Then, if the stop-cock be closed, and the air-cock opened, the pipes will be emptied when the lowest taps are turned on. An extemporary arrangement which will serve the same end may be made as follows:—Get a

a.

piece of iron tube, known as gas barrel, long enough to reach a few inches above the water when the cistern is full, and a little less in outside diameter than the inside of the outlet pipe. Wind the end round with rag and plug it into the outlet pipe. Then if the lower taps be opened air will enter the tube and the water will drain out of the pipes. The iron tube can be removed in the morning and the service restored.

Burst Pipes.

If perchance a pipe becomes frozen, it should without delay be examined throughout its length to see if it has burst anywhere. The burst will be seen by a bulge in the metal at that part, and, if one is discovered, the services of a plumber should be sought at once, for while a frost lasts they are at a discount whereas when a thaw sets in they are at a premium, and often only to be had after long delay and after much damage has been done by the flooding of the place. If a plumber is not to be had, the pipes may be temporarily repaired in the following simple way. First carefully pull the pipe, for some length, away from the wall, and with a bradawl chip out the ice. Then with a couple of hammers, using one as an anvil, close the fissure as closely as possible. Next take a piece of stout calico large enough to go two or three times round the pipe and spread on it a plaster of ordinary white lead mixed with dry red lead. Bind this tightly round the fracture and over it bind a few strands of strong wide tape, and, finally, bind round with string. A repair thus made, if carefully done, will last for many months even on a high pressure service. If the burst is not detected until the thaw, and the place is being flooded with water and the flow cannot be immediately stopped, the best procedure will be to batter up the pipe with a hammer a few inches from the break. This will entail a little extra work for the plumber, but it may prevent a great deal of damage being done to the premises.

Cold Weather and Stained Negatives.

Cold weather is often productive of silver stains on negatives, in a way unsuspected by many photographers. During dark weather, the printing frames are frequently exposed out of doors, when they become exceedingly cold. They are then brought into a warm room to change the prints, and moisture immediately condenses upon them, often palpably in the form of dew on the glass side of the negative. When the frame is opened moisture also condenses on the film, and, if that is not varnished, is absorbed by it. With the repetition of this changing several times during the day a considerable amount of moisture becomes absorbed by the gelatine, with the frequent result that the film gets stained by the free nitrate of silver in the paper, more especially if that also contains, as it usually does, some moisture from the air. In this way negatives frequently become silver stained without the cause being suspected. The remedy is to have the negatives varnished or, failing that, to slightly warm them before the fire, so as to eliminate the moisture before fresh paper is put upon them.

The Free Portrait Swindle.

The notorious Tanqueray, it appears, has an imitator—of course in Paris—who is sending circulars all over this country offering to make enlargements free of any charge from any photograph. A correspondent sends us three of these circulars received by a friend of his, who sent a photograph. In the first this man, or firm, for it is B. and Co., offers to make absolutely free and without any engagement whatever

on the part of the addressee, an *artistic portrait* life-size. Owing probably to the exposures of the Tanqueray system this firm adds, with the greatest impudence, the following to their offer:—"Perhaps you have already received similar propositions from other houses, but could not get the portrait free unless you agreed to buy a frame. Now we ask nothing of the kind. *You are at perfect liberty to purchase your frame wherever you like.*" A portrait is sent; then in due course comes a second communication saying the enlargement is finished, and that "it is a real masterpiece, and the resemblance is perfect." With it is an illustrated catalogue of frames suitable for this masterpiece, varying in price from one pound four shillings to two pounds eight shillings. This letter winds up with the request that if a frame is not required a postal order for eight shillings be sent to cover the forwarding expenses of "your magnificent portrait." Next comes a third letter reminding the sender of the portrait that the firm are still waiting for his instructions, and asking for the eight shillings to defray the forwarding expenses. The same old Tanqueray dodge. If the money is not sent, of course, the original is not returned.

Free Portrait Swindles In London. We suppose that so long as the British public can be gulled by being promised something for nothing, these Paris concerns will flourish. But these swindles are not confined to Paris alone; they are being practised here to a large extent. Last week a couple of young servant girls complained to the magistrate at the Westminster Police Court that their portraits had been obtained from them by a canvasser who promised to do enlargements of them gratuitously to advertise a new branch business to be opened in the locality. Proof enlargements were submitted, and extortionate demands made for frames, which had not before been mentioned. As the girls refused to have the frames, the return of the original portraits was refused, hence the application to the police court. The magistrate ordered the police to make inquiry into this class of business, and said that if the pictures were not promptly returned summonses would be issued. No doubt they have been returned long before this. Often the portrait sent for the free enlargement is of some departed relative, perhaps the only one in existence, and to get it back its owner is frequently coerced into paying an exorbitant sum for a frame. Or, as transpired at the police court, young girls are often frightened into making the payment. It is to be hoped that the police will be able to put a stop to this kind of business, in this country, if only for the credit of photography.

ARTIFICIAL LIGHT IN THE STUDIO.

SOME years ago we were looking over the premises of a provincial photographer, recently opened, elaborately fitted, and controlled by a man who thoroughly knew his business. There was an installation of electric light which we were told had cost a hundred pounds, and the photographer surmised it would be a hundred years before he got his money back. Since then our friend has probably changed his opinion, for artificial light is now regarded not as a luxury but as a necessity in all but the smallest of towns, and of all forms of lighting the electric light is the most practical. From the Cooper Hewitt mercury vapour lamp we expect great things in the future. In many respects it is the ideal illuminant, soft, steady, uniform, silent, and easy to install. Its one defect, the peculiar colour which flesh and other objects have under its rays, would appear to be comparatively easy of removal if it were attempted in a scientific way.

It is not our intention to speculate, however. We wish to point out some of the principal defects of work done by means of artificial light, and to suggest methods for their avoidance. It is almost universally admitted that good daylight is unsurpassed as an illuminant for portraiture, and if we can briefly ascertain what are the best characteristics of daylight and endeavour to modify our artificial light so as to imitate these characteristics we shall maintain a desirable uniformity in the output of work. In daylight work we have a comparatively large illuminating area, and the light entering, although termed a "direct light" so far as the sitter is concerned, is in a state of diffusion, being reflected by clouds, moisture, and dust particles in the air, and the countless objects within sight of the studio windows. This light, by means of opaque and translucent blinds, we control as to its quantity, quality, and direction. In the use of artificial light we have both a much less volume of light and a smaller illuminating area. The natural tendency, therefore, in using such an illuminant is to produce results with harsh contrasts, and not only are the actual contrasts too great for proper registration on the dry plate, but they are emphasised by close proximity, the result being lack of half-tone. In too many cases the unskilled use of reflectors to soften the heavy shadows only leads to cross-lighting with its falsification of the modelling and its frequent destruction of the true expression of the eyes. Starting with what is more or less a point of light, the maker of the lamp increases the illuminating area as much as possible, in some cases by the use of a reflecting surface behind the light and a small disc to cut off all direct rays, and in other cases by the reflecting surface and a diffusing medium instead of the opaque disc. It will be at once apparent that the illuminating area will be larger, relatively to the head, the nearer it is brought to the head, and this is one of the most important points in using any form of light mounted in a parabolic reflector. In parenthesis, we may suggest lighting all heads with the lamp at one or other of two distances, the nearer for soft lightings, and the other a little more distant for more vigorous work, and in order that exposures may be regulated with fair accuracy the two distances should always be adhered to, so that the light reaching the sitter is kept uniform.

Turning to the softening of contrasts and production of half-tones, we have two courses open to us. We may further diffuse the light, using a large diffusing screen of tracing linen or similar material, and so obtain a larger illuminating area, but a weaker light. This method will not increase the exposure, because the shadows will be no darker, and we should have had to expose for them previously. It will considerably lower the tone of the high-lights, and the light will play round into the shadows forming half-tones. One decided objection to this method lies in the lowering of the high-lights to such an extent that brilliance is often lost and the retoucher must be relied on to replace the tipped high-lights.

The alternative method consists in the greater use of reflected light. In daylight work the studio walls form reflecting screens, and owing to the considerable area of light-admitting space the reflected light is also of large area, and the shadows are prevented from becoming heavy and solid, while no distinct effect of cross-lighting is present. But with artificial light the walls, even if light in colour, are insufficient, first, because only a small part of them is illuminated, and, second, because as a rule they are so far away that the light reflected becomes very weak before it reaches the shadow side of the head. A reflecting screen of light grey and of large size is needed, so placed as to catch all the light from the

lamp which passes in front of the sitter and throws it back on to the portion of the head where shadow and light meet. In this way cross-lighting is avoided, the reflected light continuing the direct light and leaving some touches of shadow on that side of the head furthest from the principal light. By a careful use of a large reflecting screen

it is possible to raise the tone of the shadows, lessening the contrast, and thus the operator is enabled to shorten the exposure. The stronger light gives more force to the modelling and usually a better lighting of the hair which is an important matter in the case of ladies' portraits.

A RAPID AND CHEAP MIXED DEVELOPER.

SOME time ago I thought that a combination of pyrogallie acid and hydroquinone should produce a good non-staining developer, giving a much more non-actinic coloured image, than an ordinary hydroquinone formula, and at the same time quicker in action. I therefore tried a combination of the two developing agents, and the result proved my idea to be correct. And it produced a much more rapid developer than I anticipated—i.e., much more rapid than the usual hydroquinone and carbonate of soda, or carbonate of potash, developer, as the image began to appear in from forty to sixty seconds, and full detail and density were obtained in from ten to twenty minutes. I believe that a factor of from 10 to 16 would be suitable if Mr. Watkins's system of timing development is adopted; a factor of 10 to 12 for portrait and group negatives taken in the autumn and winter if intended for printing out on P.O.P.; and a factor of 14 to 16 for negatives taken in the spring and summer, will probably be suitable. As the colour of the image is very non-actinic, negatives will produce much better prints than their visual appearance would indicate, being very similar in tint to those developed with the pyro-ammonia developer when very little sulphite of soda is present in the developer.

Stock Solutions.

No. 1.—Distilled or boiled rain water	5 ounces.
Anhydrous sulphite of soda	2 drachms.
Citric acid	about 10 grains.
Pyrogallie acid (heavy crystals)...	30 to 60 grains.
Hydroquinone	60 grains.
No. 2.—Distilled or boiled rain water	20 ounces.
Anhydrous sulphite of soda	2 ounces.
Anhydrous carbonate of soda	2 ounces.
Bromide of potassium	20 to 40 grains.
Formalin (10 per cent. sol.)	20 to 40 minims.

NOTES.—Re No. 1 solution: If preferred 15 to 20 grains of metabisulphite of potash can be used as a preservative instead of sulphite of soda, and the citric acid; only enough of the latter to render the solution slightly acid to blue test paper is necessary. If too much contrast is produced owing to the colour of the image being too deep in tint, only use 30 or 40 grains of pyro, instead of 60 grains, in future, the proportion of the hydroquinone remaining the same as stated. Or the development factor can be reduced if desired instead.

Re No. 2. Solution. — No bromide of potassium or other restrainer will be required with some brands and speeds of plates or films, but, as a rule, except perhaps for very rapid exposures with the focal-plane shutter, I think that a little bromide of potassium in the developer is a decided advantage, as it tends to produce a non-actinic coloured image and prevents chemical fog. But in cases of over-exposure more bromide or other restrainer must be added to the developer.

No. 3.—Bromide of potassium (or chloride of sodium, or citric acid)	1 ounce.
Distilled water	to make 10 ounces.

The bromide of potassium tends to produce a yellowish coloured image, and the chloride of sodium and citric acid gives images grey or black in tint. The restraining power of the chloride of sodium is slightly greater than that of bromide,

and the restraining power of citric acid, citrate of soda, or citrate of potash, exceeds that of either bromide or chloride of sodium.

So when either of the restrainers mentioned are used instead of bromide of potassium, it may, and probably will be, necessary to carry the development a little farther than when the former is employed, owing to the image being less non-actinic in colour. The addition of a small quantity of formalin 10 per cent. solution to the No. 2 stock solution is to prevent the gelatine film from softening, melting, blistering, or frilling. It may also act as a slight accelerator to the developer, when sulphite of soda is the preservative used in No. 1 stock solution, but it will not act in this way if metabisulphite of potash is used instead. When the temperature of the dark room and of the developer is much higher than 70 deg. F., the presence of formalin in the developer is a necessity. When it is 70 deg. F., or below this temperature, it is advisable, and I recommend it, because the films can be washed safer, dry much quicker, and are less likely to be damaged by insects, while drying.

Developer.

Stock Solution, No. 1	1 to 4 drachms.
Stock Solution, No. 2	2 to 8 drachms.
Water	to make 4 ounces.

The No. 1 solution gives density, and the No. 2 solution produces detail, and increases the speed of the development.

The following I consider a normal developer:

Normal Developer.

Stock Solution, No. 1	2 drachms.
Stock Solution, No. 2	2 to 4 drachms.
Water	to make 4 ounces.

It is usually advisable to start the development with one or two drachms of No. 2 sol. (in case the plate or film should be over-exposed), and to add more of the latter if required. When the exposure is correct the image begins to appear in 40 to 60 seconds, and the detail and density are complete in from 10 to 20 minutes. As a rule I use as small a quantity of No. 2 sol. as possible, i.e., only enough being added to produce all the shadow detail required; the negative is then allowed to remain in the developer until it is dense enough. By working in this way excessive density is easily avoided, and the danger of fog, etc., is greatly reduced. Keep the dish covered, and in motion while development is proceeding, in order to avoid uneven development, stains, and fog. Well wash the negative before fixing or the film may be stained yellow, and the time taken to print lengthened more or less in consequence. Each 4 oz. of the developer will develop from two to four half-plates in succession, but it tends to stain the film a little, if not used up within about 24 hours, although it can be used about six days after mixing, and still produce good negatives; but I prefer to use the developer only once or twice in succession, as then the film will not be stained at all. The following fixing solution works well:—

Fixing Solution.

Water	20 ounces.
Hyposulphite of soda	4 ounces.
Dry chloride of sodium	4 ounces.

The later tends to harden the film. All valuable negatives should be fixed for at least 15 minutes in two fixing baths

similar to the above, well wash the negatives after each fixing. In the event of obtaining negatives that are over developed, or badly stained, refix in a good acid fixing bath, which will remove some of (if not all) the stain, and render the colour of the negative more actinic than it was before, which will shorten the time required for printing. A suitable acid fixing bath is Mr. Edwards's, viz. :—

Water	20 ounces.
Hyposulphite of soda	4 ounces.
Metabisulphite of soda	$\frac{1}{2}$ to 1 ounce.

If the most transparent parts of the film are tinted or stained too much, the sulphite of soda in No. 1 solution can be increased to 3 drachms, or more if required. But care must be

taken not to use too much sulphite of soda, or the non-actinic colour of the image will be converted into a more actinic one, such as grey or black, which will render a longer development necessary, in order to avoid flat negatives.

All valuable negatives must be protected from actinic light while they are being washed after development, also when fixing, and while being washed after fixing. They will then be in the best possible condition for intensifying (should that be necessary) successfully with silver, or by any other method desired.

J. T. HACKETT.

[Probably exception will be taken by some readers, as it is by ourselves, to some of the claims made by our contributor.—Eds. B.J.P.]

PHOTOGRAPHY THE SERVANT OF SCIENCE.

[The Eighth Traill Taylor Lecture, delivered at the New Gallery, Regent Street, Oct. 24, 1905, by Chapman Jones, F.C.S., F.I.C.]

MR. TRAILL TAYLOR was a man of wide and deep sympathy. I once called upon him at his editorial office without notice, to ask him for information, probably in connection with some historical detail, and although I quite forgot the subject of the inquiry and the result of it, I shall never forget the readiness with which he left the work he was engaged upon and consulted volume after volume from his book-shelves to find what I wanted. And I believe that those who knew him best will agree with me when I say that the cordial sympathy that so impressed me on that occasion was natural to him.

But although one may take a wide interest in a subject and its applications, probably every worker has a preference for one section of it, and if I understood Traill Taylor aright he had a distinct leaning towards the use of photography for definitely useful or scientific purposes, rather than picture making or snap-shooting by purely empirical methods, or the consideration of the theories of photographic processes. I think he appreciated the abstract science of photography and the mere empirical applications of it whether in artistic work or for simple amusement, not so much as the methods of its intelligent use as the recording art. I venture therefore this evening to treat of a few details of photographic procedure in something of the way that I think he would have preferred.

Serious Photography.

The kind of photography that I have in view is such as the engineer, the geologist, the student of architecture, the spectroscopist, the microscopist, and many others practise, or ought to practise, when they seek to secure as perfect representations as possible of things or phenomena. We must presume a certain amount of ability and a desire to perfect one's methods, rather than the careless attitude that is all too common even in scientific workers, many of whom seem to regard photography as nothing more than the following of the instructions on the packets of the sensitive materials employed. It is obviously impossible to deal with the whole subject at the present time, but I hope to treat of a few matters of fundamental importance, though I fear in all too superficial a manner.

Truthful Definition.

First with regard to the lens. During the last dozen years or so, innumerable methods have been proposed for getting at the properties and capabilities of lenses, but very few of these are suitable for the individual I have referred to. It is out of the question for him to purchase costly apparatus for the purpose, to set up elaborate arrangements, or to adopt any method that requires special skill or prolonged practice to obtain reliable results. He does not care to know why a lens will or will not serve his purpose, he has no wish to discriminate between the various aberrations, but he does want to know what a lens

will do, and sometimes wherein and to what extent one lens differs from another in its performance. The matters that concern him immediately are: (1) truth of outline in the image; (2) covering power, or extent of the image; (3) fineness of definition; (4) depth of definition; (5) absence of false images and lights. According to circumstances one or more of these may be of no importance; for geological and architectural work, for example, fineness of definition is negligible, for any lens intended for serious work will define sufficiently well.

A Test for Distortion.

Concerning truth of outline, that is, the absence of distortion in the image. This is commonly tested for by seeing if a straight line in the object is straight in the image, a test suggested by the most obvious result of the error, and which has also given rise to the name of "rectilinear" for lenses that are free or comparatively free from it. This method is troublesome in practice, for lines that are supposed to be straight are often much otherwise, and those that might serve are not always in convenient positions. Moreover, at best, curvilinear distortion is only a secondary effect, and its reason is not always understood, for I have known even an optical expert to think that a diagonal line was a better test than one parallel to the side of the plate, because it was longer. The error is due to a variation of scale along any radius drawn from the centre of the lens field, and this variation can be measured directly by photographing an equally divided line, or lath, or scale, so placed that its image crosses the centre of the field, and then examining the resulting image for equality of the spacings in the photograph. This method has not only the advantage that it deals with the error itself in a fundamental way, but it gives the definite magnitude of the error and shows at once how much of the field is free from it, in one experiment, neither of which the straight line test can do. It needs no special apparatus, and I think that it is more easy to carry out than the other.

The elimination of distortion in even the best of lenses is only comparatively successful. I can give a definite idea of its amount from some results of Dr. Kæmpfer's. A collinear of focal length 15 cm. and aperture $f/6.3$ at inclinations from 10 deg. to 37 deg. from the axis, gave deviations from a little over one-tenth to practically a whole mm. Such a lens is not useful for the most accurate photogrammetrical or astronomical work. To avoid these errors a special collinear was calculated in this instance, and this gave deviations from less than one-hundredth up to about a tenth of a mm. at similar angles. That is, the maximum displacement of the image within the angle stated was reduced from about the twenty-fifth of an inch to the two-hundredth of an inch. But it is still at least

four times as great as the defining or separating power of some good lenses as estimated by their performance on gelatine plates.

The Covering Power of Lenses.

The second property of the lens is its covering power, but this is so intimately connected with the work to be done, that is, the degree of perfection of definition required, that each worker will very probably prefer his own method of determining it. For general rather than specific purposes there is no better test object than a flat wall to which are attached designs of the kind now so well known. But if it is desired to determine the actual defining power of the lens, that is, its power to render minute detail, then a different method is to be preferred. I have found convenient three groups of three or four black lines, the lines and spaces being, in each group respectively a quarter, a half, and one mm. in breadth, the lines being drawn with Indian ink on white cardboard. There are also three holes, a half, one, and one and a half mm. in diameter respectively, opening into a comparatively large box lined with black velvet. There are five of these groups of lines and holes arranged in steps, so that the distance from the lens to each is 30 mm. less than to the next more distant one. The middle one is focussed on, but the others are necessary, as it is impossible to be sure that the object focussed on will be the sharpest when the exposed plate is developed. The want of flatness of the best plates is enough to make this precaution necessary. In making the test, the arrangement is generally just twenty times the focal length of the lens away, so that the images of the holes are from one to three-fortieths of a mm. (or one- to three-thousandths of an inch) in diameter, and the lines in the image are one-eighth, one-fortieth, and one-twentieth of a mm. (or the two-thousandth, one-thousandth, and the five-hundredth of an inch) in width. The arrangement described allows for a total difference between the image plane and the plate of one-seventh of a mm. (a little more than the two-hundredth of an inch) on each side of the plane, almost irrespective of the focal length of the lens.

Depth of Definition.

For the last half-generation or so we have been told in season and out of season, and with remarkable emphasis, that depth of definition depends absolutely and only on focal length and aperture, and that the old idea to the contrary was altogether wrong. I venture to say that while the old idea was confused, curvature of field taking part in it in an uncertain way, the new notion is in error, being an attempt to force theoretical conditions that can never be realised into the position of practical facts. In the middle of the field depth of definition does depend almost entirely upon focal length and aperture, though even here spherical aberration is not without effect, but a photograph is not made for the sake of a little patch in the middle of it. The characteristic necessity in a photographic lens is the power to define over a large field, and it is chiefly a practical recognition of this fact that has led to so much improvement in lenses during late years. At an angle of, say, 30 deg. from the axis the depth of definition may be almost at its maximum, as in the original double anastigmat of Goerz, while in the same part of the field another lens may show no depth at all. To suggest that the depth of definition is equal in two such cases as many would have us believe, is to my mind absurd. The measurement of the "focal volume," that is, the area of a diametrical section cut through the solid figure that would fill the whole space within which the defining power of the lens does not fall below the adopted standard, is a useful method of comparison, but better still is the diagrammatic representation of this section. Of course the practical depth of definition depends upon the standard of defining power adopted, and this will vary according to various needs.

A Test for Ghost Images.

All lenses give false light, that is, they transmit light that takes no part in the formation of the image, and I think I may say that this light is never evenly distributed over the plate. This must be borne in mind in measuring the densities of a negative for the purpose of finding the proportional luminosities of the object. But occasionally this false light is concentrated and gives, under trying circumstances, obvious "ghosts." I have seen the white shirt-front in a man's portrait repeated in the space above his head so obviously that the portrait was, even commercially, useless. Such a lens might give gross errors of density. A useful way of discovering such "ghosts" is to focus a bright flame, keep the focussing screen and eyes well protected from light, and slowly move the chief image of the flame a little away from the centre of the screen while looking on the other side of the centre for a false image. The lens should also be racked in and out to make any false image more conspicuous by focussing it, and as the primary image is brought into sharp definition any ghost that may be observed should enlarge, by being thrown out of focus, until it covers the whole, or nearly the whole, plate, and so become invisible.

If these points are looked to, or such of them as may be regarded essential, one will get a very good idea of the comparative advantages of lenses from a purely practical point of view. I have said nothing about working to focus. I have met with some lenses other than very cheap ones that failed in this respect, but such failure is doubtless exceptional. Moreover, this matter is very uncertain now that the colour sensitiveness of plates varies and coloured screens are so commonly used. With regard to lenses that are worth being called lenses at all from the point of view that we have assumed, the character of the colour correction is a special matter that must be examined if necessary by special means according to the work that is to be done. With some even excellent lenses it is necessary to focus with the coloured screen in position, as by inserting the screen afterwards the definition is very much degraded.

Cameras, Ancient and Modern.

As to cameras there is little to say, but that little is of first importance. The function of the camera is to hold the lens and the sensitive surface in a definite relationship to each other—the lens axis should be perpendicular to the sensitive surface and cut it at its centre unless shifted from this position for a definite reason. Comparatively few modern cameras do this. They hold the lens and the plate, but the relationship between the two is often an unknown quantity, and I do not know of any ready means of determining it. The old type of fixed front camera with a single base-board supported by a wing such as Meagher made, erred less in this matter than the modern instrument with a small folding front and telescopic base-board. And it is doubly unfortunate that the deterioration of cameras in this respect is almost contemporaneous with the improvements in lenses, for the finer the lens the more carefully must it be mounted to take full advantage of its quality.

I suppose that there will be few, if any, objections taken to what I have said so far, but this I am afraid will not be the case with what remains to be said. Whether this is so or not, I propose to continue to give the results of my own observations and investigations. My advice must be accepted for what it is worth—I act upon it myself.

The Speed of Plates

We have had lately a great deal of hair-splitting about the sensitiveness of plates. Taking the general sensitiveness, I doubt if there is one case in a hundred—if one in a thousand—where an increase of less than 50 per cent. is noteworthy. For example, the cases where a plate marked 300 Hurter and Driffield would be appreciably better than one marked 200 Hurter and Driffield solely on account of its greater sensitive-

ness as so measured, must be very rare. Such an increase may be of great use to the maker, as it may show the way to get another 50 per cent. rise, and a doubled general sensitiveness is of value to the photographer, though not always so much as he fancies it is. And, after all, what is general sensitiveness? It conveys about as much information regarding a plate as a statement of the number of books it contains does with regard to a library, and of what help would it be to a literary man to tell him that this library contains fifty thousand and that other seventy thousand volumes? I have a great regard for Dr. Hurter and Mr. Driffeld, and recognise the importance of the work they did, but I think it was very unfortunate that the bulk of it had for its aim the getting of an exact method of estimating general sensitiveness, a thing which in the nature of things is impossible.

The comparative uselessness or insufficiency of estimations of general sensitiveness is not a mere matter of theory. I have found "ordinary" plates more sensitive to red than plates boasting of red sensitiveness, and slow isochromatic plates more sensitive to green than isochromatic plates "specially rapid," "snap-shot," or whatever else may happen to indicate great sensitiveness.

But of course under *definite conditions* every plate has a definite sensitiveness, though not practically definite to so minute a degree as many seem to imagine. If the ordinary numerals are taken to indicate a sensitiveness scale, it is convenient if each alternate figure indicates a double sensitiveness. The old scale of Warnerke, in which each third figure indicated a double sensitiveness, was often for practical purposes inclined to be too minutely divided, still it seems not impossible that a scale in which every fourth figure means a doubled sensitiveness might be useful on special occasions, but this appears to be about the limit of the useful, if not indeed the possible, division of the scale.

The consideration of sensitiveness scales has a direct application in scientific work. In many cases a single exposure is quite insufficient for the getting of a satisfactory record, especially perhaps in spectrum work, often in photomicrography, as well as in other cases. I believe that not infrequently a great deal is lost because of the too prevalent idea among scientific workers that in photographing any given view of an object one photograph ought to suffice, and that to show several would amount to a profession of incompetency. This is quite erroneous, and I would here emphasise very strongly the desirability of making a series of photographs in all cases where the range of luminosities is great, that each part in turn may be rendered under the best conditions. But even if a single photograph can show every detail, and show it well, it is often impossible for the most skilful to judge as to what the best exposure will be, and the temptation is great to accept the first negative obtained if it seems good enough. Whenever it is necessary to make a series of photographs in order either to properly show the object or to select the best representation of it, I find as a rule that each exposure is advantageously double the next shorter. Less than this gives a difference rarely worth having, though for sensitometric purposes it is desirable to go a stage further and halve, or perhaps in some cases quarter, such degrees of exposure, as I have already stated.

Tests of Colour-sensitiveness.

The only perfect estimation of sensitiveness would be expressed as a spectrum curve, but for practical purposes it is not only sufficient but preferable to divide the spectrum into definite parts and estimate the sensitiveness to each. The division into two parts, as Dr. Eder has done, is not sufficient, as it ignores the differences between sensitiveness to red and green. The division into four parts, as in my plate-tester, is

I think, the most suitable for present-day requirements, that is, (1) all the light that ordinary plates are notably affected by, (2) green, or the added sensitiveness of the common type of isochromatic plates, (3) red, and (4) the red less refrangible than C. The sensitiveness of plates cannot be expressed by a single figure or single ratio except in a very incomplete and often useless way. As to the methods of estimating sensitiveness to various colours, I will only say that, for the practical worker, the refinements that some go to, even if possible, would be of no use. The simultaneous exposure through the four coloured screens and a neutral scale, the latter serving to indicate the value of the results obtained through the coloured screens, is not only simple and rapid, but gives results that, I believe, are quite sufficient for all practical work. If I wanted more perfect results I should still use the same method, but seek to perfect the compound screen that is now well known as the essential part of the "plate-tester." Much more might be said on this subject and plate-testing in general, but as I am now referring to only the most important matters in connection with the photographic work of scientific investigators, and indeed only to those of the most important matters that are too often misunderstood or neglected, I will pass on to the making of negatives.

The only function of the negative is to graduate the light that passes through it. Therefore a twofold truth must be aimed at in its preparation, namely, truth of outline and truth of opacity.* To this, for practical purposes, must be added unchangeableness, for what is the use of a record that is true to-day and false to-morrow? Truth of outline I have already discussed, and it will be convenient to consider the permanency of the negative next, for it may be taken as axiomatic that a want of permanency is a want of truth.

Development of the Plate.

A permanent negative must be a clean negative. Such a negative as, developed and fixed, should, as I have said before, consist of nothing but pure silver in clean gelatine. The firmly rooted and extensive aversion to purity in this matter would be curious if we could not account for it. It is claimed for unclean negatives that they have a delightful appearance and that they give better prints. With the first we have little to do, and the second I am prepared to admit if we regard the word "better" in the sense in which it is used. But should we judge of the value of documentary evidence by the fineness of the writing in which it is set forth? Should we say it is nicely written, therefore it is true? Should we in this matter prefer an ornamental lie to a plain truth? If not, why should we in photography? A photograph is a record, and the first desideratum in a record is truth, and to this everything should be subservient. An unclean negative gives a better print because the image is strengthened with the refuse matter resulting from the deterioration of the developer when the silver image is too feeble alone. This is the case either when the plates are so poorly coated that there is not enough silver to give a good image, or, if there is plenty of silver in the plate, when either the exposure or the development has been too short. It will surely be admitted that the best way to meet an error is to eliminate it, and that it is not best to seek to neutralise it with a second error. I have been asked why it should be considered a fault to have such a compound image. The answer is—Because the staining matter that results from the oxidised developer is uncertain in every way. Its deposition is accidental and its amount is uncontrollable; being soluble in the liquids used in the treatment of the plate, it will not be deposited proportionately to the silver; being coloured, its effect will vary with different lights and the varying sensitiveness of different printing materials, and its colour is liable to change and the plate can hardly be put into plain water or any solution without affecting it. Therefore it is difficult to conceive a

* I prefer to speak of opacity rather than transparency, because in a negative the transparency pre-exists and it is the opacity that is produced by the photographer.

worse material for the purpose of getting an image. To avoid it, use sufficient sulphite in the developer and fix after a mere rinse in hypo that contains both sulphite and alkali. The coloured matter is soluble in alkalis, but rendered insoluble, though lighter in colour, by acids; therefore avoid acid baths of all kinds, whether fixing baths or clearing baths, for the object should be to prevent its deposition and to maintain such conditions as will remove the little that may perhaps be deposited rather than to merely make it less visible.

I have very little to say about development. Many take a great deal of trouble about it and gain nothing thereby. For very much of the work that we are now considering, a single solution may be prepared that will keep in perfect condition for a year or so, and only need dilution for use. For myself I use metol and store it in four-ounce bottles with india-rubber stoppers. I am convinced that the simple time-method, that

is, allowing the plate to remain in the developing solution for a fixed predetermined time, modified a little when the temperature varies much, would often be found more advantageous than the anxiously careful method that we are all so familiar with. This will especially apply to work that involves the making of a considerable series of negatives under similar conditions. Of course variations in the image can be made by varying the development, but very few make them, even, I believe, of those who think they do. It is quite certain that absurdly extravagant ideas used to be held by some who ought to have known better, as to the character and extent of the possibilities of control in development, and the tendency to fly to the opposite extreme is the natural reaction.

CHAPMAN JONES.

[The remainder of the lecture will appear next week.—Eds. B.J.P.]

THE WEEK IN HISTORY.

Egloffstein's Half-tone Screen.

THE history of photography and photographic emulsion making, despite all its obscurities, is as crystal in comparison with our knowledge of the early efforts in photo-mechanical processes. Niepce and Talbot we know all about, it is true, but we plunge into profound gloom when we try to worm out the story of the modern half-tone process, and particularly of the half-tone screen. The early experimenters kept their results jealously guarded, but I believe Mr. Bolas and other students will bear me out in the assertion that the first published matter to describe the half-tone screen is Egloffstein's patent of 1865 (No. 3,053). It is entitled "Obtaining Printing Surfaces by Photography," and is curiously worded to refer to "the use of a heliographic and photographic spectrum," which "may

be composed of a single sheet of highly polished level ground glass plate, free from colours, and covered with a good asphaltum etching ground, heated and smoked over a wax paper in the manner of the engravers' black etching ground. The plate when cooled off is ruled over by the diamond or other point of a correct ruling machine, using light pressure to prevent the chipping-off of the ground and the flaking or breaking of the glass. . . . The plate prepared to receive the engraving is coated first with a sensitive heliographic varnish. Upon this varnish the spectral image is produced by the light falling through the open spaces of the spectrum. The spectrum is thus imprinted upon the varnish previous to its receiving the photographic image by means of a second exposure to the light. Both images are thus blended into one, the spectrum giving the texture to the photographic image." HISTORICUS.

DIFFRACTION GRATING REPLICAS.*

IN the early part of 1901 the writer entered upon a series of experiments having for their object the duplication of the plane grating, with the idea of producing a method which would yield definitely reliable results under conditions which might be easily satisfied. As these experiments have continued at intervals since then up to the present time, and have resulted in the manufacture of replica gratings of high grade, which are being widely used, it seems advantageous that a description of the method employed in their manufacture should be placed on record for the guidance of those interested.

The publication of these details has been purposely delayed in order that sufficient time should elapse to preclude the possibility of deterioration; and also that opportunity might be afforded for the collection of data relative to their behaviour. As both of those points have been answered in a satisfactory manner, there is therefore no further reason for delay.

The superior suitability of a transparent grating for a very considerable amount of work is, of course, evident, while the ease and certainty of production renders it possible that gratings need not be (as at present) excluded from high schools and kindred institutions on account of their cost. Apparatus may be constructed, or experiments undertaken, which would not be deemed advisable if one had to risk an original grating, while the duplication of gratings giving abnormal spectra is rendered not only possible, but easy.

It seems unnecessary that we should here enter upon a résumé of the various endeavours which have been made by earlier workers

in this direction, beginning with Strutt in 1872 and continued by him as Lord Rayleigh in 1896 and down to the present time. However, there is one name which should not be lightly passed by in this consideration, for Thorp, of Manchester, England, was the first worker to produce a really presentable grating-duplicate of considerable efficiency, and there is certainly owing to this worker from the scientific world a decided debt of gratitude.

The Ives Replica.

Mention may also be made of still another effort which is subsequent to that of the author. Mr. F. E. Ives, of New York, after receiving a few replicas from the writer became interested in the subject, and himself undertook the problem of making a successful replica. After a series of experiments, he succeeded in producing a cast which differed only in respect to its method of mounting. Owing to the fact that application has been made for patent,† complete details of the process are not available, but it is sufficient to state that claim is made for a replica in "a harder and less elastic material than celluloid," and with a similar contraction coefficient. This is pressed face down in contact with a piece of selected plate glass, and then covered by and cemented to another similar plate with a cement whose refractive index is the same as that of the cast. The writer was honoured by the receipt of one of these "new process replicas" upon their introduction about the beginning of the present year. When tested upon the spectrometer, it gave very good results—comparable with those manufactured by the method about

* We now reprint the full text of the paper referred to by Mr. Robert James Wallace in the note on "Orthochromatic Plates for Astronomical Work," published in our issue of October 27. The paper first appeared in the "Astrophysical Journal," and we are indebted to Mr. Wallace for a reprint of it from that publication.—Eds. B.J.P.

† Since publication of above the writer learns that no application for patent was made by Mr. Ives. The misstatement arises from the fact that the author was so informed by Mr. Ives's sales agent in Chicago.—R. J. W.

be described. Unfortunately, these casts do not seem to be permanent, as the cementing medium appears to be a solvent of the film, so that now diffraction colours are only to be seen in isolated patches.

Casts by Thorp's Method.

Thorp's method* consisted in flowing the original grating with a thin film of high-grade oil, upon which was poured celluloid in solution. When dry, this was peeled from the previously oiled surface and mounted face up on a plate of glass by means of a solution of gelatine and glycerine; the film being lowered gently and gradually into contact.

In all of the Thorp grating casts a very large number of air-bubbles are evident between the grating film and the glass support, the presence of which serves to scatter the light and impair the brilliancy and definition of the spectrum. In the method of mounting employed by the writer these air-bubbles are entirely eliminated, the replicas presenting a clean and brilliant appearance.

When in 1901 the matter of casting from the Rowlands' grating was begun, the method employed was that indicated by Thorp, viz., celluloid. A solution was made of gun cotton in amyl acetate, and then camphor was added in sufficient quantity both with and without the addition of alcohol. Innumerable difficulties were encountered, which, when suppressed or surmounted, simply gave place to others; and although considerable experimental work was performed, it but served to show the unreliability of this solution. These difficulties lay mostly in the direction of uneven shrinkage and opalescence of the film; while gratings of quality sufficiently good to define well in the spectroscopes constituted only about 20 per cent of the entire number.

A Modified Method.

In 1902 the results of further experiment led to the discontinuance of the preliminary coating with oil, and the exclusion of camphor in the solution. This change (together with an alteration in the method of stripping and mounting) resulted in much greater success in the production of replicas of a high grade, giving also a decidedly more brilliant film. This solution (which has since been in use without change) is composed of—

Amyl acetate, pure (Mallinckrodt)	64 ccs. (2½ oz.)
Anthony's snowy cotton	2.5 grammes (38 grains)

The cotton should be added to the amyl acetate in small quantities at a time, and well shaken until dissolved, after which it is allowed to stand during twenty-four hours. At the end of that time the resultant collodion is precipitated by being poured in a very thin stream into a large tray filled with water. The collodion should be poured from a height of at least three or four feet, and the water meanwhile should be constantly stirred with a glass rod. The precipitation does not immediately occur, the collodion collecting in an oily scum upon the surface of the water, which must be stirred from time to time during the course of the ensuing twenty-four hours.

When precipitation is complete, it will present the appearance of white or very light grey flocculent masses, which float upon the surface of the water, and are collected upon a clean filter paper and set aside to dry.

When thoroughly dry, it is again dissolved in the following proportions:—

Amyl-acetate, pure (Mallinckrodt)	64 ccs. (2½ oz.)
Precipitated cotton	2.5 grammes (38 grains)

and the collodion carefully filtered through paper—a process which may be advantageously hastened by the use of an aspirator or other form of air-pump.

The writer has prepared and used this collodion both with and without precipitation, but preference is given to the former as pro-

ducing a film which is not only more brilliant, but has a much more even and regular shrinkage in the stripping.

Making and Drying the Cast.

The grating to be duplicated is first carefully levelled in a roomy drying-cabinet, and, after dusting with a soft camel-hair brush, the necessary amount of solution is flowed over the face. The exact quantity lies within wide limits; too small an amount produces a film so thin that one has difficulty in handling it, while too much gives a film which dries with a more or less matt surface. By using always the same container one may drop the necessary quantity, and then, by inclining the grating, cause it to flow over the surface. From the container used by the writer twenty-five drops is the average amount for a two-inch grating.

It seems hardly needful to indicate that this flowing of the grating should be performed in an atmosphere as free from air currents as possible, thus minimising the danger of dust particles settling upon the surface during the operation. The grating is then placed upon the levelled support in the drying-cabinet, and the door carefully closed.

The drying is rather slow, a two-inch grating taking about eight to twelve hours, but it cannot be advantageously hurried. In the opinion of the writer, the slower the drying the better the result, as the solution gets time to fill perfectly the minute grooves made by the cutting diamond. It is a notable fact that casts made from collodions of different composition, and drying quicker, did in no case give results which were at all comparable with those which had been obtained by the slower method. It has also been noted that this film may be advantageously left in contact with the original for a considerable length of time, up to about three or four days, as it is much more easily handled in the process of stripping and mounting.

Mounting.

After an extended trial of various mounting mediums, which need not be enumerated, preference was given to a very thin layer of plain hard gelatine (with which the glass is previously coated and dried on a levelling-slab). The mounting is performed in the following manner:—

The gelatine-coated glass and the thoroughly dry grating are placed (face up) in a tray containing filtered distilled water at normal temperature, and the tray covered over with a clean glass. After a few minutes the extreme edges of the ruling will begin to show shadow bands caused by the contraction of the film, and thus pulling the lines "out of step." When this is observed the grating should be removed from the water, and any adhering globules shaken from its face; then, by a gentle pressure of the thumb nail at the edge of the clear portion of the polished circle, the film will be caused to spring apart from the original. This loosened portion is then grasped by the blades of a pair of wide "cover-glass" forceps, and with an even, slow motion raised from the original in a direction parallel to the length of the ruled line. Immediately the film is free it is laid face up upon the gelatine-coated plate (which is removed from the water for that purpose) in the same manner as in lowering a cover-glass upon a microscope slide; the plate is tilted to drain it of superfluous water, and the edge of the replica is clamped in contact, by means of a wide spring "letter clip" with notched edges. A piece of the softest velvet rubber, with a carefully cut edge, is now drawn very lightly and evenly over the replica in the same direction as in stripping, viz., parallel to the line length, and the plate set aside to dry.

This entire operation of stripping and mounting is very rapidly performed, and, although the description may appear lengthy in the recital, it can only be laid to the fault of the author.

It has also been found advantageous to "ring" the replica with

* Patented in England.

the casting solution after it has dried, and thus prevent the separation of the replica under extreme hygrometric conditions.

After-Shrinkage.

The contraction of the film during the process of mounting alters the number of lines to the inch, but such shrinkage is very small and is easily controlled within limits; viz., length of drying time. In those manufactured by the writer, which have a drying time of twenty-four hours, this contraction has been determined by careful measurement of over thirty replicas, with the following result:—

Width of original ruling, 28.867 mm.	} Mean of 10 settings each,
Width of replica ruling, 28.691 mm.	

which gives a difference of 0.176 mm. on the entire width of ruled surface.

The total number of lines on the original is 16,397; hence $568 = 1.0$ mm. On the replica the total number of lines divided by the width gives the new constant, viz., 572 nearly, or an increase of about six lines to each one thousand.

This contraction of the replica and the consequent increase in the number of lines to the mm. result in a greater dispersion of the spectrum. In a photograph of the region between λ 3933 and λ 4308 with the original ruling, the separation of the lines K and G was found to be 27.68 mm., as against 28.12 mm. on the negative taken through the replica.

Some Precautions.

The quality of the glass upon which the replica is mounted has much to do with its efficient performance in the spectroscope. It is not essential that one uses worked flats, but it is necessary that the surfaces be of fairly good quality; the glass in use by the writer is "white optical crown" which has been reground and polished, and which may be graded by preliminary observation in a spectroscope.

Not every sample of gun cotton will give an equally good film, for, under apparently identical conditions of manufacture, the results vary. This is undoubtedly due to the "personal equation" in the process of mounting, and for this reason they are tested and graded. Those of "second quality" are useful for projection purposes, and also in the chemical laboratory for the flame test of K, Na, etc.

Not every sample of gun cotton will give an equally good film, and from many varieties tested by the writer the brand before specified was with much care selected as the best—not only on account of the smoothness of the resultant film, but principally because it was found to be entirely free from any trace of acid. It will, of course, be evident that if this were not the case, it would only be a question of the number of casts made which would determine the life of the original grating.

Thorp's Test for the Quality of the Replicas.

If a replica grating be superposed face down upon the original ruling, and observed at an angle which equals that formed by the incident light, a series of more or less symmetrical shadow bands will be noted, which run approximately parallel with the ruling, and

LECTURE on "Copying" at the R.P.S.—In reference to our report of Mr. F. W. Brookman's lecture on "Copying," given in our issue for November 10, that gentleman has now written us amplifying our notice and correcting a slight inaccuracy. He says:—"The trend of experimental research in connection with the bathing of ordinary plates for colour sensitiveness has, of late, been more in the direction of their selective qualities for tri-colour work, and I am greatly indebted to Mr. A. J. Newton, of the L.C.C. School of Photo-Engraving, for his kindness in bathing a box of plates for me in pinachrome and pinacyanol. The latter dye, a sample of which he quite recently received from Prof. König, is admirably suited as a sensitiser for the blue printer, owing to its extreme sensitiveness to

are caused by interference on account of the slight difference in the line spacing. If the replica were absolutely perfect, the band would be straight, but in general they are slightly curved, such curvature forming (at the grating edge) an arc of a circle of radius approximately 1.5 metres. In but few cases have they come closer to a straight line than this, which may be considered as a fair average. The counting of these shadow bands was the method used by Thorp in determining the actual number of lines per inch in his casts—their number corresponding to the increase by contraction.

Absorption and Special Mounting.

On examination of these films in a quartz spectrograph, to determine their power of transmission for ultra-violet light, it was found that the absorption was practically nil up to λ 2613, and with slightly longer exposure they would transmit up to λ 2314. As glass practically stops everything beyond λ 3400, it has been suggested by Professor R. W. Wood (to whose kindness the writer is indebted for this examination) that they be mounted upon selected thin sheets of mica, which are even more transparent to light of shorter wave-length.

For special apparatus these casts may be readily mounted in a variety of ways suitable to the end in view, while for direct vision they may be mounted upon 30 deg. prisms of light crown. This method is very suitable in the construction of small spectroscopes, micro-spectroscopes, etc., and largely eliminates the possibility of poor definition due to multiple reflection from the faces of the glass plate when not accurately parallel.

The Effect on the Original Grating.

In conclusion, it may be remarked that the process appears to be absolutely devoid of any evil effect upon the original grating; in fact, the opposite is strictly the case, for concerning a one-inch grating owned by the writer, from which upwards of one thousand replicas have been taken, the surface appears to be as brilliant as when newly ruled. In cases where gratings have been in use in class instruction for a number of years, and consequently present a very bad appearance, being dull, surface-scratched, and greasy, the making of a number of successive casts restores in a great degree the original brilliancy. The explanation is obvious: the "dirt" on the grating is imbedded in the film while fluid, and, "setting" therein, is removed with the cast. A series of such casts from a dirty grating presents a good object-lesson as to the efficiency of this method of cleaning, being much superior to the means usually employed, viz., alcohol, ether, ammonia, etc. The replicas themselves are sufficiently tough to bear careful washing, their elasticity allowing them to be rubbed with cotton without injury.

Methods are now under consideration for giving a suitable reflecting surface to these casts, so that they may be produced either in the form of transmission or reflection gratings. Numerous experiments have also been tried in an attempt to duplicate the concave grating, but these, up to the present writing, have not given a sufficient measure of success to warrant their being recorded here.

ROBERT JAMES WALLACE.

red. I have made some quick tests for this lecture with and without a light yellow filter, with which latter the exposure was increased three times. Ilford H.T. plates were used for these experiments."

NORTH LONDON PHOTOGRAPHIC SOCIETY.—This society has been formed owing to the success of the recent photographic exhibition held at Highbury Vale. After the exhibition numerous letters were received by the secretary asking whether a photographic society could be formed in the neighbourhood; a meeting was called, and about forty attended. All North London photographers are invited to join, and may obtain a copy of the rules and any other information required from Mr. Charles Roberts, hon. sec. (pro tem.), 33, Riversdale Road, London, N.

THE "ZIGO" COMPETITION

For a paper which has been on the market only for the short space of some six months, the "Zigo" competition, organised by Messrs. Thomas Illingworth and Co., Limited, must be quite a record. An entry of seven thousand prints is something to boast of, but a still more praiseworthy feature of the competition is the very great variety of tones obtained on this simplest of self-toning papers. It appears the makers have been too modest in their claims for "Zigo." At any rate, they are giving the public an opportunity of judging for themselves of what the paper is capable by holding an exhibition of successful and other prints at Anderson's Hotel, Fleet Street, from Monday, December 5 to the 8th inclusive. The exhibition will be open from 11 a.m. to 9 p.m., and visitors will also have an opportunity of witnessing demonstrations of the process. The following is the list of prize-winners:—

Class A.—First prize (£5), M. E. Lomax, 87, Albion Street, Burnley; second prize (£2 10s.), John Webster, c/o Messrs. H. and C. Grayson, Limited, 179, Regent Road, Liverpool; third prize (£1), George Dunn, 8, Winney Street, Moston, Manchester; reserve, H. MacLennan, 339, Great Western Road, Aberdeen, N.B.

Class B. First prize (£5), G. Drury, Delmonte, Torquay; second prize (£2 10s.), J. V. Sublick, 17, Myddelton Square, E.C.; third prize (£1), F. G. Price, Aberbeeg, Monmouth; reserve, W. G. Llewellyn, 22, East Hill, Wandsworth, S.W.

Class C.—The following competitors have each been awarded a prize of £1:—J. Witcombe, 85, Holly Road, Maidstone; F. J. Taylor, 58, Stanley Road, Halifax; J. Clark, 34, Tennyson Avenue, Bridlington; W. B. Lamb, 39, Premier Street, Manchester; F. A. Forbes, 136, Clifton Park Avenue, Belfast; reserve, W. B. Westlake, 75, Chelverton Road, Putney, S.W.

Exhibitions.

SOUTHAMPTON.

The fifth annual exhibition of the Southampton Camera Club was opened on Tuesday last at the Philharmonic Hall, Southampton. The exhibition is again this year a great success, and reflects credit on the work of the energetic hon. secretary, Mr. S. G. Kimber, and the members of the club. No less than 553 entries are on view, including sixty-seven sets of lantern slides. The three southern societies (Southampton, Hove, and Southsea) have always been known for the strength of the lantern-slide entries, and this year is no exception. The open classes are extremely well supported, and include work by some of the best-known amateur photographers. The bulk of the work in these classes is being transferred *en bloc* to the Hove Exhibition and thence to Southsea, in competition for the special award offered jointly by the three societies. The judges at Southampton were Messrs. Frederick H. Evans and A. Horsley Hinton, and their awards were as follows:—

Open Classes.—Class A (any subject).—Plaque, "Surf," J. C. Warburg; plaque "A Dusty Day," Arthur Marshall, A.R.I.B.A.; plaque, "The River Thames from Tower Bridge," J. H. Anderson; plaque, "The Appeal," E. B. Vignoles and P. S. Greig, R.E.; plaque, "Sunset," W. A. I. Hensler; plaque, "Shoeing," H. W. Lane; plaque, "Strife," F. J. Mortimer; plaque, "Finishing the Plaque," C. B. Howdill, A.R.I.B.A.; plaque, "Tugging Home," W. Clayden; plaque, "The Life History of a Splash," A. C. Banfield; hon. mention, "Grey Morn," J. C. Batkin; hon. mention, "Staffordshire," E. B. Wain; hon. mention "The Last Leaves of Autumn," Dan Dunlop; hon. mention, "In the Evening Light," Rev. H. R. Campion; hon. mention, "Onora," Miss Marian Silverston; hon. mention, "Beyond," D. J. Scott; hon. mention, "Rue Damiette, Rouen," G. Bankart.

Lantern Slides.—Class B (any subject).—Plaque, "Gorse and Pines," W. A. I. Hensler; plaque, "The Summit," H. Wild; plaque, "Spring Sunshine," H. P. C. Harpur; plaque, "The Bend of the River," W. Mitchell; hon. mention, "Tintern Abbey," H. B. Smith; hon. mention, "Hops," E. Seymour; hon. mention, "In York Minster," E. R. Bull; hon. mention, "Queen Anne Half-Crown," Dr. T. H. Morton.

Postcards.—Plaque, "The Crypt Stairs," Rev. E. T. Clark; bronze medal, "White Currants," Robert Burnie.

Members' Classes.—Class C (Landscape, River Scenery, and Marine).—Plaque, "The Tree that Grew by Itself," W. R. Kay; plaque, "A November Morning," S. G. Kimber; hon. mention, "Grey November," H. Essex.

Class D (Portraiture and Figure Studies).—Plaque, "A Portrait of an Artist," W. R. Kay; hon. mention, "In the Library," George Vials.

Class E (Architecture).—Plaque, "Until the Day Breaks," S. G. Kimber; plaque, "Over the old Cathedral the Golden Sunbeams Fall," T. M. Weaver; plaque, "In Old Valais," W. R. Kay; hon. mention, "The Stairway, Christchurch," C. C. Cook; hon. mention, "The Sun's Bright Ray from Day to Day Falls on their Hallowed Resting Place," A. E. Henley; hon. mention, "Lead Kindly Light," S. G. Kimber.

Class F (Flowers, Animal, and Natural History Studies).—Plaque, "Whitehearts," A. E. Henley; plaque, "Miscellaneous Birds," C. M. Cooper; hon. mention, "Clematis," A. E. Henley; hon. mention, "Double Daffodils," A. E. Henley.

Class G (Lantern Slides, any subject).—Plaque, "Across the Valley," W. R. Kay; bronze medal, "Until the Day Breaks," S. G. Kimber; hon. mention, "Ambleside Mill," H. W. Miles.

Class H (Members who have never won an exhibition award).—Bronze medal, "The Baptistery, St. Marks, Venice," Dr. A. E. Bodington; bronze medal, "The Common," E. E. Rye; bronze medal, "Evening, Portsmouth Harbour," R. Robinson.

Gold Plaque for Best Average Exhibits.—S. G. Kimber.

Silver Medal, presented by the Editor of the "Amateur Photographer" for the best picture in the Members' Classes.—"Whitehearts," A. E. Henley.

Silver Medal, presented by the Editor of the "Photographic News," for the best set of slides in the Members' Classes.—"Waterfalls," H. W. Miles.

A good programme of evening entertainments has been arranged for the week, and yesterday evening (Thursday) the Mayor of Southampton (Henry Cawte) distributed the awards, which take the form of specially designed plaques. To-night an illustrated lecture on "Nelson's Battles" will be given by F. G. Ryder; and to-morrow evening illustrated lectures on "Antient Southampton," by G. T. Vivian, and "A Holiday in Switzerland," by W. R. Kay, will be given.

PLYMOUTH.

THOUGH there are a number of photographic societies in Devon and Cornwall, there are by no means so many exhibitions as might be supposed or expected. Plymouth is the commercial centre of the two western counties, and an admirable place for an exhibition intended to draw together the photographic workers of the district and those further afield. The present exhibition is the third of the series, and the entries show a satisfactory increase over those of previous years, reaching to nearly three hundred and fifty. But as some included several prints on a mount the actual number was in excess of this. No exhibition in the district has ever had so many classes provided for workers, and it is a moot point where the advantage comes in, except that it increases the opportunity of secur

ing awards. The judges have been liberal in their encouragement of merit. The adjudications were made by Mr. H. Snowden Ward, F.R.P.S., and Mr. H. S. Hill, M.J.I., a past-president of the Plymouth Photographic Society. The awards are as follows:—

Specials.—Gold Medal (Class K, No. 30), E. J. Jarvis. Photogram Plaque (Class C, No. 8), G. Bird. Best in Class D and E (Class D, No. 14), W. Clayden.

Class A (Architecture).—1 (26), S. G. Kimber, Highfield Southampton; 2 and 3 (12 and 13), W. A. Clark, Moseley, Birmingham; diploma of merit (8), E. G. Turney, 15, Leigham Terrace, Plymouth; diploma of merit (10), T. Bartlett, Perry Street, Aulaby Road, Hull; diploma of merit (16), H. Wormleighton, 8, Ashley Road, Leicester.

Class B (Animal Life).—1 (1), W. O. E. Mead-King, Courtfield, Hayn Hill, Maidenhead; 2 (9), W. Clayden, Millbay, Plymouth; 3 (22), A. Haynes, London Road, Alderly Edge; diploma (10), A. Durin, Wootton-under-Edge, Gloucester; diploma (15), F. Sloman, Sidwell Street, Exeter.

Class C (Child Life, and Children at Play).—1 (37), E. W. Hearn, 9, Sea View Avenue, Plymouth; 2 (6), W. Clayden, 8, Bounds Place, Plymouth; 3 (8), Graystone Bird, 38, Milsom Street, Bath, and (20), J. H. Wilson Collets, Wormingford, Colchester; special diplomas (18, 19), F. E. Weeks, 16, Lockyer Street, Plymouth; diploma (9), Graystone Bird, Bath; diploma (29), V. Thornton Paul, Morrab Studio, Penzance; diploma (21), A. W. Walburn, Upper Park Road, West Hartlepool; diploma (11), A. Debenham, 28, Union Street, Ryde, I.W.; diploma (15), Stanley Sowten, 1, Whitefield Terrace, Plymouth.

Class D (Devon and Cornwall Scenery).—1 (14), W. Clayden, Plymouth; 2 (20), E. Lees, Engelberg, Ilfracombe; 3 (31), E. J. Jarvis, 94, Treville Street, Plymouth; diploma (4), Fred Johnson, 24, Athenæum Street, Plymouth.

Class E (Landscapes).—1 (22), F. Judge, White Rock, Hastings; 2 (15), W. A. Clark, Moseley, Birmingham; 3 (25), J. Herbert, 52, Thornton Street, W. Hartlepool; diploma (24), M. Harding, 161, Union Street, Plymouth; diploma (2), Frederick Johnson, Plymouth.

Class F (Character and Costume Studies).—1 (8), W. H. Foxall, Grosvenor Avenue, Tunstall; 2 (11), J. Smith, 45, High Street, Hastings; 3 (6), W. Clayden, Plymouth; diploma (7), A. E. Coleman, 14, St. George's Terrace, Stonehouse; diploma (9), A. Debenham, 28, Union Street, Ryde, I.W.

Class G (Humorous Pictures). 1 (6), F. Sloman, Exeter; 2 (7), E. J. Jarvis, Plymouth

Class H (Streets and Street Scenes).—1 (11), A. W. Walburn, West Hartlepool; 2 (3), A. Brand, 42, Frankfort Street, Plymouth; 3 (13), V. T. Paull, Penzance; diploma (9), G. A. Towers, 120, Cambridge Street, Rugby; diploma (10), J. A. Wilson, Colchester.

Class K (Seas, Seashore Life, or Seascapes).—1 (30), E. J. Jarvis, Plymouth; 2 (27), V. F. Paul, Penzance; 3 (9), W. Clayden, Plymouth; diploma (26), T. H. Rolstone, 4, Market Place, Plymouth; diploma (31), A. F. Jewers, 41, Torrington Place, Plymouth.

Class L (Types of Beauty).—1 (8), H. T. Jessop, 15, Rolle Street, Exmouth; 2 (1), W. O. E. Meade-King, Maidenhead; 3 (10), F. A. Swaine, 6, Grove Road, S., Southsea; diploma (3), H. Morris, Queen Street, Newton Abbot.

Class M ("At Work")—1 (9), A. E. Colman, Stonehouse; 2 (11), H. W. Willcombe, Holland Road, Maidstone; 3 (4), A. Brand, Plymouth; diploma (10), A. E. Coleman, Stonehouse; diploma (7), W. Clayden, Plymouth.

Class O (Postcards, four on one mount).—1 (24), F. Judge, Hastings; 2 (15), F. W. Becken, Cowes, I.W.; 3 (12), T. C. Beynon, "Cheriton," Newbury, Berks; diploma (21), J. H. Saunders, 67,

Green Road, Leeds; diploma (13), T. C. Beynon, Newbury, Berks; diploma (5), E. T. Clark, The Vicarage, Newnham-on-Severn.

Class R (Miscellaneous, for Juniors under Eighteen).—1 (3), C. A. W. Duffield, School House, Maidstone; 2 (13), Jack Perrin, 6, Westfield Place, Halifax; 3 (2), C. A. W. Duffield; diploma (7), E. Jarvis, Plymouth; diploma (8), H. Hill, 12, Queen's Gate, Stoke, Devonport.

Class S (Miscellaneous).—1 (10), E. Seymour, 2, The Parade, Watford, Herts; 2 (4), C. J. King, Scilly Isles, Cornwall; 3 (16), E. W. Hearn, Plymouth.

BURNLEY CAMERA CLUB.

THE sixth annual exhibition of this club was opened at the Assembly Hall, Mechanics' Institute, Burnley, on Thursday, November 16, by the Mayor of Burnley (Councillor H. Emmott). Over 500 exhibits were on view, and the judges, Messrs. W. R. Bland and Alex Keighley, made the following awards:—

Open Classes.—Plaque, "Repose," J. C. Batkin; plaque, "A Stormy Home-coming," Arthur Smith; plaque, "Their Ever-moving Home," David Murray; (hon. mention) "Downland," J. S. Atherton; plaque, "The Outcast," G. R. Henderson; plaque, "Portrait Study," P. G. Terras; (hon. mention) "Robinson Crusoe," T. Lee Syms; plaque, "Until the Day Breaks," S. G. Kimber; (hon. mention) "The fire is out," etc., John Ritchie; plaque, Fred Judge; (hon. mention) Dr. J. W. Ellis; (hon. mention) Dr. George H. Rodman.

Local (12 Miles Radius).—Plaque, "Amid the Encircling Gloom," F. Pinder; plaque, "Old Houses, Norwich," Dr. E. R. Ivatts; (hon. mention) "The Moorland Church," J. S. Atherton; plaque, "Portrait of F. J. Grant, Esq.," F. Pinder; plaque, "A Reverie," C. I. Faunthorpe; (hon. mention) "A Normandy Dame," A. A. Bellingham; plaque, "Old Archway, Norwich," Dr. E. R. Ivatts; plaque, "Norman Aisle, Ely," J. P. Howe; (hon. mention) "Hawk-head," A. Plunkett; plaque, J. J. Hartley; plaque, A. A. Bellingham; (hon. mention) J. Emmott.

Members' Classes.—Plaque, "Lengthening Shadows," Dr. Crump; plaque, "The Langdales," Dr. Crump; plaque, "The Shadr Pathway," J. R. Richardson; (hon. mention) "The Open Door," W. E. Dean; plaque, "Figure Study," H. Rushton; plaque, "Evening Mists," A. Stell; (hon. mention) "Gleams of Sunshine," J. R. Richardson; plaque, A. A. Bellingham; (hon. mention) P. Brotherton; (hon. mention) W. E. Dean.

A feature of the exhibition was a loan collection of the works of Mr. Alex Keighley.

THE "Business Man's Magazine" (monthly, 6d., from Thanet House, 231 and 232, Strand, London, W.C.) has its vocation written in its title, and takes a big view of its duties. In fact, we would like to see it descend from schemes which only Napoleons of industry would care to undertake, and dwell upon the endless petty problems of the small business man. There must be an immense field for a periodical wholly on these lines. Two co-related items in the contents of the "Business Man's Magazine" we must not omit to note. There is an article on the proper method of typewriting, and a series of articles classed as "Tabloid Systems." But the coined word appears without italics, and probably the editor has by this time seen a good specimen of a typewritten letter—one from Messrs. Burroughs, Wellcome.

THE Hastings and St. Leonards Photographic Society has issued a useful "Members' Handbook" for 1905-6. Full particulars concerning the Society are given, and other matters of interest to the members. The hon. sec. is H. Walter Llanstephen, Fearon Road, Hastings.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for patents were made between November 6 and 11.

COLOUR PHOTOGRAPHY.—No. 22,725. Process of producing coloured photographs. August Zimmermann, 24, Southampton Buildings, Chancery Lane, London, for the Chemische Fabrik auf Actien vorm E. Schering, Germany.

MATERIALS.—No. 22,735. Improvements in photographic pictures, in the process of making them, and in the plates therefor. George Nicolas Piper, 47, Lincoln's Inn Fields, London.

APPARATUS.—No. 22,868. Improvements in photographic apparatus. Walter William Fiddes, 49, Cranbrook Road, Redland, Bristol.

LANTERN-SLIDE PRINTING-FRAME.—No. 22,898. Improvements in lantern-slide printing-frames. George Russell Nicholls, 48, Crescent Road, South Norwood, London.

PRINTS.—No. 23,109. Improvements in the production of photographic and other prints. Josef Rieder, 7, Southampton Buildings, Chancery Lane, London.

FILM AND PLATE HOLDERS.—No. 23,226. Improvements in photographic plate and film holders. Pietro Torrani, 7, Southampton Buildings, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

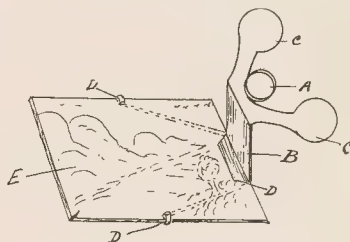
FOCUSING ATTACHMENT.—No. 24,183, 1904. The patent is for a system of focussing up to the moment of exposure, utilising for this purpose the camera lens, which is brought in front of a focusing screen and returned to its position in front of the plate at the instant of exposure. Automatic capping of the plate while the lens is used on the finder is provided. A. J. Boulton, for Albin Perlich, 3, Tischimier Strasse, Dresden, Germany.

REFLECTOR CAMERA.—No. 25,496, 1904. The chief claim is for a reflex camera, of which the shutter works by a double action, (1) covering the lens, which remains closed until the mirror is raised clear of it, and then (2) exposing, by opening and closing the lens aperture. These movements are effected by a single movement of the simple release. Houghtons, Ltd., 88-89, High Holborn, London, E.C., and Walter Dockree, 80, Clarendon Road, Hoe Street, Walthamstow, Essex.

DIAPHRAGMATIC SHUTTER.—No. 2,874, 1905. The patent is for a lens shutter, which is operated for time exposures by a pinion and lever gear concentrically arranged about the lens, in such a manner that the shutter blades are moved after the expiration of a previously determined time of exposure, by means of a toothed ring moving with a given speed and provided with stops for releasing the lever gear. Further, if desired, the turning of the toothed ring in the opposite direction may be caused to regulate the speed of instantaneous exposures. A. J. Boulton, for Alfred Lippert, 35, Herbel Strasse, Dresden, Germany.

PLATE HOLDER.—No. 5,198, 1905. The patent is for a plate holder, consisting of a wire handle made in such a way as to form a spring in the centre of two loops which are adapted to receive the thumb and finger. The wire and plate connecting the two bars are at right angles to the handle, and are secured together in such a way as to form a hinge. The drawing together of the loops causes the bars or arms, extending outwards from the hinge, to expand, while releasing them causes the arms to grip the inserted plate, by reason of the spring, and the recesses on the ends of the

arms. To prevent the plate from moving in the opposite direction a lip is provided upon the bottom edge of the hinge plate, or



a recess formed in the two bars at this point. William Taylor, 13, Brunswick Square, Camberwell, London, S.E.

MASKS FOR COMBINATION PRINTING.—No. 12,310, 1905. The invention consists in connecting the usual mask and the screen to form, as it were, a pocket into which the sensitised paper is inserted or slid, this pocket being open at two sides, or only at one, a

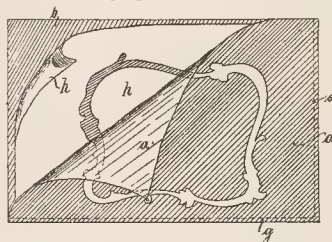


Fig. 1.

desired. One form—viz., with the pocket open on two sides is shown in the drawings, Fig. 1 showing the pocket with the mask bent over in a forward direction, and Fig. 2 the same with the screen in front. The mask *a* is secured, for instance, by adhesive to the screen *b* at the edges *d* and *g*, whereby the pocket is produced as mentioned above. When using the device, the sensitised paper, postcard or the like *h* is placed in the pocket with the sensitive side directed towards the mask *a* (Figure 1), and printed

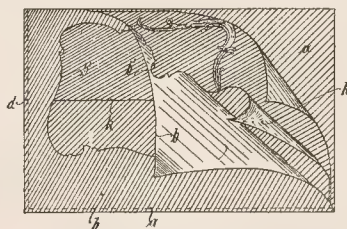


Fig. 2.

by exposure, whereupon the paper (*h*) is turned through 180 deg. and so placed in the pocket that the surface left free by the mask is brought behind the aperture *b* of the screen *b* and the photographic negative *k* placed between the paper *h* and the screen *b* (Figure 2). As the already exposed part is covered by the screen *b*, at the second exposure the photographic picture is printed into the frame previously printed by the mask. Richard Hoh and William Hahne, 6, Reichstrasse, Leipsic.

PRINTS ON METAL.—No. 14,410, 1905. The patent is for a process of applying pictures to a metal support and fusing with the latter, into one mass. The inventors use the powder process for preparing the print. The powdering of the picture is effected with pure white silver in a pulverized state by means of a brush,

whereupon the glass plate on the side carrying the sensitized layer is covered with collodion of 2 per cent. When the collodion layer has dried, the picture-film with the collodion layer is cut to the desired size. The removal of the film from the glass plate is effected in a bath of 300 grammes distilled water with 10 grammes ammonia. The loosened film is then placed in a bath of distilled water and carefully spread by means of a brush over the metal plate or article to be ornamented. After drying, the plate is heated over a gas flame or in a furnace until the collodion layer is removed and the photographic picture is completely united with the metal article. Emil Jabulowsky and Armand Bourguin, 5, Emilienstrasse, Pforzheim, Germany.

EXPOSING PLATES AND FILMS.—No. 15,958, 1905. The patent describes a number of modifications in the inventor's dark slide, and envelopes for the exposure of plates or films. The light drawings are necessary for the proper understanding of the specification. George Wishart, High Bush Hill, Cambuslang, Lanark.

The following complete Specifications are open to public inspection before acceptance under the Patents Act, 1901.

ROLLING-UP FILMS.—No. 22,104, 1905. Societe Anonyme "Periphote and Photorama."

CAMERA ATTACHMENTS.—No. 22,590, 1905. Attachments for photographic cameras. Wladimiroff.

CATALOGUES AND TRADE NOTICES.

CHRISTMAS Greeting Postcards.—The Birmingham Photographic Co., Ltd., Criterion Works, Stechford, Birmingham, send us samples of the new series of full-size postcards, printed on the address side with a variety of attractive designs suitable to the Christmas season. The cards are made up in 6d. packets of twelve P.O.P., nine bromide or nine Celerio (gaslight), and are also sold in grosses and thousands.

A NUMBER of circulars describing and illustrating new introductions reach us from the firm of Carl Zeiss, 29, Margaret Street, London W. They relate to "Tele Adapters for Hand Cameras," "Yellow Screens," The Zeiss "Pack-Slide," and the "Universal Palms."

A NEW Nernst lamp has been designed by Mr. R. W. Paul, 68, 1 to 300 candle-power, according to the voltage. The price of the end to end, takes a current of one ampere, and gives a light of from lamp, complete with support and combined plug and resistance holder, is 18s.

"KLITO" AND "BRITON" DAYLIGHT ENLARGERS.—Both these enlarging cameras are made by Houghtons Ltd., and they are not only cheap, but appear to be excellently made. They are of fixed focus, and a lens, dark slide, and capping device are included. Both enlargers are made of wood throughout, and the "Briton," which is the cheaper of the two, is a well-made piece of apparatus, selling at 7s. 6d. for enlarging from quarter-plate or smaller, to whole plate, or 13s. 6d. from quarter-plate to 12 by 10. The "Klito" can be taken to pieces for packing and carrying, etc., which will be found a great convenience when travelling. It is slightly more expensive than the "Briton," but is well worth the money.

THE North Middlesex Photographic Society is holding its seventeenth annual exhibition of members' work from Thursday next, November 30, to Friday, December 1, at Hanley Hall, Sparsholt Road, Crouch Hill, N. The exhibition opens at 7 p.m. on the Thursday and Friday, and at 3 p.m. on Saturday. Residents in the north of London might seize the opportunity of making themselves acquainted with the numerous advantages offered by the North Middlesex for its subscription of 5s.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
21.....	Royal Photographic Soc.	House Exhibition by the Postal Camera Club. Inauguration by Mr. J. C. Warburg.
21.....	Colne Camera Club.....	Visit of Nelson Photographic Society.
21.....	Aberdeen Amat. Photo. Assn.....	"Enlarging." Demonstrated. Messrs. Borthwick and Anderson.
24.....	Nelson Photographic Society ..	Visit to Colne Camera Club.
24.....	Hampstead Scientific Society ..	"Development for Beginners." Demonstrated. Mr. H. N. Smart.
24.....	Watford Photographic Society ..	"Principles of Composition" (affiliation lecture). Mr. W. E. Tindall, R.B.A.
24.....	L.C.C. Staff Camera Club	"Stand Development." Discussion.
24.....	Barrow Naturalists' Field Club.	"The System of the Stars" (Clusters and Nebulae). Illustrated. Rev. T. E. R. Phillips.
25.....	Southampton Camera Club	The Annual Exhibition closes.
25.....	Glasgow Eastern A.P.A.	Annual Exhibition Open.
25.....	Sunderland Camera Club	Exhibition of Members' Work.
27.....	Hastings and St Leonards P.S.S.	"Palestine." Mr. J. J. Butler.
27.....	Wildes Photographic Society.....	"Holidays in the Highlands." Mr. E. MacDonald.
27.....	Barrow Naturalists' Field Club ..	"A Trip to Portugal." Mr. H. Rehl.
27.....	Scarborough and Dis. Ph. Soc. ..	Lecture. Mr. T. F. Brogden.
27.....	Dewsbury Photo. Society	Demonstration. Mr. J. E. Chadwick.
27.....	Luton Camera Club	"Practical X Ray Photography." Demonstrated. Dr. F. Seymour Lloyd.
27.....	Wandsworth Camera Club	"Rotograph Bromide and Roto Gaslight Papers, &c. Demonstrated.
27.....	Wallasey Amat. Photo. Soc	"Treatment of Negatives." Mr. W. Hayes.
27.....	Oxford Camera Club	"Bichromate as an Intensifier and Reducer." Mr. H. M. J. Underhill.
27.....		"A New Method of avoiding Contrasts in Negatives." Mr. G. W. Norton.
23.....	Royal Photographic Soc.	"Spectrum Grating Replicas." Mr. Robert James Wallace.
24.....	Worthing Camera Club.....	Lantern Slide Demonstration. Mr. N. L. Watts.
28.....	Manchester Amat. Photo. Soc.	Discussion on a "One Man" Show of Pictures, the work of Mr. T. Longworth Cooper.
28.....	Darlington Camera Club	"A Trip to Flower Photography." Mr. G. J. Bartholpe.
28.....	Glasgow Southern Photo. Assn.	Selection of Slides for Paisley.
28.....	Gateshead Camera Club	"Slow Contact Printing." Messrs. Wellington and Ward.
28.....	Hackney Photographic Society ..	Members' Sale.
28.....	Bristol Photographic Club	Notes on Re-Touching and "Faking."
28.....	Nelson Photo. Society	Mr. J. S. Guthrie.
28.....	Barrow Naturalists' Field Club ..	"Some Beauty Spots in England." Mr. H. Beetham.
28.....	Osley & Dis. Cam. & Art Soc.	Photography Prize Slides Exhibition.
28.....	Birmingham Photo. Society ..	V.P.C. Members' Portfolio Exhibition.
28.....		Amateur Photographer Prize Slides, 1905.
28.....	Thornton Heath Photo. Soc. ..	"Mud Island and its Flats." Illustrated. By one of them.
28.....	St. Helens Camera Club	Focus Prize Slides.
28.....	Coventry Photo. Club	"Fantotype."
29.....	G.H.R. Mechanics Institution...	Focus. "Stories without Words."
29.....	Leicester & Leicestershire P. Soc.	"Gaslight Papers." Beginners' Lecture. Mr. W. B. Woodland.
29.....	Society of Arts.....	"The British Association in South Africa." Sir William H. Preese.
29.....		K.C.B., F.R.S.
29.....	Leeds Camera Club.....	"Velox and its New Applications." Demonstrated. J. J. Griffin & Sons.
29.....	Edmonton and Dis. Photo. Soc.	"Rotograph Bromide" and "Rotox." Demonstrated.
29.....	Croydon Camera Club.....	Discussion on the Exhibition. Prize-winners will be invited to give explanation of their Methods of Working.
29.....	Tricklewood Photo. Society ..	"Tabloid" Brand Photographic Chemicals. Demonstrated. Messrs. Burroughs Wellcome & Co.
30.....	Liverpool Amateur Ph. Assn.....	"Over Mountain, Lake, and Lagoon." Mr. James Shaw.
30.....	Herragote Camera Club	Members' Night.
30.....	Balham Camera Club	"Gaslight Printing." Mr. G. W. Beninson.
30.....	Hull Photographic Society	"Negative Making." Demonstrated. Mr. J. Hollingworth.
30.....	Glasgow Southern Photo. Assn.	Annual Visit to the Photographic Section of the Paisley Polytechnic Institution: Joint Display of Slides, etc.
30.....	Wimbledon and Dis. Cam. Club ..	Slides in the "Summer Rambles." Lecturette Competition to be judged.
30.....	Pudsey and District Photo. Soc.	"Velox and its new Applications." Demonstrated. Mr. W. Sadler.
30.....	North Middlesex Photo. Soc.	Annual Exhibition.
30.....	Darwen Photo. Association.....	Photography Prize Slides.

MEETINGS OF SOCIETIES FOR NEXT WEEK (Continued).

Nov.	Name of Society.	Subject.
20.	Rodley, Farsley, & Calverley Dis.	"Printing-out Paper." Mr. Gascoigne.
21.	Richmond Camera Club.	"Orthochromatic Photography." Demonstrated. Messrs. Elliott & Sons.
22.	London and Prov. Photo. Assn.	Discussion on Stereoscopy. Mr. D. W. Hart.

CRIPPLEGATE PHOTOGRAPHIC SOCIETY.—On November 13 Bertram C. Wickison gave a practical demonstration of enlarged negative making before the members of this society. After pointing out the importance of having the original negative carefully spotted and all possible blemishes removed, and being sure that the picture would be improved by enlarging, the lecturer went on to impress his listeners with the necessity of the positive being a good one, as on that depended entirely the character of the enlarged negative. It should be fully exposed, soft, and full of detail in the deepest shadows. Mr. Wickison discussed the various methods of making the positives, the carbon positive on glass being grainless and in every way desirable; but pointed out that for these negatives carbon was impracticable, owing to the flatness and want of sufficient contrast the process gave. Against enlarged positives little could be said; cost was the great drawback to their general use. For combination printing he strongly advised that a good P.O.P. print be made from the desired negative, and this copied without toning or fixing in the usual manner, or with a large camera to the actual size desired. He advised the use of a fine-grain, ordinary plates using as a developer for the positive:—

Rodinal, 25 min.

10 per cent. solution of pot. brom., 5 min.

Water to 1 oz.

and for the enlarged negative a pyro-soda developer of normal strength. He also pointed out that for the worker not used to large negatives the time method of development was an advantage, as the exposure being known, less errors of development were likely to ensue.

EDMONTON PHOTOGRAPHIC SOCIETY.—On Wednesday, the 15th, Mr. Ernest Human lectured before the above society upon "Colour-sensitive Plates." He said that the gradation of tones, even more than the variety of colour, was what charmed the eye in a country scene, and when we attempted to record such a scene we must preserve the gradations if we would keep any suggestion of the original charm. A false note in tone was to the artist as offensive to the eye as a false note in sound is to the ear of a skilled musician. Referring to the screen or light-filter, he said that these were of the highest importance, because if one was to obtain the full value of their use they must be properly corrected to the plate, and not, as some had it, to the light. Further, to call them by the terms 3, 6, or 10 times was a misnomer, because a screen when used with one brand of plate might require 10 times, whilst with another brand it might fall to 7 or 8, or rise to 12 or 15. Screens must be of a bright yellow colour, and should not be of an amber or brown cast, because such colour cut off part of the very light one wanted to pass. A false notion existed amongst amateurs that colour-sensitive plates easily fogged. If such plates did fog in the dark room, it meant that they were being worked in an unsuitable light, and to blame the plates under such conditions was as bad as blaming the ordinary special rapid plates because they fogged in a yellow light that might be quite safe for process plates. After having summed up the subject, a series of some 70 slides was put through the lantern showing work done upon various brands of colour-sensitive plates, which largely went to show that correct rendering of colour could be easily obtained when care was used.

HULL PHOTOGRAPHIC SOCIETY.—Mr. G. F. Bristow, junr., gave a demonstration before the members of this society last week on

"Making and Working up Bromide Enlargements." He described his method of making large developing dishes. They were made out of a box about 17½ in. by 12½ in., sawn so as to make two dishes 3 to 4 in. deep. These were lined with calico, the bottom and two ends being glued first, the side pieces being taken off temporarily. The sides were then glued, put on (the calico pulled through the corners), and nailed together. It was then necessary to give the inside two coats of glue-size, and afterwards, as they dry, two coats of white paint, and one or more coats of enamel were given. For direct enlarging the negatives should be thin and full of detail. Hard and dense negatives required increased exposure and diluted developer. The lecturer usually toned his enlargements by the hypo-alum process, and he had found that the best brown and sepia tones are brought about by previously developing the enlargement with hydroquinone. This being slow in action, gave full control and every opportunity for local working up by the aid of a camel-hair mop brush. His formula was as follows:—

Stock solution:—1 oz. of caustic soda to 9 oz. water

No. 1	Hydroquinone	...	...	...	...	...	1 oz.
	Potassium metabisulphite	...	...	...	...	...	15 gr.
	Potassium bromide	...	...	...	...	...	75 gr.
	Water	...	...	...	...	...	30 oz.
No. 2	Sodium sulphite	...	...	...	...	...	3 oz.
	Caustic stock solution	...	...	...	...	...	3 oz.
	Water	...	...	...	...	...	30 oz.

Use equal quantities of No. 1 and No. 2, and for a 15 x 12 print five ounces was ample to cover the paper when previously soaked with cold water, as it is always necessary to do when working with paper above half-plate size. When fixed the print was immersed in water while the toning bath was prepared. This was made by dissolving ½ oz. alum in 10 oz. of lukewarm water, then adding 10 oz. of cold water. The prints were taken out of the water and put in this solution for a few seconds; then 5 oz. of hypo., already dissolved in 15 oz. of water, were mixed with it, making 55 oz. altogether. This should be done in a galvanised iron tank or dish 4 to 6 in. deep, supported at each end with a block of wood or a brick. In the centre was placed a gas ring, and the solution was gradually heated up to 100 or 110 degrees, with the print or prints kept moving face upwards. There were signs of toning in 15 minutes, and when taken as far as desired, the prints were pinned up until cool, and afterwards washed, face upwards, in the usual way. For hypo. alum toning the papers should be amply exposed and developed fairly black, as they reduced considerably in toning. The whites were well de-graded, and for the best tones 20 oz. of old solution should be added to the bath to make 55 ounces. Blisters were due to raising the temperature too quickly. Mr. Bristow also showed how to work up or strengthen foreground, shadows, and clouds. He preferred to add clouds from a second negative, and improve where necessary afterwards. He powdered a little household blacklead, and by the aid of a small piece of washleather rubbed in same, and afterwards smoothed down upon a piece of blotting paper until the correct tint was obtained. This was rubbed on the print where required. Then what was not required, or where it was wished to lighten up any part, breadcrumbs made into a small ball were used. For sepia prints a combination of red and black chalks were mixed by the same method until the correct tint had been obtained.

ROYAL COLLEGE OF SCIENCE PHOTOGRAPHIC SOCIETY, DUBLIN.—A general meeting of this society took place at the College last week. The following officers were elected for Session 1905-6:—President, Mr. G. H. Pethybridge, Ph.D.; treasurer, Mr. J. Taylor, B.A., A.R.C.Sc.I.; hon. secretary, Mr. W. L. Rutledge; committee, Messrs. J. F. Crowley, J. N. Down, P. McGinnis, P. J. Smith, G. A. Watson.

CLEVELAND CAMERA CLUB.—On Wednesday of last week, at the invitation of Messrs. Hood and Co., Limited, Middlesbrough, a

large gathering of members of this club met at the Photo-Process Works of the above firm, and were shown over the works by the managing director, Mr. Harold Hood. To illustrate the work more clearly the various steps in the making of a process block were illustrated in a very practical and able manner, and eventually prints were pulled and handed round from the block made during the evening.

BOLTON AMATEUR PHOTOGRAPHIC SOCIETY.—On Thursday, November 17, the R.P.S. lecture by Mr. H. T. Malby, on "Flower Photography," was read by one of the members. The desirability of guarding against over-correction was emphasised, and slides from correctly exposed negatives taken with iso plates and screens, necessitating not more than three times the normal exposure, fully bore out the lecturer's contention. In the arrangement of flowers to be photographed, care should be taken not to crowd the composition, and not to arrange the subjects so as to produce a top-heavy appearance. As a means of supporting grasses, individual flowers, shoots of brambles, etc., the use of a lead strip of $1\frac{1}{2}$ in. wide, doubled upon itself at intervals to pinch the stems, was suggested.

RICHMOND CAMERA CLUB.—At a meeting on Thursday of last week Dr. Rodman gave a lecture on "Photomicrography," with a practical demonstration of the work. The lecturer said:—The requisites are a microscope and a camera body capable of the necessary extension, and having these, the work can be conducted in a well-warmed and lighted room. The microscope should be a monocular with a firm, steady stand capable of being brought into a horizontal position, and provided with a fine adjustment, so as to ensure true and crisp focus. The rigidity of the apparatus is of prime importance, as upon it depends to a great extent the success or the reverse of the picture. The table or bench upon which the apparatus is placed should also be of considerable solidity. For high magnification it may be necessary to use a concrete floor, as with the shaking that even a passing heavy vehicle in the street may produce the results may be marred. Dr. Rodman stated that he has no such floor, but that he uses a fixed bench built into the wall of his dark room. The microscope-stand that he employs cost years ago about five guineas only, and probably at the present time for the same sum an even better instrument could be obtained. The objectives must be of sound construction, and should ensure a good flat field, with an absence of any falling away at the edges. They may be achromatic or apochromatic, in order to get a colourless image, with all the rays brought to a common focus. With the former an ordinary eyepiece may be used, but with an apochromatic objective it is necessary to employ a compensating eye-piece. It is more particularly in high magnifications, say above 400 diameters, that apochromatic lenses are required. It is an open question whether an achromatic lens should be used with or without an eye-piece. With a one-inch objective and no eye-piece an extension of not less than 3ft. 2in. from the ground glass to the object is required, which makes focussing difficult, whereas when using the same objective with an A eye-piece about 1ft. 9in. is ample. The amount of magnification is somewhat different in each case. In working for a certain magnification it is better to use a low eye-piece with extended draw tube rather than to use a shorter tube with a higher eye-piece. The lower the eye-piece used the more perfect and better illuminated the object will be on the ground glass screen. For a camera Dr. Rodman uses a Newman and Guardia "Special B.," which allows of sufficient extension to cover a quarter-plate. The camera and microscope must be placed on a true axial line. The next matter for consideration is the source and method of illumination. Several distinct sources of light may be employed—sunlight, oil lamps, incandescent gas, limelight, acetylene gas and electricity. When employing sunlight a heliostat must be

used—it is very rich in actinic rays, and can be used as a monochromatic light by the interposition of a screen that will allow of coincidence of the visual and actinic foci of the objective, but it is too uncertain a source in the English climate. Oil light is too poor. Incandescent gas is not to be recommended, as the light does not approximate to a point, which is an important consideration. Lime light is satisfactory if the microscope lens and slide are suitably protected against the heat. Acetylene gas appears to have possibilities, as the light is of good actinic value, but the electric light is the best, and most of Dr. Rodman's work has been produced with a $\frac{1}{4}$ -ampere Nernst lamp. Illumination may be either direct, oblique, or by reflected light, according to the nature of the object. The plate employed must be backed, and the use of a coloured screen gives the best results. The length of exposure depends upon the amount of light and also upon the colour of the object. An object of average thickness seen through a 1-in. objective with A eye-piece and an isochromatic screen can be photographed with a $\frac{1}{4}$ -ampere Nernst lamp in from ten to twenty seconds on Imperial special rapid plates; for higher magnification a longer exposure is required. Practice can alone make perfect in this respect. The negative must be clean and full of detail, with plenty of contrast, having a good opaque background, which will print as a perfect white. The developer must be strong in pyro—as much as five or six grains of pyrogallie acid should be used to the ounce of developer.

News and Notes.

THE Scottish Photographic Federation has issued a very complete list of judges for exhibitions and competitions, lecturers, demonstrators, and lectures and slides for circulation. This is a separate publication to the S.P.F. Blue Book, and sums up just those particulars that the hon. secs. of the Federated Societies want to know when compiling their winter programmes. The list is in the form of a handy booklet, and enough material is provided by the scheme of interchange of lectures and lecturers to fill half a dozen syllabuses. The secretary, John B. MacLachlan, will supply all further information.

THE Free Photo Fraud Again.—A correspondent to the "Birmingham Daily Gazette," writes complaining of the free photo dodge practised in his district. He says:—"Some few weeks ago a very charming young lady called at my home whilst I was at work, saw my wife, and begged very hard to let her take away a photo to have it enlarged free of cost, on the condition that my wife hung it up just to advertise their business, and, says the lady canvasser, 'at any time you should want it framed our firm would be pleased to do business with you.' My wife was then asked to sign a paper without any explanation whatever. A few days later a gentleman, one of an American firm, called with samples of picture frames. My wife told him she did not want one. A few days later I received a letter to say that their agent had called, and that my wife had refused to select a frame, and unless I either called or wrote to them in five days they should frame the enlarged photo with their usual 50s. frame, and put the matter in their solicitor's hands to collect the same, with costs, etc. I treated their letter with contempt. About a fortnight later, whilst I was at home, another of the American firm called. I treated him for what he was worth, and quickly showed him the street. Why I write this is to warn working men's wives not to sign anything from anybody. Let the husbands do the signing business; it will save the police court proceedings, and very likely county court proceedings later on."

A CAMERA and Optical Lantern Society has been formed in connection

tion with the Walkley (Sheffield) Conservative Club. The president is W. J. Booth; hon. treasurer, G. D. Harrison; and hon. sec., S. Hall-Downing, 292, South Road, Sheffield.

THE Second American Salon.—Although the British and Italian pictures have been delayed in the New York Customs House, the preliminary jury has gone through the American and other prints, reducing their number to six hundred, from which the jury of painters have selected a hundred and seventy-five for the exhibition. It was expected that the delayed works would be clear of the customs by November 19, and a special sitting of the painters' jury was arranged for that date, to select, and also to decide on the pictures to be purchased for the permanent collection.

STATIONERY, whether note-paper, price-lists, or the seductive booklet of invitation, being an all important item in a business which is professedly directed by good taste, a photographer may be advised to "grapple to his heart with hooks of steel" any printer who will take pains to produce attractive literature. One firm that may be named for the above ordeal of friendship is Messrs. Walter Pearce and Co., St. George's Press, Brentford, W., a selection of whose folders, business cards, etc., bears uniformly the impress of good taste and experience in the production of a booklet which is not thrown away by the recipient. In fact, by a coincidence, during a visit to the Midlands, we were shown by a friend a little booklet issued by a local photographer and preserved on our friend's mantelpiece as a reminder: the identical booklet we find among Messrs. Pearce's specimens.

WITH the new year the "Animal World," which has been published monthly by the R.S.P.C.A. since 1869, will appear with many new and attractive features—one of these should appeal especially to our readers. In the January number will appear a monthly photographic competition—divided into two classes, with a prize for each class—Class A, for those over sixteen years of age; Class B, for those under that age. The photographs for competition must be of animal subjects, and must depict an incident, or make a story. The December number of "Animal World," published on November 25, will contain full particulars of this competition.

MR. ROBERT F. SHERAR, of 6, Ann Street, Edinburgh, writes us in reference to his lecture on "Linear Perspective," given before the Glasgow Architectural Association, and reported in our issue of November 10. He says: "Many peculiarities of perspective in photography are blamed on the 'lens,' while as a matter of fact the same perspective is obtained by whatever lens is used. If you change your position or the position of the lens you give a different view, but from the same station-point all lenses give the same perspective; a different image of this perspective appearance, however, may be got by varying the other fundamental conditions of perspective projection, such as the angle of picture plane (or photographic plate), etc." Mr. Sherar has written an admirable little book entitled "Perspective Tables," and although it is primarily intended for use by architectural draughtsmen, special reference is made in it to the use of the camera and lens, and the points dealing with the use of rising and cross fronts, etc., are very ably demonstrated. Every architectural photographer should study this little work.

Commercial & Legal Intelligence

RE GEORGE FENWICK, PHOTOGRAPHER, BURTON.—This debtor appeared for his adjourned public examination at the Burton Bankruptcy Court on Wednesday of last week. The statement of affairs filed by the bankrupt disclosed liabilities amounting to £99 2s., and assets estimated to produce £19 7s. 7d., less preferential creditors £5 7s., leaving a deficiency of £85 1s. 5d. The case was again adjourned, the Official Receiver not being satisfied with the account given by the debtor of his book debts.

MORE FREE ENLARGEMENTS.—At the Westminster Police-court on Wednesday, two young servants from Sloane Gardens, Chelsea, applied for advice as to the detention of their photographs obtained from them by a canvasser, who represented that enlargements would be made gratuitously just to advertise a new branch business to be opened in the locality. Proof enlargements of the pictures were subsequently shown the applicants, and extortionate demands made for frames, which had not before been mentioned. The girls said that when they refused to pay for frames the return of their original photographs was refused. Sergeant Avery, the warrant officer, said that there had been several complaints of this kind, and in some instances young people had been frightened into making payments. The Judge thought the police might with advantage make a little inquiry into this business, and said that a summons would issue if the girls' photographs were not very promptly returned.

Correspondence.

*** Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*** We do not undertake responsibility for the opinions expressed by our correspondents*

A BOOK QUERY.

To the Editors.

Gentlemen,—Perhaps one of your readers can help me in the following:—I have a volume on "Practical Chemistry" published in Orr's Circle of the Sciences. Date on the full compound title page, 1856; pages 101 to 304 on "Photographic Art." Title page gives name of Marcus Sparling, but the foot of page 304 says W. Sparling. I have seen a separate copy of the photographic portion of the volume, but did not look at the numbering of the pages. The list of the Photographic Club (London) library gives the date as 1859. What I want to know is: (1) Whether my copy is the original edition? (2) Whether the separate volume is a stereotype, a reprint, or a revised edition? (3) How many editions the book went through?—Please oblige, C. R. W.

27, Mostest Road, Observatory Road, Cape Colony,
November 1, 1905.

EMULSION INVENTIONS.

To the Editors.

Gentlemen,—Your irate correspondent who signs himself "O" should understand that Mr. Burgess was requested to give a paper on "The History of Gelatine Dry Plates" because someone supposed that he ought to know more about it than any other person. The paper consists of a plain statement of facts. If that is to be compared to sounding brass, he is guilty of trumpeting, and owns it. Some people prefer fiction to fact, but dare not say so. There was no intention of casting a slur upon the name of Traill Taylor. The worst thing anyone was accused of was carelessness or forgetfulness on this particular occasion. It was proved by quotations from his own journal that he had overlooked important facts. Perhaps he did not know they were there. But not a syllable was said that could be fairly interpreted as impugning his honour. No doubt Mr. Taylor had persuaded himself that he was right, and he would not condescend to listen to a mere nobody. Nevertheless, his action was challenged at the time the testimonial to Dr. Maddox was proposed, but the voice of right and reason, not for the first time by many, was drowned by the action of a triumphant majority. It is not in human nature to see the golden nature of silence when historical accuracy is at stake.

As to the sneers about colour photography, and the elaborate attempt to raise a prejudice without the shadow of a cause, be it said that they will soon speak for themselves. It is intended to send an advertisement to this journal early in the coming year, stating how and on what terms they may be obtained. And that no one may be deceived it will be distinctly stated that hand work plays an important part in the process. The problem to be solved is, how to reduce retouching to a minimum without sacrificing artistic effect. Colour, of course, is not produced by the chemical action of light, but the gradations which make the picture are. It is the opinion of many who have seen the experimental specimens that colour values are rendered more correctly by this process than by any other. It will in no way compete with the three-colour work, but will be at home in the ordinary studio.—I am, yours faithfully, J. BURGESS.

71, Stillness Road, Forest Hill, S.E., November 20, 1905.

To the Editors.

Gentlemen,—In the report of his paper on "The History of Gelatine Emulsion Plates," read before the London and Provincial Photographic Association, which appeared in your issue of November 10, Mr. J. Burgess relates what he terms "the correct version of a tale which has been very much garbled and distorted, not intentionally," he is quite sure, "but through carelessness!"

Regarding Mr. Burgess's claim that he invented bromide paper, is he aware that my father, Sir Joseph (then Mr.) Swan, patented it in 1879?

Assuming that Mr. Burgess claims the invention prior to 1879, why did he not oppose the granting of the patent, or contest its validity?—Yours faithfully,

DONALD CAMERON-SWAN.

November 15, 1905.

[Sir Joseph Swan's application for patent was made on July 22, 1879, and included even "printing at a uniform and rapid rate; the sensitive paper may be used in long bands, and by means of automatic mechanism may be moved on step by step periodically through a space equal to the width or length of the print, the negative being screened from light during the movement."—Eds. B.J.P.]

TONING BROMIDES.

To the Editors.

Gentlemen,—I have read with much interest your article on "toning bromides," but am somewhat surprised at your strictures on the Somerville platinum process. I have toned a large number of prints by this method, and have never found the slightest signs of fading, prints toned three years ago and continuously exposed to good strong light being now, to all appearance, unchanged.

One thing, however, is of absolute importance—viz., the complete washing after fixation, otherwise there is the danger of the high lights assuming the "pale lemon colour" mentioned in your article.

Provided the above point is carefully watched, and the proportion of mercury to platinum given in Mr. Somerville's formula is not exceeded, it is difficult to understand why prints toned in this way should not be as stable as any other silver prints toned by platinum.

Perhaps the subject may be sufficiently interesting to you to warrant an inquiry into the history of those prints which have failed.—Yours truly,

W. B. CRICHTON.

73, Holly Avenue, Newcastle-upon-Tyne, November 14, 1905.

[We are obliged to our correspondent for his letter, for actual experience is always valuable. With regard to the prints to which we have referred, they were treated precisely as advised by Mr. Somerville, and with a strict adherence to the formula. The following passages from "Toning Bromides," a book written by Mr. Somerville, are of interest:—"Later experiments with my own formula have shown that the mercury simply acts as the reducing agent of the platinum, and the presence of the citric acid prevents any permanent combination between it and the silver, also, at the same time, preventing a combination with the gelatine. But the sepia tone is undoubtedly produced by a combination of the platinum and silver, for, if the print be immersed in cupric bromide, the silver will be converted into silver bromide, and on treatment with hypo dissolves away, leaving a pure platinum image behind of a lighter and browner shade." Our comment on this is that the proof of the image being composed of silver and platinum alone is decidedly weak. There is no proof that mercury is not present, for it also would be bleached by cupric bromide. In the platinum process, when mercury is used in the sensitiser or developer a sepia image is obtained, and von Hübl has shown that this image is composed of a mixture of platinum and mercury, and it is but

reasonable to assume that the same chemical reactions would occur when toning bromides. Mr. Somerville's statement that the mercury merely acts as a reducing agent of the platinum, and that there is no mercury in the image is absolutely unproved. Again, he says, "if the toned print be immediately subjected to an ordinary bromide paper developer, the black colour will return with great intensification; but prolonged washing will prevent this." Now, if this be true, it is absolute proof that there remains in the image a salt reducible by a developer. Therefore, the sepia tone cannot be undoubtedly produced by a combination of the platinum and silver. If the instructions are carefully followed, it is obvious that, even excluding the use of free hydrochloric acid, which the author advises, any mercuric chloride must react with the silver of the image and form silver and mercurous chlorides; we should like to see the chemical equations which will explain the absence of these unstable salts in the finished print.—Eds. B.J.P.]

THE RESTORATION OF DAGUERRETYPES.

To the Editors.

Gentlemen,—The information in your "Ex Cathedra" note of November 17 shows beyond doubt that the Daguerreotypes that have passed through my hands must have been toned, and not untoned, as I thought. If, however, untoned specimens are very rare, as your note seems to suggest, the danger of unexpectedly meeting with and destroying one in the "restoration" process is not very great. If it is possible to distinguish untoned from toned images by inspection there should be no risk, but apparently it is not very easy to detect the difference. There is nothing in the appearance of the toned image that suggests the presence of gold, but I imagine there must be some perceptible difference, and any information that will assist to identify the untoned image would be of value. So also would any hints as to the method of cleaning it. I recommend pure spirit in preference to methylated spirit, simply because it is now difficult to procure the latter free from mineral spirit, while much of the liquid sold as methylated spirit is either "finish" or some very doubtful compound.

It is regrettable that the Daguerreotype process should now be, as you say, an obsolete one. The ordinary single image may be most interesting as a curiosity, but the stereoscopic slide shows that the process is one of peculiar value. I do not know any modern process that will represent water, glass, or metallic sheen so realistically, or any one so well adapted to show surface texture. The slides must be absolutely free from tarnish to show these effects to perfection, but the time spent in cleaning them is well repaid, and, considering the rarity of such slides, it appears to me that the manufacture of new ones would be worth consideration.

It has been suggested to me that a coating of celluloid, or of some suitable transparent varnish should serve to preserve the image from tarnish. I do not know if this has ever been tried, but possibly it has, as the suggestion is a somewhat obvious one. Seeing that no traces of varnish are usually met with, I presume that experience is unfavourable to its use, but, possibly, celluloid might succeed where other varnishes have failed.—Yours, etc.,

C. WELBORNE PIPER.

November 17, 1905.

[The only way we know of distinguishing between a toned and an untoned Daguerreotype is by the appearance, and that is a little difficult to describe, except to say that the image of the latter is very feeble as compared with a gilded one. We think, however, that our correspondent will be perfectly safe in considering any Daguerreotype he may have to deal with as being gilded. We do not consider that the production of Daguerreotypes at the present time would meet

with the remotest commercial success, whether stereoscopic or otherwise. As regards varnishing them, that was suggested when the process was in vogue, but was not adopted because it marred the beauty of the picture. Moreover, varnishing is quite unnecessary, as the picture can otherwise be securely sealed from the atmosphere. —Eos. B.J.P.]

THE PERMANENCY OF MATT-COLLODION PRINTS.

To the Editors.

Gentlemen,—I have read with much interest the very useful correspondence in reference to the permanence of matt C.C. paper. In my opinion one reason why so many photographers fail to produce permanent prints on this paper is their utter disregard of two very important items in the treatment thereof—I refer to the salt solution previous to toning, and thorough washing between toning and fixing. Many workers persist in carrying the platinum toning operations on precisely as if they were toning gelatine chloride prints with gold, and matt C.C. must have more consideration. I have used a great quantity of this paper, and consider it, properly manipulated, the most permanent printing-out paper in use, but, judging from your correspondents' letters, my methods of working differ slightly from the general rule.

I never trust blotting paper, using only clean white cloth, both for drying unmounted prints and for covering when squeegeeing on to the mount. If some light frames are made and covered with well-washed sheeting or muslin in such a way as to be easily detachable for occasional washing, and the wet unmounted prints laid face downwards thereon, they will dry without curling, and will be found in excellent condition for trimming and mounting.

I never use the double bath for toning, using the platinum bath only, made up with the smallest permissible quantity of acid—nitric in preference to nitric or phosphoric—and always mixing the new bath with an equal quantity of an old one. On one occasion I found small yellow spots appear, one of which, under a microscope, showed a minute speck of cinder, which had fallen on the semi-dry print in the form of dust, probably when the fire had been attended to, and on blowing some dust from the grate on to a print, it became covered with spots within twenty-four hours. I do not pretend to know what chemical action had taken place, but on taking precautions against the dust, no more spots appeared. I may add, however, that when investigating the trouble in the first case, I found that particles of rubber, which might be used for cleaning mounts, if left on the surface of the print, quickly produce spots of a yellowish colour; but this might not occur with all makes of rubber, being probably due to some solvent used in the manufacture.—Hoping my experience will be of some help to your readers, I remain, yours faithfully,

W. SHENTON.

Grove House, 282, Bury New Road, Higher Broughton,
Manchester, November 20, 1905.

THE Southsea Exhibition.—We would remind our readers that the entries for this exhibition close on December 2, and the last day for sending in exhibits is December 6. Fourteen bronze plaques will be placed at the disposal of the judges in the Open Classes, and a special award, in the shape of a bronze salver, will be awarded jointly by the Southsea, Hove, and Southampton Societies to the exhibitor at all three exhibitions whose work shall be judged of the highest merit. The judges for the Southsea Show are Messrs. Reginald Craigie, H. T. Lilley, and H. Snowden Ward. Entry forms and full particulars will be sent by the hon. sec., F. J. Lawton, 20, Clarence Square, Gosport, Hants.

Answers to Correspondents.

- **All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- **Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- **Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- **For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPHS REGISTERED:—

- P. Wynne, 518, Coventry Road, Small Heath, Birmingham. *Photograph of Birmingham Football Club with Three Cups.*
- J. E. Beehan, 150, Rathmines Road, Dublin. *Photographs of V. Harris, J. Owens, the Bohemians Football Club, the Shelbourne Football Club.*
- H. Johnstone, Rockstone Place, Castle Douglas, Scotland. *Photograph of James Donan.*
- B. Bolton, Stadio, Princes Road, Weybridge, Surrey. *Photograph of St. James' Church, Weybridge, with Steepjacks Replacing Lightning Conductor.*
- E. E. Lipplatt, 2, Church Terrace, Leamington Spa. *Photograph of the Right Hon. A. Lyttelton.*
- E. J. H. Care, 284, Ashton New Road, Beswick, Manchester. *Photograph of the Manchester United Football Club, First Eleven (Season 1905-6).*
- R. E. Naylor, Ruddington, Nottingham. *Photograph, Postcard entitled, "A Souvenir of Ruddington."*
- A. C. Milne, Carcary House, Brechin. *Photograph of Careston Parish Church, Interior View.*

DRAWING REGISTERED:—

- A. C. Milne, Carcary House, Brechin. *Drawing of Careston Parish Church, near Brechin.*

TRADE NAME.—I should be obliged if you could inform me if I am doing right in trading under the name of Mora; there is a Mora, I know, at Brighton. I am opening another branch in the town, and do not wish my name to appear.—R. W. BROWN.

You would not be doing right in using the trade name of another photographer in such a way as to lead the public to imagine the business was his. Why cannot you fix on some other name to trade under if you do not wish to use your own?

A BOOK ON LENSES.—Would you kindly recommend me an elementary book on lenses and stops, and I would be greatly obliged?—R.

"Photographic Lenses." By Conrad Beck and Herbert Andrews. 1s.

A QUESTION OF COPYRIGHT.—Will you kindly inform me if there be anything in the copyright law, or otherwise, to prevent anyone copying the engravings in Charles Dickens's works and publishing the copies as postcards, etc., or enlargements?—COPYRIGHT.

There certainly is, if there be an existing copyright in the pictures. There are several different sets of illustrations to Dickens's works, and some of them are of comparatively recent date. You should ascertain if there is an existing copyright in those you wish to reproduce before copying them, or you may find yourself in trouble.

RETOUCHING (reply to "F. D.").—You smooth up very fairly, but without much distinction in your touch. Your chief fault lies in the over-working and removal of age and character marks as shown in the cabinet print. The result is much too youthful for the sitter's real age. The other study is much better, but the streak of strong lighting down the nose thins the feature, alters the shape, and is incorrect. You cannot see

such a line in life. A stronger shadow under the chin would have been an improvement, giving relief to the face, and rendering the chin less heavy. At present it appears to merge into the neck. You will make a good retoucher in time, and with greater attention paid to the modelling.

TOM W. W.—A small advertisement in our columns will almost certainly bring you in touch with those willing to sell.

T. A. M.—If you were paid, or expect to be paid, for taking the photograph, you have no copyright whatever in it. Your customer can do as she pleases with the prints. You are advised to read the article on "Copyright" in the forthcoming "Almanac."

COPYING.—I have some pictures brought to me to enlarge of Norval's Pont Bridge, S. Africa. They are marked "copyright" at the back. Have I the right to enlarge them for my customer?—**M. A. E.**

You are liable to action for infringement, as is also the person who gives you the order. Your best plan is to arrange with him in writing to indemnify from any consequences. See the article on "Copyright" in the forthcoming "Almanac."

COPYRIGHT.—I would be glad if you could give me information concerning the law of copyright on the following points:—1. Some negatives were left me (by will) by my brother, who died in January, 1899. Does the copyright for these run out in January next on the expiration of seven years from the date of his death, or does it continue for my lifetime? 2. Could negatives taken by the above, but not previously copyrighted, be registered by me now, and, if so, should this be done in his name or in my own.—**M. F. M.**

1. If the negatives were left to you without assignment of the copyright, the latter was lost there and then. Even supposing there was an assignment, the duration of copyright is only seven years after the death of the author. 2. No; the copyrights have ceased to exist.

H. M. W. (Leicester).—O. Sichel and Co., 52, Bunhill Row, E.C., or Epstein and Co., 33, Broad Street, Bristol.

WARM TONES ON WET COLLODION.—Will you kindly give me formulae that will give red, warm brown, and blue black tones to wet plate lantern slides?—**PERCY CLEGG.**

For warm brown, bleach in a bath of iodine and potass. iodide of port wine colour, and after washing, place in a bath of ammonium sulphide, 10 minims per ounce of water. For tones approaching red, tone after further washing in: Gold chloride, 1 grain; potass. ferricyanide, 60 grains; uranium nitrate, 60 grains; water, 20 ounces. A good bath for black tones is the following, due to G. T. Harris: Sodium phosphate, 50 grains; gold chloride, 5 grains; potass. chloroplatinite, 5 grains; water, 5 ounces.

PYRO.—We are unable to say. If you write to the present firm at Brighton no doubt you will obtain the information.

MASTIC VARNISH.—I should esteem it a great favour if you would kindly give me a formula for preparing (1) "Megilp" (or making same) as used in oil paintings; (2) also formula for making mastic varnish in small quantities?—**OLD GRIFFO.**

(1) Megilp is formed by mixing equal parts of strong mastic varnish and drying-oil. Another megilp is made by mixing 1 part of a saturated solution of sugar of lead in water with two parts of linseed or poppy oil. These are well stirred together, and two parts of mastic varnish added. (2) Here is a formula for mastic varnish as given by Cooley: Picked mastic, 5lb.; coarsely pounded glass, washed and dried, 3lb.; rectified oil of turpentine (lukewarm), 2 gallons. Put into a

four gallon can and agitate till dissolved. Decant the clear portion and keep for twelve months before using, as it improves with age. Of course you can reduce the quantities to suit your requirements. We may tell you that you will find it more economical to purchase these preparations than to attempt to make them yourself in small quantity.

G. MOODY.—Prints received, and will be dealt with in due course.

STUDIO ACCESSORY.—I am making a studio accessory, stone garden seat, and should be pleased if you would advise me if unbleached calico would be suitable for covering framework; also whether it would be better to stretch calico wet over the framework when covering.—**ACCESSORY.**

Unbleached calico is the best thing for the purpose. It had better be put on dry, and strain pretty tight; then, when it dries, after sizing prior to colouring, it will shrink and so become exceedingly tight.

BLEACHING BROMIDES, ETC.—1. Will you please say in this week's B.J. how to get a pen-and-ink outline sketch on a silver print, or bromide, by bleaching, etc., after sketch has been traced in by pen and ink? 2. Also please say how to obtain a clear solution of shellac, with methylated alcohol as solvent.—**I. S. T. O.**

1. Draw over the outlines in waterproof ink, and bleach the print in a mixture of potassium cyanide and iodine. You will find this formula and several others for the same purpose in the forthcoming "Almanac." 2. It is not easy. Try shaking up with powdered glass or chalk and allowing to settle; or, failing this, use rectified spirit.

I. D.—The following from the forthcoming "Almanac" gives a paste of the kind required:—Best white dextrine 1 lb., cold water make stiff paste, water 10 oz., oil of wintergreen 1 dram. Mix the dextrine and water together in small doses of each so as to ensure a mixture free from lumps and clots. Dilute with the further quantity of water, add the oil and just bring the whole mixture to the boil, when it should be like clear gum. Pour into pots, cover up, and in twelve to twenty-four hours it will be set to a hard and white paste of great adhesive power. The dextrine must be the best white: inferior dextrine remains treacly on cooling.

MESSRS. GORIS ET FILS.—The salt referred to in the paragraph on page 822 is sodium chloride, NaCl. The formula for chloride emulsion (page 828) is given in metric measure. Those for the two P.O.P. developers are as follows, in metric measures:—Page 822: Metol .32 gms., pyro .32 gms., glacial acetic acid 7.1 ccs., water 284 ccs. Page 826: A—Pyro 2.1 gms., tartaric acid 2.1 gms., water 454 ccs.; B—Potass bichromate .004 gm., water 454 ccs.

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THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1906.

EDITED BY GEORGE E. BROWN, F.I.C.

Published This Day.

THE whole edition of 25,000 copies of the 1906 ALMANAC is now in the hands of photographic dealers and booksellers, and the publishers request those requiring copies to obtain them from their usual source of supply.

The features of the ALMANAC are sufficiently well known, but attention may be specially directed to certain constituents of the forthcoming volume:—

1. *A Contents*, serving as a guide to the pages, and showing at a glance in which portion a given item of information is to be sought.

2. *An Index* of nearly every individual fact, formula, and paragraph, serving to take the consultant to his subject at once.

3. *Photographic Copyright*. A popular exposition of the subject in its present-day applications.

4. *Epitome of Progress*, classified and codified. A review of the year's work in technical and scientific photography; in which everything on a given subject is assembled at one place in the volume.

5. *Contributed Articles* by leading writers.

6. *A Frontispiece*, in Barnet Platino-Matt bromide paper, of Miss Billie Burke.

The Tables, Formulæ, and other features of the volume have been revised and re-arranged, and, it is hoped, will meet with the approval of every one of the 25,000 prospective readers of the 1906 ALMANAC, which in mere size, the publishers must confess, is greater than any of its forty-four predecessors.

EX CATHEDRA.

The Cape Town Exhibition.

We again take this opportunity of reminding our readers that entries for the Cape Town Exhibition must be in our hands on or before December 4 (Monday next). Full particulars were given in our issue of November 3, and we would particularly request exhibitors when sending packages or boxes to this office for transmission to South Africa, to advise us of the contents, and also to send entry forms and fees, etc., in separate letter addressed to The Editors, BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, W.C.

* * *

An Historical Mare's Nest. Dr. Murray's appeal, in the photographic Press a week or two ago, for any reference to the word "photography" prior to Herschel's use of it in March, 1839, has led a writer on photography in the "Daily Telegraph" of Friday last, to credit Niepce with the invention of the word—in a letter of May 9, 1816. An amateur contemporary in its issue of Tuesday last repeats the statement in such exactly similar words as to suggest identity of origin. Unfortunately, the statement is founded on several misconceptions, and has not a vestige of documentary evidence to support it. In the first place this letter, with many others of Niepce's, was never published until 1867 when Fouqué collected them in his "La Vérité sur l'Invention de la Photographie." In the second place, it so happens that the letter does not contain the word "photographie." It is M. Fouqué who, commenting on the fact that Niepce records his success in diffused daylight, uses the words: "Il aurait pu dès ce moment remplacer le mot Héliographie par le mot Photographie puisqu'il annonce qu'il n'est pas nécessaire que le soleil luire pour opérer" (p. 65). The writer in the "Telegraph" has only confused, in a secondhand account of the facts, what Niepce wrote, and what his very biased biographer wrote of him 50 years afterwards. Still a writer with less chaotic knowledge of the early history of photography might have remembered that to the day of his death Niepce used the word "heliography" to describe his process.

* * *

Rapid Mounting.

At a time of the year when the prompt despatch of orders is of more than ordinary importance, and when also an unusual amount of work is hoped for, and must be executed by a definite date, all the details of production need attention so that neither time nor quality may be lost, nor waste occur. Hurried work is rarely, if ever, good work, and it is poor policy to do a thing in a certain way hurriedly. Better far to devise some method of systematically doing the work so that time may be economised. Mounting particularly is one of the things that must not be hurried. Much, of course, depends on the class of print and the substance of the mount to which it is to be attached. For carbon prints to be attached to the thin vellum mounts so much in vogue at

the moment, the dry mounting method by shellac and hot pressure is practically the only satisfactory way. The use of fish glue applied to the extreme edges is very difficult, and can only be employed when one has become really expert, and is able to quickly apply just enough adhesive to cause adhesion, and not enough to exude. Platinotype prints are most quickly mounted if wetted, laid quickly between blotters, stacked face downwards on a clean sheet of glass and pasted. The paste is best applied by the finger, as a brush is liable to pick up the print or to disturb the pile of prints on the glass, one worker pasting and another lifting the print and laying it in position on the mount, to which it is pressed by means of a sheet of white blotting paper and a roller squeegee. The use of the finger in applying the paste ensures, by touch, that there shall be no gritty particles, and not too much paste.

Mounting Gelatine Prints.

Where the prints in question are P.O.P. or bromide—that is, prints with a gelatine surface—there is a twofold danger in the use of blotting-paper for pressing them to the mounts. First, the gelatine may adhere slightly to the blotting-paper and cause the print to leave the mount; and, second, the blotting-paper will be almost sure to leave some fluff on the surface of the print. For these prints the simplest method is to sponge them into contact with the mount. A very soft sponge, quite free from grittiness, is necessary. With margin mounts it is well to pass the damp sponge right over the margins, or a mark will remain where the moisture has dulled the surface of the board. One of the disadvantages of colour-stamped mounts is that this sponging cannot be done, as the moisture dissolves the colour used. Where the water is hard, markings will often occur on the surface of the print, the sponge leaving spots of water which dry up, leaving a minute deposit of lime. This once deposited on the print cannot be sponged off again, and it is most apparent on P.O.P. prints. The only way of avoiding these spots is to lay the print on one side after sponging down, and, in perhaps a minute, to remove all surface moisture with a piece of clean and not quite dry blotting-paper. The interval of a minute allows the adhesive to slightly bind print and mount together, especially at the edges, and there is then little or no danger of the blotting-paper lifting the print. For lifting the top print from the pad of prints when pasted, a small bone spatula is preferable to a pointed penknife, as it is less likely to increase the spotter's work by scratching the gelatine.

The Photographic Convention.

At its meeting last week the Council of the Photographic Convention elected to the presidency (in succession to Professor John Joly, F.R.S.) Mr. E. J. Humphery, who for many years has formed one of the Council, and has strongly identified himself with the activities of the Convention. The executive have reason to feel satisfied that the new president will spare himself in no direction where he can contribute to the success of the meeting to be held at Southampton in July next, and we ourselves are gratified in believing that those who would press upon the Council the desirability of the Convention taking a more serious view of its duties and responsibilities will be assured of support from the presidential chair. We must also make the announcement of a winter re-union of the Convention to be held at the galleries of the Royal Society of British Artists, Suffolk Street, Pall Mall, on Friday, January 12. The function will take the form of a reception, with vocal and instrumental music, and further particulars will shortly be available.

COPYING DAGUERRETYPE PICTURES.

In our issue of the 3rd ult. we dealt very fully with the method followed by the old Daguerreotypists in 'restoring,' or, in other words, cleaning faded, *i.e.*, tarnished Daguerreotype pictures. This tarnishing is generally brought about through the atmosphere, and the impurities it contains. More often than not it is caused by the Daguerreotype having been taken out of its case at some time or other for the purpose of being copied, and then put back again by an operator who has omitted to seal the sensitive silver plate from the air by the simple application of a paper binding. It is fortunate, however, that these pictures, unlike other photographs, can be restored to their original state by those familiar with the process.

It is seldom that a Daguerreotype is brought to a photographer to be restored without a request at the same time for copies or enlargements. Many look upon Daguerreotypes as being exceedingly difficult things to copy, that is, if one may judge from the number of queries that have, from time to time, been put to us, even by professional photographers, as to the best procedure. We have also read of some extraordinary devices, and arrangements, for the successful reproduction of these pictures; some of which must have amused those who have had any considerable experience in this class of work. As a matter of fact, a Daguerreotype picture is one of the easiest of all photographs to copy, if once the principle is understood, and, what is more, a reproduction from a good Daguerreotype, if properly made, more closely resembles a portrait from life than the copy of any other kind of photograph, as it is absolutely free from all texture, or grain. The difficulty—imaginary, be it said—in copying this class of picture is due to its highly reflective surface as in the case of all highly polished silver surfaces; but it should be borne in mind that the flat surface of the plate is very different from those, say, of vases and the like, which throw off reflections at all manner of angles. If we keep in mind that, in all cases, the angle of reflection is equal to the angle of incidence, the work is all plain sailing. We have simply to illuminate the picture at such an angle that the reflections from it are away from the camera, and not in its direction. If the picture be lighted at an angle—say of 45 deg.—the reflections from it will be at a similar angle, consequently quite away from the lens.

The most convenient place in which to copy a Daguerreotype is, perhaps, an ordinary room, the picture being placed at right angles to the window and close to it, so that it is illuminated by a strong side light only. Sunlight may be employed with excellent effect, provided the direct rays fall on the picture at, say, again, an angle of 45 deg. If an ordinary room be utilised, the camera being in an obscure light, there will be no reflection from the instrument, or from anything else that will give rise to trouble. If an ordinary room is not used, similar conditions should be observed in the studio—lighting the picture by a strong abrupt side light only, one as strong as possible. There need then be no trouble with reflections from surrounding objects. Now for the procedure.

The picture is taken out of its case and the covering glass removed; and we may here reiterate what was said in the previous article. The image is an exceedingly delicate one, and rests only on the surface of the metal plate, and is not held by a film of any kind, as in the case of a collodion or gelatine one. Therefore, the greatest care is necessary in handling it, as the slightest touch on the surface may leave a mark which nothing will afterwards remove. Any dust that may be on the picture should be blown off; a soft camel hair brush is sometimes

used, but it must be very lightly applied, and both it and the picture should be slightly warmed so as to avoid moisture, which might cause marks. Furthermore, a brush, if used, might injure the colouring, supposing the picture to be a coloured one. All Daguerreotypes, it may be mentioned, were coloured with dry powder colours, without any medium to bind them to the plate.

In fixing the picture to the copying board, it should be so arranged that the light falls on it parallel with the buffing marks, and not at right angles to them. The buffing, it may be explained, is the final polishing of the plate before it is sensitised, and its direction is readily recognised by all old Daguerreotypists. Sometimes this polishing was so perfect that the marks are not easily discernible, but it may generally be taken for granted that the final polishing was transversely across the plate, and

not longitudinally. This may necessitate the picture being placed somewhat diagonally on the copying board.

The lighting having been arranged as just directed, it only remains to take the negative in the ordinary way. Any plate and developer may be used, but over-exposure should be avoided, as that is conducive to flatness. The negative should be made tolerably vigorous, so that it yields brilliant prints. When the operation is concluded the picture should be at once sealed up to protect it from the air, as it was originally by the one who made it, and returned to its case. It should be recognised by all photographers who have Daguerreotypes to reproduce that, however good the copy may be, the original is always greatly valued by its possessor, and, therefore, every care should be taken to see that it is thoroughly protected from atmospheric influences before it is returned to the customer.

THE POSTAL CAMERA CLUB'S EXHIBITION AT THE R.P.S.

"Postal clubs are a very useful, but also a very unobtrusive, institution. Their influence is far-reaching in the photographic world, and yet nobody outside the photographic world has ever heard of them. Probably many photographers also are more or less unaware of their existence."

This pronouncement by Mr. J. C. Warburg, the hon. secretary of the Postal Camera Club, on the occasion of the opening of the house exhibition at the Royal Photographic Society on Friday last, indicates very clearly the present position of these clubs. The Postal Camera Club can, however, be regarded as the doyen of postal clubs, and the first institution of its kind to receive the honour of an invitation to provide an exhibition at the Royal Photographic Society.

When the constitution of the P.C.C. is examined this event is hardly to be wondered at when we find among the members the names of many of the foremost pictorial photographic workers of the day.

True, the membership is strictly limited to thirty, but this still further affords an indication of the quality of the work.

During his inaugural address on Friday, Mr. Warburg briefly sketched the career of the club and its present position.

The club was started in 1894 by the late Mr. FitzGerald Griffith, of County Clare, and Mr. W. R. Bland took over the secretaryship in 1895. It has been due to his devotion to its interests, and his unfailing tact and choice of new members that the club owes its present position. Many of the best-known names in the photographic world have figured in the list of members since that time, and as exigencies of business or other causes have made them relinquish their membership, new and equally well-known members have been found to take their places.

Mr. Warburg took over the honorary secretaryship in the early part of the present year, and the club is now as flourishing as at any time of its existence.

The method of circulation is the same as that adopted by nearly all similar institutions. Three or four portfolios follow one another with regularity in a settled order, so that each member receives one folio a month. Prints are inserted in "criticism sheets," on which the members express their opinions of the enclosed work, and after the prints have circulated twice they are removed by their respective owners, who have therefore to add a new one and remove an old one every month. In this way the members are treated to a sort of miniature circulating exhibition every month, and the benefit derived from the criticisms on their work by the other members, to say nothing of the ideas promulgated in an accompanying note-book, cannot

be over-estimated, even in the case of the most advanced workers. As the honorary secretary pointed out: "Criticism and the discussion and comparison of prints are of great value in keeping a man—or woman—fairly rational in their work. It does not check originality, but it keeps them from straying—not from the beaten track, but from straying into great extravagances. Although there may be many things in the present exhibition which will not be to everybody's taste, there is no doubt that all of them are serious efforts on the part of their authors to carry out their artistic ideas, and in considering them it is necessary to try to look upon them from the authors' standpoint."

"It is no good trying to make them fit a standard which they were never intended to fit. There is probably only one safe way of criticising or appraising the artistic value of a picture or other work of art, and that is, first, try to discover the author's intention and meaning, and then—having done so—to judge to what extent he has succeeded in carrying it out. But to decide whether an artist's ideals are worthy ones is a hazardous task. Before passing judgment on others, it will be well to make quite certain that our own taste and judgment are sufficiently cultured and refined to make us capable of such nice discrimination."

In the case of a circulating postal club, it is far easier to gauge a man's work rightly when it is seen monthly than when it is seen only at the yearly exhibitions.

Characteristic qualities can be distinguished from accidental ones, and it can be better seen what each member is striving for; what are his ideals, and in what way he seeks to attain them.

The visitor to the present show will, however, have a good opportunity of observing for himself the individual qualities of the different members in a very striking manner. In arranging the exhibition, the *cachet* of a portfolio club has been retained as much as possible. A few large pictures, too large for the portfolios, have, however, been included when they show a characteristic phase of the member's work, and also to give a little variety. Yet most of the pictures are such as have actually been in the portfolios, or may still be sent round. They have been arranged on the walls in panels or groups, and one of the first things that will inevitably strike the beholder is the obvious individuality displayed by each exhibitor. On no previous occasion has the subjugation of the camera to the individual taste of its user been more forcibly demonstrated than in this exhibition of the work of the P.C.C. Here we see the strength and richness of the work of W. R. Bland, and can compare it

with the delicacy and simplicity of Walter Benington's pictures of similar themes. The vigorous head studies of Lee Syms and the indefinable "gum" portraits by Page Croft call for similar comparison. Both have sought for different qualities and expressed them in a different way. Yet both have successfully carried out their ideas, and the results, when collected in groups, as in the present case, are eminently interesting.

The visitor will have occasion to admire the delicacy yet firmness of J. M. Whitehead's flower studies and his beautifully-restrained landscapes, and to wonder at the deliberation evinced in the productions of J. M. C. Grove. The clean, bright work of Arthur Marshall, and the heavier but equally impressive productions of James Gale and Hector Murchison, force comparison; while the predilection of J. C. Warburg for truth of tones and beauty of line and form is well evidenced in his contributions. The clever and amazingly strong poster designs and portrait work of Mrs. A. O. Jennings seem to belong to a different sphere altogether after contemplating the delicate and sunny figure studies of Miss Bessie Stanford. Yet both are delightful.

and each stamped with the individuality of their producers. Percy Lewis's dainty little Venetian scenes, teeming with light and breadth, in spite of their smallness, have obviously been produced by a different hand and understanding from F. J. Mortimer's pictures of storms at sea, although both are equally successful representations of water and atmospheric effect. The mystic figure studies of W. Stewart and those of Dr. F. Graves must again call attention to the influence of the man in the control of the camera; while the delicacy and variety of Miss A. Warburg's representations of familiar phases of our surroundings are in direct contrast to the bold, decisive productions of E. T. Holding.

The whole of the members of the club have responded to the invitation to exhibit, and no less than 160 pictures are on view. The show remains open at 66, Russell Square until the New Year, and admission is by production of visiting card.

Every photographer interested in the development of the pictorial side of his art should endeavour to see this exhibition of individualities.

PHOTOGRAPHY THE SERVANT OF SCIENCE.

II.

Reducers and Intensifiers.

The negative at this stage is generally finished, but circumstances may be such that the image is too dense or not dense enough for convenient working with. If any quantitative value at all is placed on the gradation, and personally I should say in all cases, the image should not be reduced, for there is no reducing agent that is to be depended on. There are many ways of thinning the image, but none that can be depended on to act proportionately. The persulphates and one or two other substances do approximate to a proportional action, but why they should, how they act, and what the remaining image consists of, are not known. Therefore, for scientific purposes, and indeed for all valuable negatives, there is no reducer available. The reason, of course, is clear—it is the necessarily incomplete action of the reagent, for a complete action would remove the image entirely. In an incomplete change it is natural that the thinner parts should be affected to a greater proportion than the denser, as the bulk of the particles in the thinner deposits lie nearer the surface and so are more easily reached by a solution applied to the surface.

Intensification.

But if the image is not dense enough, it is easy to increase its density in a strictly proportional manner by taking care to change every particle of silver in exactly the same way. In intensification it is of the utmost importance that every change be thorough, and of such a character that no other change sets in when prolonging the action of any reagent used. The increase of density as so produced must not be too great and the resulting image should not be coloured, it should be indistinguishable from the original in appearance except as regards opacity, and equally permanent. The application of mercuric chloride followed by ferrous oxalate fulfils these conditions; it is the only method I know of that does, and also has the advantage that the intensified negative may be regarded as if not intensified so far as any photographic process is concerned. Chemically, this method is perfectly definite, each atom of metal, whether of silver or mercury, has an atom of mercury added to it. And the change in opacity is also definite, for the opacity logarithm is in all cases multiplied by 1.45.

Development and Intensification.

The relationship between development and intensification is important and has been the subject of a good deal of investigation. We have often been told that intensification gives the same result as continued development. Of course we must sup-

pose that there is sufficient exposure effect to make continued development possible, though this primary necessity is not always specified, and indeed is often absent. Now I fearlessly assert that optical methods alone are not sufficient to settle such matters as these. It is necessary also to investigate the chemical changes that take place, and the conditions under which they take place, and then to consider the whole of the evidence available. The fact that this statement of similarity was first made as if all methods of intensification were alike in effect and *proved* by experiment with a method whose chief characteristic is its uncertainty, and almost invariable departure from the stated rule, may perhaps be accepted as evidence in favour of the insufficiency of optical methods. But if we take the mercury and ferrous oxalate method which does give strictly proportional results, this rule as to the similarity of intensification and continued development does not hold good. I grant that it may, and in some cases probably does, or at least it comes so near to following this fictitious rule that it would be quibbling to deny it. But this goes to show how insufficient much of the evidence is that has been accepted by some investigators as fit foundation for theories and laws. I disputed this matter with Dr. Hurter a good many years ago, because it is so clear that you cannot intensify an image that you have not got, and that if development is stopped before the image is fully out, intensification cannot complete the development. Dr. Hurter said that the image is there, although you cannot see it, a supposition necessary to the idea under discussion, but in this he was in error. Anyone can prove that it is as I say, without any measurement of the results, just as surely as one can prove that a half-hundredweight is heavier than a pound weight without ascertaining the exact weight of either. Sometimes the very striving after exactness fogs or hinders one's powers of observation, as the individual soldier, busy with his personal fighting, cannot tell whether the battle is being lost or won. I have emphasised this, not only because of its intrinsic importance, but because we have had far too much generalisation from quite insufficient evidence, particularly of late years.

Some developers give all the detail almost simultaneously; in such cases further development and suitable intensification do seem to give similar results, always provided that there is enough exposure effect to render continued development possible. Other developers give the image gradually; in such cases it is quite certain that continued development and intensification do not produce similar results. It has been replied that:

the difference is only in the under-exposed parts which are relatively unimportant, to which I should answer that even granting for the moment that it is so, and it has never been proved, the under-exposed parts may be the only important parts. Still it is not a question of importance but of fact.

There is but little time left to speak of methods of measurement and of printing processes. If you want to measure a thing, then I would say measure it, and do not be content with measuring a part of it, especially an uncertain and variable part. If you want to measure opacity by estimating the light transmitted, it is not safe to neglect the scattered light, as many do, deceiving oneself with the idea that the light scattered is a constant proportion of the whole. A negative is not homogeneous, and apparatus and methods that are quite satisfactory for homogeneous substances are not, therefore, suitable for the measurement of negatives. The Abney screen is an ingenious and excellent device that overcomes this

difficulty. Other methods, I know, have a greater semblance of exactness, but what is the use of this with an ever-present and variable error?

As to printing, I think that the best advice that can be given to a scientific worker is to avoid it as much as possible. In a print the errors of the printing process are added to those of the negative—inherent as well as accidental errors. The possible range of luminosities is smaller in the print than the negative, therefore in printing there is almost always loss. But not always, for printing papers are now made that will give a brilliant print from a poor thin negative, and brilliance is the photographic expression for clear detail.

And now I feel that, while perhaps over-straining your patience, I have treated many points too superficially or too obscurely, but I ask you to forget my faults in the study of the subject, and to accept my thanks for your kind attention.

CHAPMAN JONES.

THE WEEK IN HISTORY.

DECEMBER the fifth, 1829, is quite one of the red-letter days of photography, for it was on that date that Daguerre signed the receipt for the document in which Niépce described to him the process which he himself called "Heliographie," and which Daguerre perfected and altered, until ten years later it became the process which bore his own name. The labour of Niépce was thus confided to Daguerre in accordance with the terms of the deed of partnership between them, which was signed on the fourteenth of December, 1829. The description was called by Niépce a "Notice sur l'Heliographie," and first appeared some years after his death, when Daguerre inserted it in his "Historique et Description des Procédés du Daguerrotype et du Diorama," adding a number of sharp notes to statements of Niépce which he considered incorrect, and emphasising points which proved the distinctiveness of his own process from that of M. Niépce. A few extracts from this paper must be made, since it embodies all that is known of Niépce's work from first to last. True, we have his letters to his brother, but the "Notice" is the only coherent account of the researches:—

"The discovery, which I have made and to which I give the name *Heliography*, consists in the reproduction, spontaneously by the action of light, in gradations ranging from black to white,¹ of the images produced by the camera obscura.

Fundamental Principle of the Discovery.

"Light, in its states of composition and decomposition, acts chemically on many substances; it is absorbed, it combines with them and gives them new properties. Thus it increases the viscosity of some bodies, even solidifying them, and makes them more or less insoluble, according to the length and intensity of its action. Such is, in brief, the theory of the discovery.

The Material Used.—Preparation.

"The substance which I use and with which I have secured the best results is *asphaltum* or *Bitumen of Judæa*, prepared as follows:—

"I half fill a glass with the powdered bitumen and pour over it, drop by drop, essential oil of lavender until the bitumen no longer absorbs it, and is thoroughly saturated with it. I then add enough of the essential oil to cover the mixture to the depth of about three lines, after which the whole must be covered up and left, at a gentle heat, until the essence is saturated with the colouring matter of the bitumen. If this varnish is not then thick enough, I leave it to evaporate in the open air in a dish, protecting it from damp which alters and finally decomposes it. This is particularly noticeable in the present cold, wet weather.²

"A small quantity of this varnish applied cold, with a tuft

of very soft leather, to a highly polished silver plate gives a thin and very uniform film of a bright red colour.³ The plate is next placed on a warm plate covered with a double thickness of paper (previously dried), and as soon as the varnish has lost all stickiness, the plate is removed to cool, and the drying finished, at a very moderate temperature, out of contact with moist air. I must not forget to observe that this precaution is very necessary. A light disc, to the centre of which a short handle is attached, held to the mouth, is used to arrest and condense one's breath.

"The plate, prepared in this way, can be at once exposed to the action of light; but even after it has been exposed for a time long enough to allow the action to take place, no visible result is obtained.⁴ The impression is latent, and, in order to render it apparent, a solvent has to be used.

The Solvent.—Method of Preparation.

"It is difficult to state the exact composition of the solvent, as it must be altered according to the result which is desired. But, other things being equal, it is better to have it too weak than too strong.⁵ I prefer to use one part (volume, not weight) of essential oil of lavender to six parts of white petroleum oil. The mixture is milky at first, but becomes perfectly clear at the end of two or three days. It can be used several times over, losing its solvent properties only when it becomes nearly saturated. When it becomes opaque and dark in colour it can then be distilled, and is made ready for use again.

"The varnished plate, having been withdrawn from the camera obscura, a sufficient quantity of this solvent is poured into an iron dish, about an inch longer and wider than the plate, to completely cover the plate. The latter is then placed in the liquid, and by looking at it at a certain angle the image is seen to appear and to gradually develop, although still veiled by the oil above it, which is more or less saturated with varnish. The plate is then removed and placed in a vertical position in order to let the solvent drain off. When it no longer escapes, the last operation—and by no means the least in importance—is proceeded with.

Application of Heliographic Processes.

"The varnish employed being applicable to stone, metal, or glass, without in any way altering the process. I will speak only of its application to silver plate or glass, remarking, however,

(¹) Note by Daguerre:—It is impossible, by such a method, to obtain a film so uniform as to give in the camera the fineness which the modifications of light require.

(²) Note by Daguerre:—If the image were completely invisible there would be no result. A faint image is necessary to obtain a successful print.

(³) Note by Daguerre:—Both these give rise to certain inconveniences. In the first, the image does not develop sufficiently; in the second, it is completely removed.

(¹) Note by M. Daguerre:—The purest light given by this process is not white.

(²) Note by M. Daguerre:—This note was written in December.

in reference to its use for engraving on copper, that a little wax dissolved in oil of lavender may be added to the varnish.⁶

"Up to the present a silver plate, from its white colour and brightness, after washing, provided that the picture has been dried, a very fair result is obtained. But it would be better, if by blackening the silver plate, the various gradations of light and shade could be represented. I, therefore, devoted my attention to this question, using, at first, liquid sulphide of potassium. But this reagent attacks the varnish when concentrated, and only reddens the metal, when dilute, so that I have abandoned its use, and now use iodine with the prospect of better success, which is easily vaporised at the ordinary temperature."⁷

"In order to blacken a plate by this process it is only necessary to place it against one of the sides of a box open above, placing a few fragments of iodine in a small groove made on the opposite side at the bottom of the box. The top of the box is

(⁶) Note by M. Daguerre:—It may be noted that the engraving of which M. Niépce speaks was always made on a sensitised plate exposed in contact with a print, and that the use of the wax to which he refers would have neutralised the effect of the decomposition of the bitumen in the camera where the light is very weak; the presence of the wax did not, however, interfere with the copying of engravings, which he exposed for three or four hours to direct sunlight.

(⁷) Note by M. Daguerre:—It is important to note the use of iodine thus made by M. Niépce for blackening his plates proves that he was not aware of the property which this substance possesses, when brought into contact with silver, of undergoing decomposition in light; on the contrary, he gives it here as a method of fixing his prints.

covered with a piece of glass through which the change, which takes place slowly but steadily, can be watched. The varnish can afterwards be removed with alcohol, leaving no trace of the first part of the process. As this method is quite new to me I will only mention this simple plan until further experiment shall have enabled me to give a more detailed description.

"In reference to the method of applying the varnish, I must repeat that it must be used of only such consistency as to form a film, compact, but as thin as possible; it, thus, best resists the action of the solvent and is more sensitive to light.

"As regards using iodine for blackening, as also when using acid for engraving on copper, it is necessary that the varnish, after washing, shall be as described in the second experiment on glass, above quoted, for it is then least penetrable by iodine or by acids,⁸ principally in the parts where it has retained its transparency, and it is only in this way that success can be expected even with the most perfect optical appliances."⁹

HISTORICUS.

(⁸) Note by M. Daguerre:—The print which was the origin of this statement was exposed to light in the camera, and although M. Niépce refers here to iodine for blackening and acid for etching, copper being presumably meant, these two operations would have given no gradation of tones. As a matter of fact, the image was obtained by the greater or lesser thicknesses of varnish corresponding to the action of light on the film, and it is impossible for the acid to act in this way, neither did M. Niépce ever make an engraved plate by direct exposures in the camera.

(⁹) Note by M. Daguerre:—The best optical apparatus cannot alter the fact noted above.

COLOUR PHOTOGRAPHY ON PAPER.

[For the following itemised report of a paper by the Rev. Johnson Barker before the Worcestershire Camera Club and Photographic Survey Society on Wednesday in last week we are indebted to the Honorary Secretary, Mr. W. W. Harris. The process worked by Mr. Barker consists in superimposing yellow and red images on a ferro-prussiate base, with precautions which are detailed in the description which follows.]

Colours for Home-made Filters.

For the preparation of the negatives it was found most convenient to use the filter in front of the lens. For all practical purposes of an inexpensive process the lecturer stated that lantern plates, fixed and stained, could be recommended. He stained two plates, and bound them together in the form of an ordinary lantern slide, securing optical contact between the two with Canada balsam. A number of colours were mentioned, but, taking the three primary colours, the following were found suitable, viz:—

For red—fast scarlet for wool.

For blue—fast light blue for wool.

For yellow—fast yellow for cotton; besides which three, a useful colour is:—

For green—fast green for wool.

"Diamond" dyes of these colours are used, and are chosen because easily obtainable and cheap. The stains commonly recommended and employed are expensive, and generally require to be specially ordered. Do not use strong solutions in staining the plates. More even results are obtained with dilution and longer immersion. Afterwards, thoroughly rinse until there is only a slight discharge of colour, and allow to dry spontaneously. Test exposures should now be made, with and without screens, which can be made on one plate by using strips of opaque paper or shields; a proper comparison of these exposures will give the relative exposures required for each screen. After obtaining the three negatives through the colour screens, the next consideration will be the coating of the papers.

Making the Three-colour Print.

We commence by making the first on the ferro-prussiate paper, as this is not successful upon the bichromated red and yellow applica-

tions. To obtain vigorous and brilliant prints the paper is best freshly sensitised, using:—

A.—Ferric ammonium citrate	1 oz.
Water	6 oz.
B.—Potass ferriocyanide	1 oz.
Water	10 oz.

For use, mix equal parts and filter; coat the paper in the usual manner, and pin up to dry. Next procure twopenny tubes of moist colours, yellow and red, a bottle of ordinary office gum, and a 1-in. camel-hair flat brush. Take equal proportions of a 10 per cent. solution of bichromate of potassium, and mix thoroughly with sufficient yellow pigment to form a wash of about the consistency of milk, coating with this the surface of the dried blue print. Care should be taken to use the brush lightly in all directions to secure even distribution of the colour, which should be of no deeper density than the deepest shadow in the resulting print. Make the exposure through the second negative in the usual manner, and carry to a point when the image can be fairly seen. Then float the print, face downwards, in cold water, and let development proceed of itself. Afterwards, thoroughly dry and proceed in the same manner as before, by sensitising for the red, drying, printing, and developing just the same. The operation of colour sensitising may be carried on in daylight or gaslight, as the paper only becomes sensitive when dry.

Correct registration must be made in the successive printings, and can be secured in several ways. It is not a difficult matter to do this by holding up the printing frame to the light, and thus set the print in register with each successive negative.

Points to be Noted.

Allow each print to dry spontaneously and thoroughly before applying the next coating.

Although other forms of pigment may be used, the tubes of moist colours will be found to work most freely and evenly.

A good quality cartridge paper will be found suitable, but this must be quite free from water marks, and it is advisable first of all to thoroughly soak and dry the paper, or trouble will ensue from shrinkage, and thus prevent exact register. Practically there is no limit to the colours which may be used, but in this initial stage gamboge and crimson lake may be tried. It should be noted that the order of colours is not according to the usual rule, but in this process must be followed as given.

Some Results.

Not the least interesting part of the demonstration was the showing of a selection of Mr. Johnson Barker's three-colour prints, on which one or two of the members present found it hard to believe that brush work had not been used. The prints possessed a charm of softness and blend of colour pleasing in the extreme, and were inspected by the members with a great amount of interest and surprise at their beauty of colour rendering. Some slides by the Sanger Shepherd process were also shown.

"THE BRITISH JOURNAL ALMANAC, 1906."

This day (Friday) photographers throughout the United Kingdom will be able to obtain the 1906 volume of "The British Journal Photographic Almanac." The features and contents of the "Almanac" have been kept prominently before our readers during the past few weeks with the object of emphasising to every intending purchaser the fact that an order in advance should be given if it is desired to make certain of procuring a copy. In some respects, too, the "Almanac" differs from its recent predecessors, and now that the issue is in the hands of the dealers and booksellers up and down the country, we may, on behalf of the publishers, once more outline the general nature and arrangement of the contents.

The 1906 "Almanac" includes:—

A directory of photographic societies in the United Kingdom and Colonies, compiled from official returns, and giving, among other particulars, the place and time of meeting. (P. 584.)

Full particulars of important photographic bodies, such as The Royal Photographic Society, the Professional Photographers' Association, the Photographic Convention, the Linked Ring, etc. (P. 615.)

A complete treatise, in popular language on "Photographic Copyright," from the pen of the Editor. It deals with the rights, responsibilities, and liabilities of photographers in their dealing with sitters and with the Press. (P. 657.)

Contributed articles by leading writers. (P. 884.)

Epitome of progress—a systematic and classified review of progress in every branch of photography, arranged under the following

headings:—APPARATUS AND EQUIPMENT; PHOTOGRAPHING VARIOUS SUBJECTS; NEGATIVE PROCESSES; PRINTING PROCESSES; COLOUR PHOTOGRAPHY; GENERAL. (P. 721.)

Recent novelties in apparatus. (Pp. 629 and 875.)

Formulae for the principal photographic processes, entirely revised and made representative of the latest approved practice. (P. 941.)

Working formulae for the use of the principal plates and papers on the market, revised to date. (P. 991.)

Miscellaneous information on copyright, poisons, patents, etc. (P. 1064.)

Tables of weights and measures, solubilities, exposure, lens calculations, etc., revised and rearranged throughout. (P. 1081.)

The whole of this large and varied mass of information is made accessible by the provision of:—(1) A contents on page 651, showing where any given item must be sought; and (2) An index of items (p. 1127), leading the consultant to the paragraph he requires.

The only task—and that a particularly unwelcome one—remaining to the Editor is to express his regret that exigency of space has compelled him to hold out of the volume several contributions which are printed below. In taking this course the Editor would bring to the knowledge of the contributors the fact that their communications were not withdrawn until a considerable reduction of editorial matter had proved insufficient to prevent the volume from exceeding limits which, as those experienced in book production are aware, are laid upon editor and publisher.

A GOOD FORM OF DEVELOPING POWDER.

By W. H. WALMSLEY.

A dozen or more years ago I sent to the ALMANAC a short communication on the advantages of a developer that might be kept in powdered form for an indefinite period, always ready for use by simply dissolving in water, and entirely free from deterioration that all solutions—save Rodinal alone—are invariably subject to. The reagents as given in the little paper were eikonogen and hydroquinone (now so well known) in a mixed form, which I had then used since their introduction in the early eighties. During the years that have elapsed since that article was written I have used all—or nearly all—of the rapidly increasing family of developing reagents, and, it must be said, with excellent results in each case. But I found myself ever returning to the old "Eiko-Hydro" combination after straying awhile in other fields, finding it like an old and tried friend—always dependable. It is not the purpose of this present writing to extol the virtues of any developing reagent, but to jot down the method of keeping this one in a fixed, dry state, unchanging and ever ready for use, together with the simple mode of so doing that I have found convenient and practical.

Two powders are required, both in the form of mixtures—hydroquinone and eikonogen forming the one, the alkali preservative the other. These may, of course, be compounded in any desired quantities. For the amateur, in whose interests these lines are mainly written, I would suggest 2 ozs. as being a convenient quantity to prepare at one time, and screw-cap glass jars, such as commercial photo-mountant comes in, as being very excellent containers. After exhaustive experiments the following proportions of each reagent and salt forming the

powders were found to be the best and practically perfect, so that I have made no change in them during many years:—

No. 1. Eikonogen	...	...	...	...	400 grs.
Hydroquinone	...	...	...	...	320 "
Mix very thoroughly, and put into one of the jars.					
No. 2. Sodium sulphite— <i>dried and powdered</i>	...	...	...	...	960 "
Lithium carbonate	...	...	...	...	240 "
Also mix thoroughly and put into the second jar.					

Thus prepared, the powders are always ready to make up the fluid developer *at once*, and, as stated, they keep indefinitely. I have noticed no change in them after being mixed more than a year. Of course, they were kept in the screw-top jars, which, having a cork lining to the cover, preserved the contents from the outside air.

For all makes of plates with which I am acquainted, and for anywhere near correct exposures, the developer may be compounded as follows, from which I never find it necessary to vary:—

Water	...	...	...	...	4 ozs.
No. 1...	...	...	...	...	25 grs.
No. 2 ...	...	...	...	...	15 "

Dissolve in order named, stirring with a glass rod; the chemicals will dissolve very quickly. To avoid the trouble of weighing each time, a couple of little dippers, that will hold just the right quantity when filled, may be used. I have found small thimbles very excellent for the purpose. A stiff tin handle can be soldered to each for convenience, and when nickel-plated they are very neat and nice-looking, as well as useful.

We have thus but $3\frac{3}{4}$ grs. of the eiko-hydro mixture to each ounce of developer, and about $1\frac{1}{2}$ grs. of the alkali to the same volume, making it one of the cheapest developers that has ever come under my observation—perhaps the very cheapest, notwithstanding the high price of lithium carbonate. The small quantity of it that is used, compared with the much larger amount necessary with sodium carbonate, is a prime factor in lessening its first cost, whilst the resultant negatives are softer and in every way better than those developed with sodium carbonate as the alkali. Any desired amount of density may be obtained, there is never any tendency to fog, the development is not too prolonged, and the negative a thing of beauty in itself. For photo-micrographic work I know no method of development equal to it.

IRON IN PLATINUM PRINTS.

By J. H. BALDOCK, F.R.P.S., F.C.S.

Some unexpected results on platinum prints having lately been brought to my notice, which I thought could only be produced owing to the presence of iron in the paper, I determined to once again examine this point. Some readers may remember a paper by Mr. Chapman Jones in the "Journal of the Royal Photographic Society," May 30, 1895; and one by myself in "The British Journal of Photography," November 8, of the same year.

The question has been raised whether citric acid (a vegetable acid) is not better to use than hydrochloric acid (a mineral acid) for the elimination of iron from a platinum print. My procedure, therefore, was as follows:—I made a solution of pure hydrochloric acid $\frac{1}{2}$ oz. to a pint of distilled water, and one of citric acid 1 oz. to a pint; then, having placed a half plate piece of platinum paper (not a print) in two separate dishes, the acid solutions were poured over them, and allowed to stand for 10 minutes; these were drained off, and the process repeated a second time for 15 minutes, and a third time for 20 minutes, such times being largely in excess of the time usually given.

The papers were then well washed in distilled water and dried. They were then burnt to a white ash in two separate platinum crucibles, the ash was boiled in perfectly pure hydrochloric acid, filtered, rendered alkaline with ammonia, and ammonium sulphide added. This gave a precipitate of a greenish black colour, much more copious in the case of citric acid; the precipitates were separately dissolved in aqua-regia, diluted, filtered, and again rendered alkaline with ammonia; a brown precipitate was now obtained on the filter, more copious again in the case of citric acid. This was dissolved in a few drops of the pure hydrochloric acid, filtered, and just neutralised with ammonia; this final solution was then further tested for iron in the usual way, positive results being obtained in both cases. Although possibly the citric acid may not have such a softening effect on the paper as hydrochloric acid, a point of no great importance. Yet from the above experiments it does not seem to be so efficacious for the removal of the iron as does hydrochloric acid.

It would thus appear that working under commercial conditions, where several prints have to be in the baths at one time, and no very great length of time allowed, it is practically impossible that all the iron can be removed. The prints nevertheless, show perfectly pure whites, and under ordinary conditions, do not seem to be any the worse; yet, under certain circumstances, the presence of the iron may make itself uncomfortably felt.

Trying if all the iron could be removed I took another half plate piece of the paper, and kept it for 48 hours in the bath of perfectly pure hydrochloric acid $\frac{1}{2}$ oz. to the pint of pure distilled water, changing the bath at frequent intervals, washing, drying, calcining, etc., as before, with the result that practically the whole of the iron was removed and unweighable, an almost invisible quantity remaining at the end of the operations. Of course, as several filter papers have to be used, it is quite necessary that these, as well as all the chemicals employed, should be pure and free from iron.

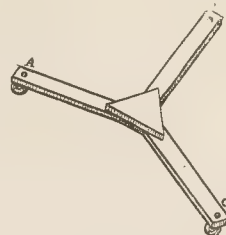
THE TRIPOD AS A STUDIO STAND.

By J. McINTOSH.

Everyone who has attempted to take portraits indoors or out of doors, but particularly the former, with no better support for the camera than a tripod, will bless the unknown genius who invented the little piece of apparatus which I am about to describe. We all

know the difficulties that are met with when working in an ordinary room in getting the image the right size, in getting the figure in the right place on the focussing screen, and in keeping what should be upright lines truly vertical. The slightest alteration in the camera necessitates a readjustment of the tripod, with the result that photographer and sitter are both worn out before the exposure is made.

A few months back, when rummaging through some of the "variorums" in a lumber room at 66, Russell Square, I came across a curious piece of apparatus which when unfolded presented the appearance seen in the accompanying sketch. It is, in fact, a movable



support for the tripod, the points of which are placed in the holes marked A, B, and C. Once the camera has been raised to the correct weight and properly levelled, it and the tripod may be wheeled about to any position with the greatest of ease.

The sketch almost explains the contrivance without further description, but to make everything clear it may be said that the central piece is a triangle of about 9 in. on each side. Underneath is another triangle, with all three points cut off so as to form a hexagon of about 3 in. on each face. Three arms are then attached on the under side by "backflap" hinges. The arms may be of any convenient length, and at the extremity of each a castor is fastened.

When in use the contrivance is rigid, as the pressure, being downward, locks the hinged parts together. When not in use the arms fold downward and the contrivance may be stored away in little space. In conclusion, I desire to offer my congratulations to the unknown inventor.

ASTRONOMICAL PHOTOGRAPHY.

By J. W. SALISBURY.

A photograph of the sun may be taken in bright summer light, in about one-fiftieth of a second, with an aperture of $f/64$; use a very slow plate with a fine grain, such as a lantern plate, and a very dilute developer (not pyro, as liability to stain is feared, owing to the prolonged development).

When photographing the moon, an exposure of one-quarter of a second at $f/5.6$, soon after she has reached her first quarter, will give a good negative, using a very rapid plate. Owing to the rapidity of the moon's motion, exposures, with stationary apparatus, should not exceed one-quarter of a second from small images, and for larger, shorter exposures still will be required in order to avoid the blurring caused by the displacement of the image on the plate.

If driving mechanism is used, longer exposures can of course be given, and consequently larger photographs obtained, but there is always a limit to the magnification, as, after a certain point, further magnification will not resolve any more detail.

Let p = the principal focus of the object glass.

a = the diameter of the object glass.

l = the wave length of the light used to illuminate the object.

c = the diameter of the greatest disc of confusion permissible.

Then cp/al will be the greatest effective magnification that can be used, and greater magnification will only increase the size of the image without revealing any more detail, and will to an extent destroy the detail in the fainter parts of the image.

For photographing we may take $l = 0.00073$, giving a limit of 1360 p/a diameters of magnification for maximum detail. We have taken $c = 1/100$ inch.

For visual purposes a magnification of 770 p/a will resolve the maximum detail a keen eye can perceive.

Since most telescopes have a focus of fourteen times the diameter of the object glass approximately, the useful magnifica-

tion will not exceed 100 diameters per inch in diameter of the object glass for photographic purposes, and 55 diameters for visual purposes.

If extreme magnification is not required, the clearest view will probably be obtained with a magnification of 35 diameters per inch of aperture.

HOW THE DENSITY RATIOS ARE ALTERED.

By H. J. CHANNON.

The year 1890 marked a most important stage in the progress of photography, and a very advantageous new start was then made towards placing it upon a true scientific basis. The paper by Messrs. Hurter and Driffield of that year, which has done so much to give life and interest to the scientific side of photography, being, however, a new departure in the line of investigation pursued, it was naturally to be expected that the conclusions arrived at in it would not all be absolutely sound, especially as there is internal evidence that the authors were not very well acquainted with previous photographic literature. Consequently, as was to be anticipated, first conclusions in some cases have had to be much modified, and this is especially so in the matter of development, where further investigations by Messrs. Hurter and Driffield themselves, and by other experimenters, have shown the necessity.

But a remarkable feature in this history is that their thick and thin supporters seem quite unaware of that fact, and continue to denounce all who question any of the opinions expressed in the paper of 1890 as merely fossil remains of the wet plate age, who are incapable of appreciating new ideas. At a meeting of the Society of Arts, in February, for instance, some innocent fun was provided for the amusement of the audience at the expense of those middle-headed persons who had criticised unfavourably the doctrine of the absolute unalterability of the density ratios. Unfortunately, the fact was overlooked that time had proved those critics to have been entirely in the right. The ratios are so far alterable, in fact, all the investigations of recent years go to show that over-exposure is to a great extent curable by our at present available methods, and the faults arising from under-exposure may possibly be abated.

The following are well established facts:—In the presence of a soluble bromide, the density ratios change continually during development, hence the plate has always *different speeds* at each stage, and, by choosing the correct length of development, we may suit the gradation to the exposure. Of course, if density is then deficient, the plate must be intensified. If the plate itself contains a soluble bromide, this variation in inertia will occur in spite of us, and the time of development must then necessarily be adapted to suit the gradation required. Mr. Mees recently mentioned a case in which the speed varied from 150 Watkins to 1000, according to the time of development. Messrs. Mees and Sheppard have shown ("Phot. Journ.," Vol. XLIV. p. 286) that considerable differences in speed are found in some plates, but not all, when developed by different reducing agents. Many workers, too, claim that greatly increased restraining power may be gained by using citrates in place of bromides; that matter, I think, has not been scientifically investigated. But, in fact, to be convinced that a very great amount of control over the gradations can be had, it is only necessary to glance at Mr. H. W. Bennett's diagram 16, given in his paper read before the Royal Photographic Society on March 10, 1903.

It is clear, then, that a photographer has great resources if it be required to remedy known errors of exposure, and it is difficult to see why strong objections should be raised, as in some quarters they are, to his employing such means as are best adapted to the purpose. I entirely agree with the opinion that the best general system of work is to use all available means to obtain correct exposure, and then, that being secured, to develop by a good scientific mechanical method; but few photographers can avoid cases where incorrect exposure must be given, and then I think it wiser to take advantage of all the benefit that modified development can give, rather than sacrifice the qualities of a negative for the sake of remaining slaves to a mechanical routine.

NOTES ON THE USE OF LENSES.

By J. LEISK.

However much skill, ingenuity, and labour may have been expended on the production of a modern camera, it will be admitted that the most important factor of any camera is the lens.

Given a good lens, in skilful hands, good work may be turned out with otherwise very ordinary apparatus, provided it be light-tight; but, on the other hand, if the lens be faulty or unsuitable for the subject, all the "latest improvements" and superior workmanship will not improve matters to any extent.

The special optical qualities of modern lenses are distinguished by such terms as *aplanat*, *stigmatic*, *anastigmatic*, *holostigmatic*, *euryscope*, etc., etc., and, of course, every makers' lenses are *the best*, though, parenthetically, I may remark, that in my experience the higher-priced lenses are not necessarily the best, but as it is not my intention to discuss the optical qualities of such lenses, it is sufficient to indicate the practical test, which is that the lens should cover the whole of the plate, for which it is made, sharply without undue stopping down, and also bring the foreground, say, 20 yards distant, and the more distant objects into good, sharp focus.

Now, suppose a beginner in photography has acquired a quarter-plate camera, fitted with a good, rapid rectilinear lens of the quality indicated, he will naturally wish to follow the prevailing fashion, and take views for picture-postcards, for which his quarter-plate is too small, as is also a 5x4 camera; hence, he must invest in a half-plate camera, and if money is no object he will get it fitted with an expensive R.R. lens complete, but when he begins to use it he will find that though the scale is larger, the half-plate will take in little, if any, more extent of view than did his quarter-plate, the reason being that each lens is constructed so as to include about the same angle or *extent of view* on their respective plates, but as the quarter-plate lens will have a focal length of between 5 and 6 inches, while the focal length of the other will be between 9 and 10 inches, it follows that the quarter-plate lens, as compared with the half-plate one, is a *wide angle* lens and will include a much wider extent of view when used on a half-plate than the ordinary half-plate lens, or, in other words, the difference between a "wide angle" lens and a "narrow angle" lens is that the former is of shorter focus than the latter. Hence, a good R.R. quarter-plate lens may be fitted to a half-plate camera, by the use of an adaptor or extra sliding front, and used when it is necessary to extend the angle of view, and if the lens be a really good one, the back lens of the combination may be used as a single or landscape half-plate lens, and thus save the expense of two lenses when investing in a half-plate camera.

Of course, there are specially constructed "wide angle" lenses on the market which are supposed to cover the plate sharp with a larger stop than those I have indicated; but the question comes to be: are the advantages worth the extra expense to the possessor of a good quarter-plate lens? In my own experience it is not, seeing that I have a quarter-plate R.R. lens that can cover a half-plate sharp enough for all ordinary purposes, and as the speed of a lens is regulated by the proportion between the size of stop and *focal length*, and not by the *size of the plate*, I find it rapid enough for instantaneous exposures.

In photographing buildings, streets, etc., when space is often limited and it is impossible to go further back, a wide angle lens is a necessity in order to secure the whole subject on the plate; but for all other outdoor subjects a 9-inch focus has a tendency to dwarf in appearance the more distant objects, and to produce "violent" perspective of the very near objects—the shorter the focus of the lens the more violent will the perspective be, and here comes in a very curious optical effect. If we take a street view with, say, a 3-inch focus lens, the perspective will be *very violent*, the nearer houses appearing large out of proportion to those a short distance away, but if we examine the print through a 3-inch focus lens the distortion will disappear and the lines of the view appear quite correct, the explanation being that a person with normal sight cannot view the picture so near the eyes as the focal length of the lens by which it was taken—viz., 3 inches—without the intervention of a lens of that focus, but by the aid of such a lens the lines of the picture are refracted to the normal, and so reach the retina of the eye.

The moral, or lesson, we learn from this, is that the lens whose focal length is nearest to the distance we hold a book from our eyes when reading, is the one that will most truly render natural objects near and distant *as we see them*, otherwise if taken with a shorter focus lens they will appear more natural and pleasing if seen through a lens or eyeglass of the same focal length as that of the camera by which they were taken.

When stereoscopic pictures are viewed through lenses or prisms of the same focal lengths as the lens of the camera by which they were taken, in addition to the solid appearance of the objects caused by the binocular arrangement, one loses the sense of looking at a *small picture*, the object assumes a natural or life size, and one is able to judge distances in the picture almost as accurately as if the actual scene was before him.

THE NATURE OF THE LATENT IMAGE.

I.

(Abstract of a paper read by Dr. Eder before the Viennese Academy of Sciences.)

THE nature of the latent image on the haloids of silver is, despite numerous investigations, not determined. The so-called subhaloid theory, which was first advanced fifty years ago, and has been repeatedly disputed, is the most probable. This assumes that silver bromide AgBr , loses a very small quantity (y) of bromide, so that one, or as the author assumes, several kinds of silver subbromide, $\text{Ag}_x \text{Br}_{x-y}$, of unknown atomic composition are formed. Luther supports the formation of one subhaloid Ag_2Br or Ag_3Cl , and considers that the image obtained by printing out contains more or less of this substance; he does not think that it is probable that there is a solid solution between the AgBr and Ag_2Br , whilst Carey Lea, Bauer, and Gunther support this view, and that with increasing exposure black products are continuously formed.

All these theories assume the formation of the subhaloid during exposure, but the evolution of bromine is so small that it evades detection. In opposition to the subhaloid theory is that which assumes that the haloids are reduced to metallic silver, a view first expressed by Arago, and more recently by Abegg in his silver-grain theory; but this is not now of much moment, as it cannot satisfactorily explain the phenomena of development.

Another theory, the structure theory, assumes that there is no photochemical evolution of bromine in the silver bromide molecule, but that a molecular change takes place, that is a splitting up of the complex AgBr molecule group into a simple one.

Guntz has recently advanced the view that the latent image (on silver chloride) is a physical modification, but that there is no chemical dissociation by the light; and he considers that there is only an evolution of the haloid and formation of the silver subhaloid, when there is direct blackening; this, the subchloride or half-chloride, is stable to nitric acid in the dark, but not in light, and is decomposed by fixing agents with the precipitation of metallic silver and the formation of the soluble haloid.

Lüppo-Cramer advanced the theory that the latent image consisted of two substances, the lesser portion, that which received the shorter exposure, consisting of an allotropic modification of AgBr and the greater portion corresponding to the longer exposed, consisting of silver sub-bromide, which was formed by the evolution of bromine. Lately he has given this up as not well founded, and supports the subhaloid theory.

Organic and Inorganic Images.

Hardwich, and, later, Sterry assume two chemical substances in the latent image, an inorganic and an organic; the inorganic substance should, according to this theory, be destroyed by hypo, the organic, not. This theory was founded by Hardwich on some experiments which were badly carried out. He erroneously believed that pure silver iodide collodion films lost the latent image on fixation, and that a developable image only remained on the films mixed with organic substances such as albumen, etc.; and therefore held the organic substance as an important constituent of the latent image. Actually the silver iodide film left, after fixation, a developable image, so that Hardwich's proofs were wrong.

Sterry tried no proof, but advanced the theory that the component of the latent image on gelatino-bromide, which remains after fixation, is a decomposition product of silver bromide and gelatine, probably because he lacked another explanation of the curious behaviour of the primary fixed latent image. When one thinks, however, that not only gelatino- but collodio-bromide of silver shows exactly the same phenomenon, even in the presence of concentrated nitric acid or silver nitrate, the existence of this problematical compound of silver

subhaloid with an organic substance is extremely questionable, especially if the behaviour of the latent image on collodio-bromide is more exactly studied.

Whilst the behaviour of the synthetically prepared subhaloids to nitric acid is accurately determined, there is considerable dispute as to the behaviour of the hypothetical sub-bromide of the latent image. The reason for this is that the measurements, which are actually necessary for such complicated photo-chemical reactions, were not taken sufficiently into account; further, it appears that silver subhaloid blackened by light is of a different composition from the latent image.

The Author's Experiments.

In 1899 the author showed that certain kinds of latent image were formed on collodio-bromide in the presence of silver nitrate and nitric acid, which would withstand the action of nitric acid better than metallic silver, and this is a strong argument in favour of the subbromide theory: the formation of a latent image under the above circumstances was confirmed by Lüppo-Cramer.

Using a photometer and a constant light source, collodio-bromide plates were exposed and then treated with nitric acid, Sp. Gr. 1.4, and after five minutes the latent image corresponding to the faintest light action was destroyed, after ten minutes, still more was destroyed, but not the latent image of the strongest light action; when the plate was exposed so as to cause solarisation and a distinct coloration, nitric acid did not entirely destroy the latent image, though it instantly dissolved metallic silver. In the above experiments the image, after the nitric acid treatment, was physically developed, but it was also possible to chemically develop it, though neither the inertia nor the curve of opacities was the same.

Further experiments were made as to the action of nitric acid on the solarised image, using afterwards both physical and chemical development, and the author comes to the following conclusions: (1) The normal briefly exposed latent image on pure collodio-bromide is destroyed by nitric acid; (2) the longer exposed latent (negative) image is not destroyed but only weakened; (3) the solarised latent (positive) image is only slightly attacked by dilute nitric acid, but is completely destroyed by strong acid so that it develops as a thin negative and not a positive. The opacity is dependent on the insolation, the thickness of the film and the method of development, and the image is probably due to the superposition of two different latent images.

If silver nitrate is added to the collodio-bromide, solarisation requires about ten times longer exposure than with a plain emulsion, and the sensitiveness is increased from twice to four times; if the plate is subsequently treated with nitric acid it is gradually destroyed and perfectly clean negatives are obtained.

The Physical Development of the Primary Image.

If a latent image is produced on iodide, bromide, or chloride of silver by a short exposure and then fixed with hypo, the film of bromide will be absolutely dissolved, the plate will be quite blank, and there will not be the slightest trace of an image, but physical development will give a picture. This fact, the author points out, was first noted by Young in 1858, and by Davanne and Bayard in 1859. As physical developers, that is solutions which contain metallic silver in statu nascendi, will deposit the same on any precipitate or particle or altered surface, their action cannot be held to be any support as to the chemical nature of the "grain" theory.

It is interesting to note that fixation of the primary latent image

with hypo, only destroys what we should call the details in the shadows and lessens the opacity of the half tones, in other words it shows the plate, but the action is dependent on the exposure, the developer, and the duration of development. It is obvious that, from the extremely minute traces of this "Bildüberbleibsel," which we can only call "remnants of the latent image," or *x*, which exist in the film, it is impossible to subject it to chemical analysis, therefore one must consider the results of various reagents.

The disputed assumption that the remnant of the latent image after fixation is silver, was suggested by Lüppo-Cramer, as all silver solvents destroyed it, and treatment with bromide prevented development, but if this bromised *x* was re-exposed it could be developed. Other experimenters stated that chlorising agents as well as ferricyanide destroyed this *x*.

The author's experiments proved that nitric acid, even dilute of Sp. Gr. 1.2, attacked *x* much more strongly than before fixing, and it was only in the more exposed parts that it was able to withstand the action of the acid for some time. When the latent image was treated with a 20 per cent solution of hypo at 80 degrees C., it was not destroyed but so altered in constitution after five or ten minutes that it was completely destroyed by nitric acid.

When collodio-bromide was enormously overexposed, then fixed with hypo and physically developed, a negative of a blue-grey colour was obtained, which was the negative of the second order; the less strongly exposed places developed as a positive, whilst the shortest exposed developed as a normal negative of the first order. If after fixation this enormously overexposed (3,000 to 20,000 times) part was treated with dilute nitric acid, Sp. Gr. 1.20, the image substance (metallic silver?) of the second order dissolved, and left behind a tolerably distinct solarisation image, although partially destroyed, which with physical development gave a clear and distinct positive of a brownish colour, where previously the blue grey negative of the second order existed.

Photo-Mechanical Notes.

An Opportunity for Patriotic Photo-engravers.

HIS MAJESTY'S Stationery Office recently invited tenders for Photo Zinco Blocks, and the conditions of the contract are set forth on a form issued from Westminster, S.W. This states that the contractor shall have a convenient office in London, and shall produce such photo-zincographic blocks as may from time to time be required, at the prices stated in a schedule annexed. But these prices may be increased or diminished in any tender made.

We should hardly think there is likely to be any diminution in the price, since the 28,000 blocks annually required by the "Patent Office Journal," which blocks may be as large as 8 by 5½ inches in size, are priced at 1s. each! Other line blocks are priced at 3d. per square inch with a minimum of 6d.! Half-tone blocks are 6d. per inch, with a minimum of 5s., which, if there was a fair quantity of the work, would not be unreasonable.

For making a drawing the charge is to be 6d. per square inch, and for touching up (when instructed only) the charge is to be 1½d. per square inch, the charges to be upon the completed block and not upon the drawing. All blocks to be squarely and firmly mounted on hard wood and made type-high, and delivery made, if required, within twenty-four hours.

It is just as well the Stationery Office indicates that some advance may be made upon these prices, as it is difficult to imagine how anything but patriotism could induce them to be undertaken at the figures stated for the line work.

A Useful Book.

One of the largest firms in the process world keeps a book in which it records all the defects encountered during the course of the work, and against the defect are recorded the remedies which were found efficient. As this book has been kept almost from the commencement of a long-established firm, and properly indexed, it is of considerable value now, as there is practically no trouble met with that cannot be referred to and promptly cured. This is a hint worth adoption, by individuals as well as by the house itself.

Negatives for Three-colour Half-tones.

We hear much about the advantages of making the colour records and screen negatives at one operation, the so-called "direct" process on collodion-emulsion or dry plates, as against the indirect method of making three continuous tone negatives for the colour records, three transparencies or prints from these, and then the screen negatives from these. Now it is true that there are nine operations instead of three in the latter case, but it may be that the operations are themselves simpler and more certain, and so the longer way round may prove to be a short cut. They think so in many of the Continental establishments, where they are convinced that the indirect method is the more economical, all things considered, while at an English firm recently, where six-colour sets had to be finished quickly, the operator to whom it was entrusted, thoroughly expert in both processes, chose the indirect method, and, incredible as it may seem, completed the screen negatives the same day. It is true that the six originals were of the same character, and all of the same reduction, so that only one focussing was needed, but, nevertheless, to make eighteen colour negatives, eighteen positives, and eighteen screen negatives in one day constitutes a "record," we should think.

An Overall for Process Workers.

The apron that process workers usually wear is not sufficient protection, particularly for the coat and shirt sleeves. At a cost of 7s. 6d. may be purchased a long holland coat which reaches below the knees and is provided with pockets, and most usefully with an inner sleeve which has an elastic band clipping it to the wrist. These are known as "furriers' coats," and we can only suggest one improvement to make them entirely suitable for the process worker, and that is a belt into which could be tucked a duster on which to wipe the hands, which otherwise are apt to be wiped on the coat itself, and so spoil its appearance.

Half-tone Estimates.

The cost of half-tone blocks is perhaps as little understood in many photo-engraving shops in England as in America, where Mr. George H. Benedict has been calling on his brother engravers to get their business management "straightened out." According to Mr. S. H. Horgan, in the "Inland Printer," one of the United States Government departments advertised for bids on some half-tone illustrations. When the bids were opened they ranged from 1,200 dols. down to 300 dols. Apparently there is just the same need in the States as here for process men to sit down and find out the conditions under which they are turning out an article of manufacture. How many process houses can dissect the net cost of producing their half-tones?

A Patented Half-tone Screen.

The wording of the specification in which protection is claimed for the Dittmann half-tone screen leaves room for further clearness of expression, but it is stated that the inventor has found "that half-tone screens are considerably improved if the tone-fields are endorsed within borderlines." Often, it is stated, "the cones of rays passing through the elements of the screen do not take a direction sufficiently in accordance with the tones, for the rough grain on the sensitive plate and the refraction caused thereby considerably affect the form and action of the cone of rays. If the tones of the screen

be enclosed by light or dark lines such a demarcation will be effected that the different cones of rays will be directed entirely according to the particular tones of the halftone image, and consequently the image will be properly decomposed, which hitherto has been impossible by means of tone screens. The screens are the invention of Theodor Dittmann, 9, Mühlenbrücke, Neumünster, Holstein, Germany.

A Litho Colour Patent.

A system of preparing the various transfers for multi-colour lithography has been patented by Franz Otto Münch, 237, Dresdner Strasse, Wilsdruff, Germany. By printing the negative in various depths on photographic, and especially on printing-out paper, by direct contact from the original negative, pictures are obtained which are not identical with each other, and simply by retouching in black and white, the pictures to be copied for the separate colour plates are worked up. This method involves considerably less expenditure of labour than ordinarily, and the original character of the picture is retained. A further advantage is the replacement of the troublesome photographic process by the much more convenient procedure of making a contact-print on printing-out paper. For example, colour-plates for a five-colour printing are made as follows:—A photograph of the original is first taken and five positives are made from it, for instance on matt celloidin or printing-out paper, all varying in depth or strength. The darkest print serves for the production of the blue plate: the others in succession of decreasing depth, for say yellow, neutral and two shades of red, which the particular coloured impression in question is to contain. In this manner the "value" or intensity of the colour, that is to say, their relative strengths in the finished picture, is approximately produced already in the positive printing operation. The various colours are further worked out by retouching in black and white, whereby the parts are rendered lighter or darker, as required. Thus, for instance, in the blue print, those places which in the picture are to appear without blue, or at least in a very slight shade thereof, must be wholly or more or less covered with white, while those portions which are to appear in a deeper shade of blue, must be gone over in black. The same procedure is followed in the case of the "yellow," and remaining prints. Lithographers being accustomed to judge the future chromatic effects according to the colour plate in lithographic ink, that is black-brown, they will be well able to judge the chromatic effects of the printing plate to be obtained from the paper print in photographic tones. The paper pictures thus obtained and worked up, are now copied on printing plates or films by means of the camera, and these negative printing surfaces are rendered suitable for printing in the well known manner.

Photo-Engraving as a Business.

On Thursday in last week, Nov. 23, Mr. Arthur Cox, of the Arthur Cox Illustrating Company, lectured at the L.C.C. School of Photo-engraving and Lithography before a room full of students and members of the trade. He gave a very interesting intimate talk, dealing with the difficulties of the photo-engraver regarding the claims of customers in respect to wanting work in a hurry and of impossible size. He counselled specialization, both from the point of view of business and from the point of view of the operator, and stated it was still very difficult to get good men, particularly men who could prepare originals suitable for reproduction. Dealing with the question of price-cutting, he said this frequently occurred because a customer stated he had had a low price from a rival firm. If the rival firm could do the work at that price, then the firm thought they could do it a bit lower, without ascertaining whether the cost of production could permit of its being done at a profit. In many cases this was mere bluffing on the part of the customer. The rival firm had made no such low quotation. He urged, as far more impor-

tant than any association, the ascertaining of the square inch cost of the work to the photo-engraver. When he knew this, he knew exactly what he could afford to do work at, without losing money. He believed in a system of profit-sharing in the business: it would save a surprising amount of waste among the men. There was some discussion after the lecture, and a hearty vote of thanks was accorded to Mr. Cox.

AN application for patent in the improvement of photo-mechanical processes was made last week by Edward Russell Clarke, 35, Leinster Gardens, Hyde Park, London.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between November 13 to 18.

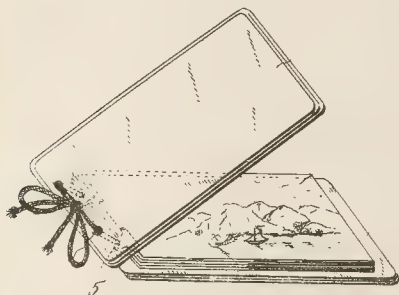
- CINEMATOGRAPHS.—No. 23,256. Improvements in cinematograph pictures and stereoscopes. Theodore Brown, 26, Drummond Road, Bournemouth.
- CAMERAS.—No. 23,387. Improvements in photographic cameras. Charles Howell and George Lloyd Moore, 65, Chancery Lane, London.
- STEREOSCOPY.—No. 23,425. Improvements in stereoscopic apparatus. Thomas Ernest Waltham, 4, South Street, Finsbury, London.
- CHANGING PLATES.—No. 23,431. Improvements in apparatus for carrying or changing photographic plates. William Augustus Peters, Norfolk House, Norfolk Street, Strand, London.
- PHOTOGRAPHY IN THE DARK.—No. 23,447. Improved electrical lamp for photographing in the dark. William Dentith and Harry Midgely, 30, Baillie Street, Rochdale, Lancs.
- POSTCARDS.—No. 23,455. Postcard printing carrier. Henry Essingburgh Cooke, 39, London Road, Sevenoaks, Kent.
- SHUTTERS.—No. 23,488. Improvements in photographic shutters. James Albert Watts, and Houghtons, Limited, 88, High Holborn, London, W.
- STEREOSCOPY.—No. 23,591. Improvements in stereoscopic apparatus. Léon Pigeon, 111, Hatton Garden, London.
- METALLOID SURFACES.—No. 23,815. Metalloid surfaces for photographic and mechanical printing. Charles Harald Thomson, 1, Brindley Street, New Cross, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

- A WALKING-STICK STAND.—No. 14,462, 1905. The claim is for a "unipod" in the form of a walking-stick, the latter consisting of a hollow stand, in which a rod or tube is carried, so that the total height of the stand may be considerably greater than that of the stick as carried. George Stratten Russell, 38, Clarence Gate Gardens, Regents Park, London, N.W.
- A POSTCARD CASE.—No. 26,482, 1904. The case consists of a pair of boards, which form the front and back, and are held together by a cord or ribbon passed through two eyeleted holes. On the cord or lacing between the two covers are threaded a number of perforated gummed tabs (5) of tough material. Two tabs arranged side by side are provided for each card, so that they

will not be permitted to turn in the binder. The cards are secured in the binder by pasting to each card the pair of tabs which will serve to retain that particular card in place. Belle



Rockwell Hixson, Primrose Hall, Market Street, Altrincham, Manchester.

DEVELOPING P.O.P.—No. 11,452, 1905. The patent is (1) for the addition to solutions for the development of partially printed P.O.P. of alum, etc.—to alter the colour of the image—and (2) for the use of a bisulphite or mixture of alkaline sulphite, and an acid in place of organic acids or alkaline sulphites in excess. Suitable developers containing alum or other salts are:—

Pyro	$\frac{1}{2}$ ounce.	15 grammes.
Soda sulphite	310 grains.	20 grammes.
Alum	$1\frac{1}{2}$ ounces.	50 grammes.
(Or aluminium sulphate, 80 to 150 grains	5 to 10 grammes).	
Water to make	35 ounces.	1,000 c.cs.

The tone of the developed print is violet or blue.

Gallic acid	$\frac{1}{2}$ ounce.	15 grammes.
Sodium sulphite cryst.	150 grains.	10 grammes.
Sodium acetate	1 ounce.	30 grammes.
Manganese sulphate... ..	80 grains.	5 grammes.
Water	35 ounces.	1,000 c.cs.

The tone is blue or violet, whereas without the manganese it is yellowish-red.

In regard to the second claim, the inventor employs a bath containing an alkaline citrate converted entirely into bi-sulphite by a strong acid without leaving excess of acid, a procedure for which he claims novelty, absence of sulphurisation when the prints are fixed, and absence of solvent action on nitrate of silver in the paper [? for nitrate read citrate.—Eds.]

A developer thus made is:—

Pyrogallie acid	280 grains.	18 grammes.
Sodium sulphite cryst.	280 grains.	18 grammes.
Sulphuric acid	34 minims.	2 c.cs.
Distilled water	35 ounces.	1,000 c.cs.

In this bath the acid and the sulphite are in such proportions as to produce bisulphite without any excess of either the one or the other. The improvements in the way of addition of alum (1, above) may be combined with this second part of the invention. Pierre Mercier, 95, Rue Lemerrier, Paris, France.

The following specification is open to public inspection before acceptance under the Patents Act, 1901:—

PLATE-HOLDERS.—No. 23,226, 1905. Photographic plate and film-holders. Torrani.

THE sixteenth annual exhibition of the Eton College Photographic Society will be held on November 30, December 1, 2, and 4.

New Books.

"Die Optischen Instrumente." By Dr. Moritz von Rohr. Leipzig: B. Teubner. M.1.

The author's name will be well known to every one who is at all interested in optics, and the present little work is, according to the preface, "An attempt to give the modern views of optical instruments in a simple manner. . . . The use of mathematics has been, as far as possible, avoided, but from the very nature of the subject they cannot be entirely obviated." The author is to be congratulated upon the success with which he has adhered to this plan, and the result is a work of only 120 odd pages, which conveys even to the veriest tyro a clear conception of the construction of various optical instruments, such as the photographic objectives of all types, reading glasses, and magnifiers, the microscope, the telescope, and opera and binocular glasses of all kinds. The elementary laws of optics, of vision, and perspective, upon which special stress is laid, lead one to the consideration of the instruments mentioned above, and a number of clearly drawn and fully explained diagrams elucidate any necessary point. The only objection we have to the work is that the old German characters are used for the text, but this cannot be ascribed to the author.

"Précis de Photographie Générale." By Ed. Belin. Vol. II. Paris: Gauthier-Villars.

This volume of M. Belin's excellent treatise treats on the scientific and industrial applications of photography, without any abstruse scientific or mathematical language, and in such a manner that the average reader can obtain a clear working conception of the subjects he deals with. Colour photography includes three-colour work, Lippmann's method, and Neuhaus's bleach-out process, colloidion both wet and emulsion processes, photo-mechanical work, photography by artificial light, stereoscopy, photogrammetry, cinematography, micro-photography, astronomical photography, and the manufacture of plates and papers are all included; whilst a very complete description of the various systems of photometry, actinometry, and spectrophotometry describes the latest systems. The book concludes with the collection of residues. Several full-page illustrations are given, and numerous diagrams in the text. The work is a welcome addition to our practical treatises.

"Deutscher Camera Almanach, 1906." Edited by Fritz Loescher. Berlin: Gustav Schmidt. Mk.3.50.

An annual of photographs and technical articles. The former are presented without comment. They are there to speak for themselves, and we will confess that such editorial policy commends itself to us, more than the custom of saying at least half a dozen lines for or against every reproduced picture. In some instances the photographs are required to illustrate the text—e.g., those of M. Demachy, accompanying his article on the telephoto lens in landscape work; and landscapes by Major Puyo made with the Pulligny lens. For the rest, the photographs represent all countries and all types of pictorial work. The German professionals have Perscheid, Raupp, and Weimer, among others, to show the effort being made to raise the standard of photographic portraiture, although Raupp's versatility is represented only by a group of nude boys. Weimer contributes some notes on photographing articles of vertu; and the other technical contributions include mountain photography, halation, three-colour work, photographing aquaria, shutter-testing, pinhole photography, together with a fragmentary review of recent progress. In all respects an admirable volume.

"Photographisches Hilfsbuch für Ernste Arbeit." By Hans Schmidt. Berlin: Gustav Schmidt. Mk.3.60.

We know of no book in English precisely on the lines of this well-

printed volume. Mr. Chapman Jones's "Science and Practice," perhaps, most closely resembles it in the way the why and wherefore of photography is discreetly blended with the so-called "practical" advice for which the amateur in his ignorance is presumed to crave. The author is not content with saying that such and such a lens is suitable for such and such a purpose, but he will have us to understand why it is and why other lenses are not. Similarly, he will not divorce an appreciation of the laws of perspective from the selection of a view point, and when we reach orthochromatic plates on page 152, he goes to the length of giving a test chart of blue and yellow patches for one's personal examination of plates and light-filters. A good book, the like of which might, with profit to the better understanding of photographic principles, be more largely read in this country. The volume deals only with negative-making; a second part is to approach printing processes in the same manner.

"Die Herstellung Photographischer Postkartenbilder." By Paul Hanneke. Berlin: Gustav Schmidt. Mk.2.

Official statistics for the year 1903 place the number of picture post-cards sent through the post in Germany at 1,161,000,000. Great Britain, in the same year, sent only 613,000,000, wherefore, perhaps, the Germans are before us in producing a book on the production of photographic cards. However, that fact need not distress anybody, for the present compilation is not a creditable monograph on the subject. Save that Chapter I. is given over to appliances for printing postcards, it is nothing more or less than a series of directions for the working of the various current printing processes. And in all the seventy-seven pages we cannot find a note of how to avoid or minimise markings on the address side of the cards, or how to dry the cards flat. Nor is there a word as to the recent discussions in Germany on postcard-publishers' rights to use any copyright photograph on the ground of its decorating an article of manufacture. We think Herr Hanneke, who is the author of several excellent handbooks, could have given us better than this.

A SECOND edition of Herr Fritz Loescher's "Vergrössern und Kopieren auf Bromsilberpapier" has issued from the press of Gustav Schmidt, 28, Königin Augustastrasse, Berlin, and in good German fashion sets forth the methods of illuminating the negative and holding the paper for the preparation of the enlargement. Page 46 brings us to practical directions, towards the close of which, on page 86, we are surprised to learn that the uranium intensifier is in general use for warm tones, and to find no mention made of the sulphide methods now largely used in this country. With these exceptions the book appears to have been brought in line with current practice.

"POLONIUM and the Radio-Active Elements." A reprint of this lecture before the Photographic Section of the Burton Natural History and Archaeological Society reaches us from the author, Mr. Fred W. Edwards. It is issued at threepence.

New Apparatus, &c.

MESSRS. A. E. STALEY AND Co. send us the 1906 model of their distance-finder, a pocket instrument for ascertaining with certainty the distances of objects when photographing without a focussing screen. The distance-finder is scaled to 6, 8, 10, 15, 25, and 50 feet and infinity, but can be marked to suit the camera of the purchaser. The price is a guinea.

New Materials.

Self-Toning Paper. Made by Marion and Co., Limited, 22 and 23 Soho Square, London, W.

From the sample submitted to us we find this new paper of Messrs. Marion's to give an excellent tone by fixing in a plain hypo bath without previous washing in water. The longer the immersion the cooler the tone, and one distinctive feature of the paper is the very slight over-printing which is necessary. There is very little reduction during the fixing process. By addition of a little carbonate of soda to the fixing bath, very pleasing sepia and warm tones are obtained, and in the most variety this mode of procedure should yield highly satisfactory results. The paper is sold on the basis of twenty-eight quarter-plate pieces per shilling packet.

"Mattos" Photographic Daylight Paper. Made by L. Thornton and Sons, 6, Holborn Viaduct, London, E.C.

Commercial "plain" paper has appeared spasmodically on the market during the past few years, and the trade name of the present manufacture is not entirely new as designatory of a printing paper innocent of gelatine or collodion emulsion. The "Mattos" paper, however, now under review is offered, we believe, as a new article of manufacture, capable of giving rich tones with gold or platinum, or both in combination. A trial of the paper enables us to confirm the makers' claims so far as the platinum tones. We have not subjected any prints to gold toning. The raw paper is a whatman manufacture, tough, and of agreeable texture, and imparting a rich effect to the finished print. "Mattos" is sold at 2s. per 29 x 21 in. sheet, and in packets of cut sizes on the basis of eighteen quarter-plate pieces for a shilling.

For the forthcoming season Messrs. Houghtons, Limited, have a new selection of sensitised Christmas greeting postcards, coated with either P.O.P. or gaslight emulsion. The greeting occupies half of the address side, and a packet of twelve cards with two masks sells at 9d. in "gaslight," and 6d. in P.O.P.

CATALOGUES AND TRADE NOTICES.

THE cult of the photographic postcard has received the careful attention of the Kodak Company, who have just issued a Kodak handbook (No. 3) on the subject. It describes the different styles of production of postcards, and appends a convenient list of the apparatus and materials required for the purpose.

MESSRS. A. E. STALEY AND Co. are issuing to the trade only a new list of photographic shutters supplied by them.

MR. R. W. PAUL informs us that owing to the increased sale of the Nernst-Paul high-power projector lamp, he is able to reduce the price, while also introducing several improvements in details of construction. The price of the complete form, with burner and resistance for any voltage, is now 40s., in place of 50s., and the shortened form, with separate resistances, has been reduced from 70s. to 60s.

CROYDON CAMERA CLUB.—The awards won at the Croydon Camera Club's exhibition were distributed at a concert at the Greyhound Hotel on Wednesday evening of last week by Mr. W. H. Smith, who occupied the chair. Hearty votes of thanks were passed to Mr. J. Bawcomb for the excellent musical programme he had arranged, and to the exhibition secretary, Mr. W. H. Rogers. The concert, which is the first of its kind attempted by the Croydon Club, was a great success in every way.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
1.....	Colne Camera Club.....	"Places and People in Westmoreland."
1.....	Bromley Camera Club	"Translation of Colour." Illustrated.
1.....	Leek and District Photo. Soc....	Mr. F. R. Ball.
1.....	Aberdeen Amat. Photo. Assn....	Amateur Photographer Prize Slides.
1.....	North Middlesex Photo. Soc....	Last day for handing in Slides for Annual Exhibition.
1.....	Aberdeen Photo Art Club.....	"X Rays." Demonstrated.
4.....	Canford & Forest Hill Ph. Soc.	"New Uses for Velox." Mr. A. W. Green. (Messrs. J. Griffin & Sons, Ltd.)
4.....	Barrow Naturalists' Field Club	"A Trip to Holland." Illustrated.
4.....	Wandsworth Camera Club	Mr. J. Ferguson.
4.....	Dewsbury Photo. Society	"The Platinotype Process." Demonstrated. The Platinotype Company.
4.....	Southampton Camera Club	"Hand Camera Work." Mr. Thos. Frank Brogden.
4.....	Bowes Park and Dis. Ph. Soc....	"Portraiture." Illustrated. Mr. C. H. Hewitt.
4.....	Heaton & Dis. Camera Club.....	"Portraiture." Mr. Harold Baker.
5.....	Royal Photographic Soc....	Exhibition of Members' Lantern Slides.
5.....	Glasgow Southern Photo. Assn....	"Three-colour Photography." Demonstrated.
5.....	Darlington Camera Club	Mr. J. W. Abney, K.C.B., D.C.I., D.Sc., F.R.S.
5.....	Hackney Photographic Society	Closing Date for Outings Competition.
5.....	Olley & Dis. Cam. & Art Soc.	"The Plates We Use and Why." The President.
5.....	Sunderland Camera Club	"The Photographic Lens." Mr. C. P. Goetz.
5.....	Manchester Amat. Photo. Soc.	"English Architecture from the Conquest to the Reformation." Mr. C. B. Howdill, A.R.I.B.A.
5.....	Birmingham Photo. Society....	"The Carbon Process." Demonstrated.
5.....	Thoruton Heath Photo. Soc....	Mr. John T. Carnaby, B.Sc.
5.....	Leeds Photographic Society	"Pictorial Possibilities." Illustrated and Demonstrated. Mr. J. W. Eadie.
5.....	Jersey Photographic Society	A Paper on "Portraiture," with Examples. Mr. W. Smedley Aston, F.R.P.S.
5.....	Holmfirth Photographic Soc....	A Paper. Mr. C. E. M. Bennett.
5.....	Newcastle-on-Tyne Photo. Assn.	"People and Places in Westmoreland." Mr. Percy Lund.
5.....	Brentford Photo. Society	"Orthochromatic Photography." Mr. A. Payne, F.R.P.S.
5.....	Halifax Camera Club	"Phototype." Mr. F. B. Shaw.
5.....	Burton-on-Trent Nat. His. Soc.	"Platinotype Printing." Mr. Frederick Macfadyen.
5.....	Stafford Photographic Society....	"Gun Bi-chromate." Mr. J. C. S. Mummery, F.R.P.S.
5.....	St. Helens Camera Club	"Bromide Printing Processes." Mr. J. Fred Seaman.
5.....	Sheffield Photographic Society	"Some Tenets of Art Applied to Photography." Mr. H. Barratt.
5.....	Leeds Camera Club.....	Amateur Photographer, 1905, Prize Slides.
5.....	Croydon Camera Club....	"Chromatic Plates and Colour Screens." at Gamble Institute. Mr. J. Critchley.
5.....	Leicester & Leicestershire P. Soc.	"Some Dutch Pictures." Mr. Arthur Marshall, A.R.I.B.A.
5.....	G.E.R. Mechanics' Institution....	"Oil Printing Process." Demonstrated. G. E. H. Rawlins.
5.....	Coventry Photo. Club	Lantern Night. with Explanatory Remarks from Exhibitors.
5.....	Nelson Photographic Society	"Light and Lenses." Mr. T. Brown.
5.....	Cricklewood Photo. Society	Distribution of Prizes to successful Students at Town Hall.
5.....	Edinburgh Photo. Society	Judging Summer Enlargements.
5.....	South Essex Camera Club	Lantern Slides by M. H. Hudson and Members.
5.....	Huddersfield Nat. and Ph. Soc.	"Pictorial Aim in Photography." Mr. Arch. Cochrane.
5.....	Tring Camera Club.....	Members' Print Criticism.
5.....	Hull Photographic Society	"Are Orthochromatic Plates best for Landscape Work?" showing the difference (if any) between Orthochromatic and Ordinary Plates, with 120 Slides. Mr. J. W. Charlesworth.
5.....	Hamstead Scientific Society....	Bi-Monthly Competition. Subjects: 1. Sporting. 2. Autumn Landscape.
5.....	Tunbridge Wells Ama. Ph. Assn.	Exhibition of Members' Prints and Slides.
5.....	Balham Camera Club	Annual Exhibition.
5.....	Harrogate Camera Club	"Wild Wales." Mr. G. W. Perkins.
5.....	Scarborough and Dis. Ph. Soc.	Lantern Night.
5.....	Liverpool Amateur Ph. Assn....	Yorkshire Photographic Union Portfolio.
5.....	Richmond Camera Club	Members' Lantern Slides. Criticism by Mr. A. Strangle.

MEETINGS OF SOCIETIES FOR NEXT WEEK (Continued).

Dec.	Name of Society.	Subject.
7.....	London and Prov. Photo. Assn.	Open Night.
7.....	Hastings and St. Leonards P.S.	"Switzerland." Mr. R. White Ford.
7.....	Darwen Photo. Association.....	"Orthochromatic Photography." Mr. Francis Fielding.
7.....	Pudsey and District Photo. Soc.	"The Eternal City." Illustrated. Mr. Thos. E. Green.
7.....	Wimbledon and Dist. Cam. Club	"Zigo and the Carbon Process." Demonstrated. Messrs. Illingworth & Co., Ltd.
7.....	Bolt Court School of Ph. Eng.	"The History of Colour Printing in England." Mr. R. Burch.
7.....	Chelsea and District Photo. Soc.	"Marine Photography" (R. J. Mortimer, F.R.P.S.). Mr. R. C. Gibbs.
7.....	Southport Photographic Soc....	"Enlarging and Contact Printing with Eastman's Bromide Papers." Demonstrated. Kodak, Limited.
7.....	Barrow Naturalists' Field Club.	Focus Prize Slides.

ROYAL PHOTOGRAPHIC SOCIETY.

At the meeting on Tuesday last, November 28, Major-General Waterhouse in the chair, Mr. Kenneth Mees showed a new form of spectroscope, in which he had used a diffraction grating replica on a concave surface, which has the great advantage of being very small, the focus of the grating being only 17 in., and the slit, sensitive grating and film are on the circumference of a circle, so that the grating and dark slide remain fixed and the slit is moved; and as the sensitive surface is on the circumference of the circle it is necessary to use celluloid films in a curved dark slide. The paper on "Diffraction Grating Replicas," by Mr. R. J. Wallace, which was printed in our last week's issue, was then read. Mr. Thorp, of Manchester, whose replicas are well known, was unable to be present, but sent a paper in which he described his method. He used a solution of 10 gms. of pure shredded celluloid in 700 ccs. of amyl acetate. Subsequently gratings by Messrs. Wallace, Thorp, and Ives were compared on the screen by means of the spectra of iron, lithium, strontium, etc.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

At the White Swan, Tudor Street, on November 23, Mr. H. Snowden Ward gave his paper, "Hints to Would-be Picture-Makers," illustrating it with diagrams and photographs. After the lecture the chairman (Mr. T. E. Freshwater) presented Mr. A. J. Bull with the L. and P. P. A. Henderson award 1904-5.

SUTTON PHOTOGRAPHIC SOCIETY.—The winter session of this society was opened on Wednesday, November 15, when the chairman, Hector Maclean, F.R.P.S., gave an address upon "The Aspects of Present-Day Photography."

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—Mr. S. H. Bentley, in a lecture before this society on "Dark-room Illumination," spoke highly of the value of the "Geka Flexoid Light Filters." Examples brought forward went to prove that a special rapid ordinary plate could be subjected to the light of a No. 2 red for a period of four minutes without fear of fogging. To use these filters, Mr. Bentley had constructed a lamp with a special cooling chamber to prevent the melting of the filters, which are made of gelatine. The light given by the No. 1 yellow for bromide work was a surprise, for the quantity emitted enabled development to be done with considerable pleasure. Gentlemen in the locality of the above society will be welcomed to any of the meetings, which take place every Wednesday at the Hanley Hall, Sparsholt Road, Crouch Hill, N. The Secretary is Mr. S. C. Puddy, 87, Crouch Hill, N.

NORTH LONDON PHOTOGRAPHIC SOCIETY.—At the first members meeting of the above society, the following gentlemen were elected officers for the year ending December, 1906:—Hon. treasurer, W. T. Fleet; hon. secretary, C. H. Roberts; hon. assistant secretary, H. E. Taylor; hon. librarian, C. H. Madden; hon. lanternist, H. E. Radcliffe; committees, C. Adshead, G. Hale, E. Few, R. H. Lawton, P.

Symons, F. Odams, Rev. A. Gledhill. Although the society has only just been formed, the membership now stands at sixty-one. The hon. secretary will be pleased to send a copy of the rules and any further information required, to any gentlemen applying to 33, Riverside Road, Highbury, N.

BOWES PARK AND DISTRICT PHOTOGRAPHIC SOCIETY.—On Monday evening, November 20, Mr. E. Seymour (of Watford) gave a lecture on "Flower and Fruit Photography" before this society at Unity Hall, Wood Green. In dealing with flowers, the lecturer said that they should never be photographed immediately they are cut, but should be left for at least an hour before an exposure is made, as nearly all flowers will either open out a little or close their petals directly after cutting. For flowers that droop quickly, he recommends that a piece of very thin wire be run right up the stem; this will support the bloom, and one can bend or arrange the flower as desired. He obtained excellent rendering of colour values on ordinary plates by giving full exposure and using a strong pyro-soda-developer, such as 5 gr. of pyro to the ounce; development was usually complete in about three minutes. Platinotype was his favourite printing process, and he advocated a thin negative, such as one would make for bromide printing. The ordinary oxalate bath was used, but from two to three times the usual quantity of water was added. During the course of the evening Mr. Seymour exhibited about ninety slides through the lantern to illustrate his remarks. All his work is done in a studio, so that the lighting is under complete control, and there is no risk of movement by the wind in the subject being photographed.

SOCIETY OF ARTS.—Meeting held November 22, Professor H. E. Armstrong in the chair. Mr. F. Martin Duncan read a paper on "The Cinematograph and its Applications," in which he described and illustrated the ways in which he had himself applied animated photographs to the teaching and investigation of natural science, as well as to the popularisation of knowledge. As instances of such applications, he showed films of a devil dancer in Borneo, of Canadian industries, of the construction of a railway, and of the habits of a number of forms of animal life, including a remarkable series of pictures, exhibited for the first time, of the life and work of the wood-ant.

News and Notes.

AN Alleged Explosion.—A Paris pharmacist, who recently built a villa in the suburbs of Montélimar (President Loubet's town), has had it destroyed by a serious explosion which was audible at a distance of two miles. The damages were presumably caused by an acetylene apparatus, and are estimated at £1,600. The pharmacist was not insured: he had arranged to sign the policy on the following day.

COLUMBIA and Globe Burnishers.—Messrs. Burke and James, of Chicago, notify us that they have purchased the entire business and manufacturing plant of Jas. H. Smith and Co., makers of these well-known burnishers. Messrs. Burke and James will continue to market these standard goods.

REPLICAS of Diffraction Gratings.—Writing to "Nature" on the paper by Mr. R. J. Wallace, the full text of which was printed in our last issue, Mr. Thomas Thorp contributes some notes on his methods of preparing replicas. "It is stated (he says) that I first flood the grating with oil in my method of producing replicas. This, I may say, I have never done, except when making experiments, my procedure being exactly the same as Mr. Wallace's, viz., to flood the grating direct with the clarified celluloid solution, dry it in much

the same way, but using special precautions to ensure perfectly even drying, stripping and mounting in a similar manner to Mr. Wallace but leaving out the gelatine coating, which in my opinion is quite unnecessary. The great difference to be noted in the surface and performance of one of Mr. Wallace's first-quality average replicas and one of my own is due to the peculiarities in the surfaces of the original gratings, one of my own replicas having a brightness in the first spectrum on one side of at least four times that of the other and twice that of Mr. Wallace's replica. The grating from which the very bright replica is taken is a "Rowland" of 14,438 lines to the inch, and was formerly the property of the late Dr. Common. The original of the other is a very beautiful specimen of recent work on the Rowland engine, 15,038 lines to the inch. Now, whilst the latter when mounted on parallel plane glass gives comparatively feeble spectra, when mounted on prisms for direct-vision spectra, and tilting the prism to the angle required for the minimum deviation for the diffraction spectrum, first order, the brightness approaches that from the "Common" grating, whilst its much greater freedom from scattered light renders it very suitable for prominence and similar work, the dispersion being about equal to five 60deg. flint glass prisms in the centre of the spectrum, and decidedly greater at the red end. This increase of brightness is, of course, attributable to the form of the grooves, less interference being produced under the latter condition, and this notwithstanding the increase in dispersion. It may be of interest to some to know that I have succeeded in mounting these grating films on a perfectly flattened ring of glass, so that, by avoiding the use of glass as a base, light of very short wave-length can be examined by this means, either in the one case by transmission to about λ 2,600 or by reflection to as low as λ 1,850, and possibly lower. (The discovery of this reflective property for ultra-violet light was made by Mr. Morris-Airey, of the Victoria University, last year.) In order to examine by reflection either a partial vacuum is created behind the film when mounted on a glass ring or the film is mounted on a concave surface which, although not giving the lines of the grating their true form, gives very fair resolution. I have also succeeded in making concave replicas practically as perfect as plane ones, by rotating the grating during the driving process at such a rate that the paraboloidal curvature of the solution was practically the same as that of the grating. Anyway, the difference is so slight that when dry no rings can be seen on examining it by monochromatic light before the film is stripped from the grating. The difficulty of silvering these replicas satisfactorily has, however, prevented further progress, for the present at least. In justice to Mr. Wallace, I ought to say that, in a reply to a letter from me, he states he obtained his information from a patent I once took out in connection with the application of these grating replicas to colour photography; but the method there described is not the one I have adopted in making my replicas.

DEATH OF MR. J. H. T. ELLERBECK.—We regret to announce the death of Mr. J. H. T. Ellerbeck at Jersey, New Zealand, on October 21. The deceased gentleman was one of the first members of the Liverpool Amateur Photographic Society, and for many years president. He also wrote one of the first books for amateurs published, and was specially well known for the fine series of Norwegian views, he being one of the first well-known photographers to visit that beautiful country. Travelling the world over, he seemed to find more in Norway from a scenic view than in any other.

The syllabus of the Nottingham Camera Club for the season 1905-6 is to hand, and takes the form of a well-printed little booklet containing full particulars of the society and its activities. The hon. secretary is S. W. Barlow Vines, and the meetings are held at the Mechanics' Institute, Nottingham.

The annual exhibition of the Glasgow Eastern Amateur Photographic Association was opened on November 25, and closes to-morrow.

The following is the award list:—Class 1.—Silver plaque, W. S. Crocket; bronze plaque, James Watson; bronze plaque, Matthew Wilson; certificate, John Brough; certificate, George H. May. Class 2.—Silver plaque, James Watson; bronze plaque, Henry Coleman; certificate, Thomas B. Kirkhope; certificate, Robert Watson. Class 4.—Silver plaque, George L. McAllister; silver plaque, Robert Richmond; bronze plaque, Thomson Wood; certificate, A. Taylor. Class 5.—Silver plaque, W. S. Crocket; bronze plaque, Alexander Johnston; bronze plaque, Andrew Walker; certificate, Matthew Wilson. Class 6.—Bronze plaque, Robert Smith. Class 7.—Silver plaque, N. S. McMurtrie, Wishaw; bronze plaque, G. L. A. Blair, Paisley; bronze plaque, Maxwell Warnock, Paisley; certificate, Robert Ure, Glasgow; certificate, A. W. Hill, Shotts. Class 8.—Silver plaque, W. S. Crocket, Glasgow; silver plaque, George L. A. Blair, Paisley; certificate, Robert W. Steel, Paisley; certificate, Robert Ure, Glasgow. Championship Trophy (for best picture in Classes No. 1 to 4), W. S. Crocket.

REDHILL and District Camera Club.—The awards at the exhibition of this club on November 17 are as follows:—Class 1.—Medal, J. O. Grant; certificates, Miss S. E. Duncan, T. Haldane Harrison, and Miss Janet Reid. Class 1 (Section B).—Medal, Jarvis Kenrick; certificates, G. M. Hayton, Jarvis Kenrick, Herbert Livermore, and C. Robinson. Class 2.—Medals, Frederick Hollyer and Miss Janet Reid; certificate, J. O. Grant. Class 3.—Medal, C. Robinson; certificates, Sir Hanbury Brown and T. Haldane Harrison. Class 4.—Medal, J. O. Grant; certificate, G. E. Frisby. Class 4 (Section B).—Medal, C. Robinson. Class 5. Medals, Harold W. Lane, A. R. F. Evershed, and Walter Selfe. President's "Solar" Medal for best Member's Photograph—J. O. Grant.

Correspondence.

* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* We do not undertake responsibility for the opinions expressed by our correspondents.

THE PERMANENCY OF MATT COLLODION PRINTS.

To the Editors.

Gentlemen,—One point that has not yet been brought up is that collodion paper, and especially matt-collodion, does not keep well before printing. It loses its freshness, and will not tone. I obtained some glossy paper direct from the maker in October, and twelve days later it would not tone in a separate gold bath. I believe it keeps better if kept in a press, and Dr. Kurz, of Wernigerode, in an old "Eder's Jahrbuch," recommended a preliminary bath in 40 per cent. spirits, which softens the film that has grown horny and impenetrable, aids the toning noticeably, and prevents cracking. I do not agree with one of your correspondents who says cracking comes from too fresh paper. I have always found such very elastic and pliable, but old paper cracks very easily. I believe that glossy collodion, toned in plain gold-sulphocyanide, keeps well. I have found it so, and it is an excellent paper to print views on, being more like the fine old albumen views than gelatine paper, and not so messy to handle, because the film does not melt in warm weather, and it can be mounted with blotting paper while still wet.

The correspondence you have obtained is very interesting and instructive, and I do not believe German photographers have gone into the matter as thoroughly as have the writers of these letters. I have never heard before, for instance, that prints must be rapidly dried, or that a fixing bath stronger than 10 per cent. should be

used, or that prints once dry could be exposed to dampness without further injury, or that paper toned in a gold bath alone kept a year in good shape and then gradually went to pieces.—I am, very truly yours,

W. S. DAVENPORT.

Saline 12, Bad Nauheim.

MR. HACKETT'S DEVELOPERS.

To the Editors.

Gentlemen,—There certainly are some points in Mr. Hackett's article in your last to which others besides yourselves may take exception, and I for one would like the following points made clear. I have no doubt they are clear—to some, and it may be my density which is, I believe, a photographic quantity, that I cannot grasp them.

Can a developer produce a more non-actinic image similar to a pyro-ammonia-minus-sulphite solution without stain, and is not this stain deposited *in situ* with the silver? There is an old experiment of dissolving out the silver from a pyro-developed negative, leaving the stain as a negative image.

Why are we to use the dearer anhydrous salts instead of the more common hydrated forms? If 2 drachms of the anhydrous sulphite is necessary in No. 1, and assuming that this weighs 120 grains (though this is not stated), are 15 to 20 grains of potassium metabisulphite equivalent to this?

Does potassium bromide actually produce a non-actinic image, and are citrates and chlorides stronger restrainers than potassium bromide? Certainly this is quite contrary to most of the accepted authorities, such as Eder, Hübl, Abney, etc.

Again, when metabisulphite is used as a preservative, what is formed when an alkali is added to it, and why will not formaline act as a slight accelerator?

If we analyse Mr. Hackett's normal developer—assuming that the larger quantity of No. 2 is used, and that he uses avoidupois ounces—the actually working formula is—

Hydroquinone	$\frac{3}{4}$ grain.
Pyro	$\frac{3}{4}$ "
Carbonate of soda anhydrous	5 $\frac{1}{2}$ "
Water	1 oz.

Now the above quantity of soda is equal to 14 $\frac{3}{4}$ grains of the crystal. Surely this is a very weak developer?

Again, we are told that if we do not wash the negative it will be stained yellow, although Chapman Jones, who is an authority on clean silver images in clean gelatine, states that this is the best method of making yellow-stained negatives. Surely it is an absolutely new fact that common salt—I beg pardon, dry chloride of sodium—tends to harden the film.

Finally, Gentlemen, one more question: What is the action of light on a properly fixed negative whilst being washed?—Yours faithfully,

CHEMICUS.

London, E.C., November 27, 1905.

SENSITISING WET COLLODION FOR COLOUR.

To the Editors.

Gentlemen,—Some time ago I published a method of rendering wet collodion sensitive to colour, the method consisting of bathing the sensitive plate, fresh from the silver bath, in a weak solution of eosine, and developing image in an alkaline reducer.

My first experiments were very successful, but on again trying the method after an interval, results were nil. Pressure of other duties intervened, and stopped further trials at the time. This last week, having a day of leisure in front of me, and some Mawson's collodion in good condition, I tried again, and here you have the results. No. 1 is from a normal wet collodion plate, developed with iron; No. 2 from a wet collodion plate, after sensitising in

usual way, bathed in a solution of eosine 1-1,000, after exposure developed with ortol-soda. Both plates had the same exposure, the light being incandescent gas.

No. 1 needs no comment, but No. 2 is quite remarkable—the general sensitiveness is less, but the colour-sensitiveness is striking, blue, yellow, and green being nearly the same density, and the red sensitiveness apparent.

Now, if this result can be obtained with silver iodide in such a great excess over bromide, I think it is quite feasible to suppose that with a silver bromide in excess, and the use of other dyes, as great a range of colour-sensitiveness can be made possible with wet collodion as with gelatino-bromide. Collodions are being prepared with bromide only and with bromo-iodide, and results will be submitted in due course. But in the meantime I should like some other workers to take up the method, and report progress.

Now for cause of failure: Fresh dye-bath must be used for each plate.

W. T. WILKINSON.

Goldsmiths' College, New Cross, S.E.,

November 25, 1905.

A BOOK QUERY.

To the Editors.

Gentlemen,—In reply to the questions of your correspondent, "C. R. W."—"Orr's Circle of the Sciences" appeared first in 1854-6, and, according to the British Museum catalogue did not pass into later editions. There were nine volumes in all. 2. The separate volume is evidently a revised edition, as it is paginated from 1 to 212. Its full title is "Theory and Practice of the Photographic Art, including its Chemistry and Optics," by W. Sparling. 3. It was issued in 1859 in an edition revised by Jas. Martin (afterwards assistant editor of the *BRITISH JOURNAL*), under the title, "The Photographic Art: Its Theory and Practice, including its Chemistry and Optics," but I am not aware that any later edition appeared.—Yours truly,

J. F. B.

Birmingham, November 25, 1905.

THE FREE PORTRAIT SWINDLE.

To the Editors.

Gentlemen,—It is a pleasure to me to write you re the free portrait swindle so often remarked upon in your pages, and, through you, to offer my thanks to the Professional Photographers' Association.

Some few months ago we had the free portrait dodgers in our district, the actual canvassers being two women. Unfortunately, the name of the firm did not transpire, or rather was not remembered. These women went round the middle-class houses of the town spinning the usual yarn regarding free enlargements, with the addition, however, of the statement that Brigham was doing this for an advertisement, and the photographs were enlarged by a firm in Manchester. Nothing was said about a frame, of course, though a receipt slip was given with the obligation regarding the frame mentioned in some obscure corner. This slip was presented in an envelope bearing *our* name.

We heard of this by two victimised old ladies coming and demanding from us their photographs back. Some persuasion was necessary before they saw that we had nothing to do with this low and objectionable touting business, regardless of the swindle.

Immediately on hearing this from my receptionist, who unfortunately had not taken many particulars, we wrote to the President of the P.P.A., who we knew had already dealt very successfully with these gentry, and whose experiences were dealt with in the P.P.A. circular. To his courtesy and promptitude we are greatly

indebted, for by return of post we received the matter he used in his circulars and advertisements warning the public.

Since we felt that the matter could not be improved on, we printed several neat circulars for exhibition in tradespeople's windows, and inserted a notice in each of the local papers in the news columns. We enclose one of the circulars, which may be of use to you.

We again beg to express our indebtedness to the P.P.A., whose ranks every professional should join. In legal advice alone he will get his subscription back several times over, for every professional is bound to have misunderstandings and difficulties with his clients at least once in his career.—Faithfully yours,

W. FOSTER BRIGHAM.

The Esplanade Studio, South Cliff, Scarborough,

November 24, 1905.

[We are glad to hear of active measures being successfully taken against these fraudulent canvassers. The circular referred to by our correspondent runs as follows:—

"CAUTION!!!

"'Brigham' Child Photographers find it necessary to advise their clients that the representations of men touting in their name for so-called 'free' enlargements are fraudulent and mendacious. The methods and objects of such people have been exposed again and again in the public Press, but owing to the large number of complaints recently received, Messrs. Brigham are afraid that the nature of the imposition is not generally realised. They therefore desire to caution their clients (and ladies particularly) against parting with their photographs to unknown men."—Eds. B.J.P.]

A WARNING.

To the Editors.

Gentlemen,—May I caution, through your journal, young men and ladies buying a business without thorough investigation. I know of cases that have had heartbreaking results, and to prove that it is necessary, allow me to mention that I vacated a studio and premises and removed my business. The old place was taken by a fresh comer, and within six months was advertised as an old-established business of fifty years' standing, doing over £500 a year, and inspection of books invited.

I can understand books being prepared, but how about plates, and I left nothing taken during the last seven years; the rest I wouldn't pay cartage for.—I remain, yours faithfully,

CAUTION.

November 28, 1905.

THE QUEEN'S "UNEMPLOYED" FUND.

To the Editors.

Gentlemen,—Not to be behindhand in showing our sympathy and charity for our more unfortunate brothers in trade—many of whom no doubt, will this winter be in need of some help—I beg to call your esteemed attention, and suggest to you (who are best able to bring the matter to the notice of our profession), that "A United National Photographers' Relief Fund" be initiated, in response to our beloved Queen's appeal, but that all moneys, etc., contributed to such appeal by the profession be used in helping photographic workers (of all grades and branches) only, and I feel sure such help will be forthcoming and not raised in vain.—Yours faithfully,

RALPH RUTLEY.

24a, The Grange, London, S.E., November 27, 1905.

[We have no reason to think that our correspondent's suggestion is practicable. The benevolent schemes have been discussed in our columns before, but they have been damned from the outset by the apathy of the very classes for whose benefit they would be carried into operation.—Eds. B.J.P.]

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- J. Bailey, 73, Shirley Road, Southampton. Photograph of the Interior of the Hippodrome, Southampton.
- R. Wilkinson, The Studio, Hornsea, Yorkshire. Photograph of the Reredos and East Window, Hornsea Parish Church.
- W. French, Church Street, Wiveliscombe, Somerset. Photograph of Apple Orchard in Miverton, Somerset.
- G. Smith, 281, Lord Street, Southport. Photograph of a Crooke's X Ray Tube showing Röntgen Rays.
- W. Smith, 35, New Road, Grays, Essex. Two Photographs of Grays Parish Church (Exterior and Interior). Photograph of Palmist's Endowed Schools, Grays. Photograph of the T.S. "shufesbury" off Grays. Photograph of Grays Parish Church Exterior, 1807.

REMOVING SILVER STAINS.—Please say in your next journal what will remove red silver stains on a negative that has got wet in the printing frame.—**COLE.**

The following, from page 956 of the "Almanac," to which we would refer you for further details:—Soak in 20 grain per ounce solution of potass. iodide (or of iodine according to the persistence of the stain), wash, and transfer to potass. cyanide solution, 30 grains per ounce.

PORTRAITS.—Could you kindly direct me to where I could obtain portraits or cheap likenesses of such great men of England as Spencer, Shakespeare, Bacon, Byron, Burke, Pitt, Milton, etc.?—**GUC. PONNAMPALAM** (Ceylon).

You had better apply to the London Stereoscopic Company, Regent Street, London, W., or to W. A. Mansell and Co., 405, Oxford Street, London, W. From either you can obtain photographic copies of the portraits.

STUDIO QUERY.—I am about to build a studio 20 ft. long by 12 ft. wide, and would be pleased if you would give me a little advice on same. My garden runs from east to west. There are houses on the west and a large building on the south; the north is open from over the walls that divide the gardens. Will you kindly tell me how much glass you would put in, and how far from the end, and if any on the south side, and the end to take the sitter?—**STUDIO.**

Under these conditions, and for this width of studio, we should advise that about 4 ft. 6 in., top and side, at either end, be opaque, and the rest glass, the north side and top only being glazed. The sitter can then be placed at either end as circumstances require. If you can have the studio 3 ft. or 4 ft. longer you will find it a great convenience in taking standing figures, groups, etc.

PHOTOGRAPHS OF INDIA.—Being a reader of your journal, I find that you are always kind enough to impart advices and sug-

gestions to inquiring photographers. I therefore beg to approach you with the request of letting me know if there could be any demand of Indian representative views in your part of the globe? I have most of these in cabinet and full plate sizes, with small synopsis of their importance at the margin of each card. Also human figures of the different parts of this country, from civilised to barbarians, in different customs and tenure.—**A. C. MUKERJEE** (Doom Dooma, Assam).

There is always a demand—varying according to events—among publishers of books and papers. Your best course, we should say, would be to place your series in the hands of an agent. See our advertisement pages.

ALFRED THOMAS.—See the article by Harold Baker in our issue of October 27.

SPOILT NEGATIVE.—I intensified a negative with mercuric chloride. Whether the same was too strong or not, the plate prints spotty and mottled. Do you know of anything that would remove the intensified and mottled appearance.—**CHLORIDE.**

There is no remedy. The cause is, as you say, too strong mercury solution. Use the formula given in the "Almanac," page 956.

PYRO.—When dissolving pyro, according to instructions, it sometimes turns brown immediately. Does this have any bad effect on negatives developed with it, and, if so, of what nature?—**S.**

Certainly, it depreciates the developing power and conduces to stain in the negative.

No. 1.—Better ask for payment on a Royalty basis, say 10s. 6d. per 1,000. It is an effective picture, but you appear to hold an exaggerated view of its postcard value.

GEO. C. R.—We know of none. Better apply to the agent of Messrs. Meses-Goris et Fils, Mr. Otto Rosenstiel, 105, Cheapside, London, E.C.

COPYRIGHT.—I have a photograph brought for enlargement in the ordinary way of business, the mount of which is stamped "copyright." Does this prevent me executing the order, except at the risk of infringement. If so, how should I proceed to prove that this photograph actually is copyright?—**BROMIDE.**

You should make an agreement with your customer to indemnify you in the event of action. See the article on "Copyright" in the "Almanac," published this day.

BACKGROUND PAINTING.—Will you please tell me how to prepare unbleached twilled calico sheeting for receiving the ordinary scene-painter's water colours? Also what quantities of ingredients (whiting, black, blue, etc.) are necessary for first general coat, with main features in the rough, so that upon this the high-lights and darks can be touched up and intensified where needed without disturbing in any way the first general coat, and so that the colours will not easily rub off.—**VERITAS.**

Before painting, size the calico with:—Starch, 3 oz.; water, 10 oz. Boil until it begins to thicken, then brush it over the calico with a stiff brush. The following is an excellent colouring:—Common whiting, 12 oz.; powdered glue, 4 oz.; treacle, 6 oz.; water, $\frac{1}{2}$ gallon. When thoroughly mixed, add:—Ivory black, 1 oz.; ultramarine, $\frac{1}{2}$ oz.; red ochre, $\frac{1}{2}$ oz. Brush it over the calico with a broad, flat brush. This coating will be quite firmly fixed. 2. Write to Messrs. Winsor and Newton, Rathbone Place, or Messrs. Reeves, Cheapside. They will be able to give you the information.

FLASHLIGHT QUERY.—1. I have an order to photograph a wedding group of about fifteen persons during the Christmas week. The ceremony is to take place in a hall which is badly lighted as regards daylight. I have no lamp; what will be the best thing to do? I may say my client told me she is very nervous about flashlight. 2. What are the best books to get on the subject?

1. Why not buy a good "blow-through" flash-lamp. This form of lamp is not expensive, and is quite safe when used with plain magnesium. If you know nothing of flashlight photography, you will find this the best course. The Todd-Forrest standard lamp is a good example. 2. The "Photo-Miniature," No. 29, is a practical guide to flashlight work. Write to Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., for particulars of this and other works on flashlight photography.

NEWCASTLE-ON-TYNE AND OTHERS.—In our next.

LEAKY WOODEN DISHES.—For use in my dark-room I prefer wood developing dishes, with flat, fluted glass bottoms, but find that the white lead, between glass and wood, after a time begins to allow developer to leak through. Can you recommend something better than white lead—something that would withstand pyrogallic acid—for keeping dishes acid and water tight?—F. E. G.

Prout's elastic glue, melted, and run into the joints with the assistance of a hot iron, will render the dishes quite acid- and water-proof.

PHOTOGRAPHS FOR THE PRESS.—When photographs are intended for the illustrated Press, should they be sent the size in which they will be reproduced, or larger?—H. Y. Z.

The larger the better, within reason; 10 by 8 is a good average.

CRACKED VARNISH.—I have a negative which has been varnished for a number of years; the varnish now appears to be cracking. As the negative was retouched by an expert (now deceased), I do not wish to destroy this retouching by removing the whole of the varnish. Is there any method whereby a part of the varnish can be removed and replaced with fresh varnish without showing a mark that would show in printing? Or is there a way of softening the varnish and so getting rid of the cracks?—C. D. V.

We know no way of achieving your object. Why not remove all the varnish and have the negative retouched a second time? You appear to think there is no good retoucher living.

FAIRPLAY.—You can charge for the sitting only in each case; but, before moving further, we recommend you to seek the advice of the Professional Photographers' Association, 51, Baker Street, W.

ADDRESS WANTED.—Kindly inform me where I can obtain a book form frame for a Daguerreotype photograph.—J. W.

Messrs. Mander and Son, Branstons Street, Birmingham, will supply you with a Daguerreotype case. We are not sure that they stock them now, but they will supply them to order.

COPYRIGHT.—Can you tell me whether the enclosed photograph is copyright? Also if it would be safe to proceed against proprietors of paper who have issued enclosed drawing from it? I bought all copyrights connected with ———'s business, but have no record of negatives copyrighted by him. How can I proceed to get list of negatives which he has copyrighted, as he is abroad, and I cannot get his address?—HILL AND SON.

You can learn if the copyright in the portrait has been

registered by searching the register at Stationers' Hall. This will be an easy matter, as you know the name of the sitters and the name of the photographer who took it. But whether it has been registered or not, you can have no copyright in the picture, unless your predecessor assigned it to you in writing. Unless this has been done, it will be of no use to take proceedings against the paper. See the "Almanac," published to-day.

Commercial & Legal Intelligence

A "PRINCESS" of Bond Street.—Charged with obtaining miniatures and other articles, worth £77, from Messrs. Esmé Collings, Limited, photographers, of Bond Street, by falsely representing herself to be a lady of title, a fashionably-dressed woman, named Margaret True Prebble, twenty-eight, of no fixed address, was remanded at the Marlborough Street Police Court last week. Detective-Sergeant Duggan stated that in company with Inspector Drew he saw the prisoner at 5, Churton Place, Pimlico, on the previous day. Inspector Drew asked the witness whether he knew her, and he replied, "Yes, as Princess Soltikoff." To her he added, "But your real name is Margaret True Prebble." She replied, "Yes, Mr. Duggan." She admitted pawning the miniatures. They found some lady's visiting cards bearing the name "the Hon. M. Paget," and a hotel bill made out to "Lady M. Paget."

FACSIMOGRAPH COMPANY, LIMITED.—Registered November 14. Capital, £100 in £1 shares. Object, to carry on the business of photographers, photo enlargers, reproducers, etchers and printers, engravers, manufacturers and distributors of and dealers in photographs, enlargements, engravings, prints, pictures, etc. No initial public issue. The first directors are D. G. Collins, W. H. Keep, and E. A. Merekel.

STOLEN Kodak Films.—William Bozier was charged last week at the Clerkenwell Police Court with stealing two photographic films, of the value of 1s. 10d., the property of the Kodak Company, of Clerkenwell Road. The manager of the shipping department of the Kodak Company said that prisoner was a cycle messenger of the company. In consequence of having missed various articles from time to time, he set a man to watch, and he actually saw the prisoner take the films and put them in his pocket. Prisoner was brought to the witness about 9.30 in the morning, and said that he had intended to pay for them when he had his money on Friday. Since then other goods had been found, approximately of the value of 15s., which had been taken since September last. The case was remanded.

***** NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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EX CATHEDRA.

A Copy-right Surt.

An action for an infringement of copy-right in two portraits of actresses—Miss Letty Lind and Miss Fay Davis—brought by Mr. Alfred Ellis against the proprietor of the "Gentleman's Journal," was tried in the King's Bench, on Friday last. The plaintiff claimed damages and an injunction. The defence was that the infringement was an innocent one, the defendant having purchased the blocks amongst other things from the proprietors of the "St. James's Budget." In giving judgment the learned Judge, Mr. Justice Warrington, said that he would accept the undertaking of the defendant to give up the blocks and copies, which was equivalent to granting an injunction. However, he would impose a penalty of one guinea on each of the two copies, and he assessed the damages at five guineas. As the defendant had paid that sum into Court, the learned Judge ordered each side to pay their costs, so that we are afraid that the plaintiff was not much in pocket over the business. The case should be noted by country photographers who often ask us what damages they should claim when the copyright in one of their photographs has been reproduced in a local paper. If the High Court assesses the damages at five guineas for the infringement of copy-right in the portraits of two well-known actresses, reproduced as high-class blocks in a good journal, what should be claimed as damages for the infringement of the copy-right in a portrait of, say, the local squire, or, may be, the new curate by a rough sketch in the local newspaper? Country photographers, as a rule, if one of their pictures happen to be pirated, seem to have a very exalted idea as to the damages they should claim. Such a judgment as the above, we should think, will tend to discount such estimate. At the same time, we would say that we think the damages awarded to Mr. Ellis were very small, considering the value of the copyright.

Copyright Problems.

All Acts of Parliament are framed with the greatest care so as to make them as explicit as possible, but there is an old saying that none have yet been passed that a clever lawyer could not "drive a coach and four through." Be that as it may, the meaning of the clauses of many Acts have to be interpreted in the law courts. The Copyright (Artistic) Act of 1862 is a fair type of Acts generally, and there have been many legal quibbles with regard to it which the law courts have had to settle. Take, for example, the case of Nottage v. Jackson, where it was decided that the operator who took the photograph away from the studio was the author of the work and not the employer. Up to that time the employer had always been looked upon as the owner of the copyright, if it were registered in his name, and convictions for infringements were passed unchallenged. But the judgment in this case settled this point differently—and definitely. And there are still other knotted tangles of copyright law yet to be unravelled. One came up in conversation the other day with a gentleman who had spent thousands of pounds in making cinematograph records in all parts of the world. How should such films be legally protected? The films may contain many hundreds of pictures, and to register them individually would involve a considerable outlay in registration fees at 1s. each.

* * *

Copyright for Cinematograph Films.

At the time the Copyright Act was passed the cinematograph had not been invented, so the films are, of course, not referred to in it. The Act makes it illegal to copy any part of a picture, and it would clearly be illegal to copy any portion of one of the little pictures if there were a copyright in it. Supposing that a cinematograph film be registered in its entirety for the shilling fee, will that cover the copyright in the many hundred pictures it may contain? It might be argued in a Court of Law that the entire series of pictures were necessary to depict the scene as it occurred. On the other hand, it might be contested that as each picture was really complete in itself, each one should be registered separately to ensure a legal copyright. No case of the infringement of the copyright in a cinematograph film has, so far as we are aware, yet come before any of the English Law Courts, and, if one does, it will be interesting to see how it will be decided. It is very clear that if the copyright in each little picture were registered by itself, no question could arise; but what would be the result if that were not done, and the film were merely registered in its entirety? In the absence of any judgment, speculation on the part of a layman would be futile. However, it is quite possible that a case may come before the Courts, and, therefore, it will be well for those who, in the interests of photographers, are watching any new Copyright Bills in course of projection to see that in them there is some proviso with regard to cinematograph

pictures. The importance of the cinematograph among graphic methods certainly demands a proper appreciation of its position in regard to copyright.

Parcels of Portraits.

We alluded last week to the need for smart and yet neat work in mounting prints, and when the prints are mounted and finished off, the effect may be enhanced or diminished by the way in which they are despatched to the customer. Other trades recognise the importance of the appearance of a parcel or package. Seedsmen make up neatly-folded bags of seed, secured by a tie of string and sealed with a lead seal. The folding card-box, held tightly closed by two loops of string or tape, is largely used by pastry-cooks and others. An artistic business like photography should be away and ahead of all others in the neatness with which finished work is protected during delivery. When most work was mounted on a cabinet mount, with the narrowest margin, the protector wrapper was efficient, but now that much larger mounts are commonly employed a more substantial packing is necessary. Stout manilla folding wrappers, with good thick leather boards, are supplied, and not only look well, and answer their purpose, but save time in parcelling up. An alternative method for prints larger than cabinet is to use a couple of sheets of the variety of corrugated packing, in which the corrugated sheet is glued between two flat sheets, the whole being as stiff as cardboard, yet very light, and able to take up the bruise of a post-office stamp without passing it on to the contents of the parcel. The virtues of sealing-wax are not as well known to photographers as they deserve to be. A parcel is much tighter, and therefore neater if the paper is fastened as folded with parcel wax, string being used for the final fastening. There is no objection to a seal of red wax or one of the modern adhesive seals, in addition to a very neatly lithographed address label. The whole aim should be to lead the customer to feel or to say: "How nicely — sends out his portraits!"

The Surface of Platinum Prints.

A good deal of difference of opinion exists as to the finishing of platinum portraits. Some photographers find that the velvet surface of the print is much admired by their clients and they take every precaution to retain this "bloom" unimpaired. Others say that customers like a surface more approaching semi-gloss with a little finer detail, and to meet this view they roll the prints after mounting. We admit that rolling gives a semi-gloss, but we do not quite see how it can increase the detail or make it any more prominent. A poor platinum print may be improved, but if the negative is well suited to the process we certainly advise that the print be not rolled or pressed in any way. There are so many alternative methods now which give an egg-shell matt or semi-glossy surface, notably platinum-toned collodio chloride and some of the gaslight papers, that we think these should be used rather than destroy the beautiful characteristics of a beautiful process. We are not making any comparison of processes or referring detrimentally to any process, but simply urging that the distinctive effect of each process should be allowed to remain. There is probably no photographic printing process more nearly resembling mezzotint in effect than platinotype perfectly executed. It should be noted, also, that the surface of platinum prints may be much injured during the acid baths and the final washing if they are drawn out from beneath others. In changing from one bath to another, the top print should be removed, lifting it by two — not opposite — corners. If one print is dragged against another, the surface is apt to get abraded.

Spotting Platinum Prints.

One of the reasons why platinum prints are liable to abrasion in the way to which we have alluded in the previous paragraph is that the paper itself is comparatively slightly sized, and the immersion in acid baths, even of the strength of 1 part hydrochloric acid to 60 parts of water, tends to destroy some of the effect of sizing. This lack of sizing in the finished print is well known to those who have spotted or otherwise finished platinum portraits. The porous nature of the working surface causes the colour to be readily absorbed, and it is difficult to remove a faulty mark in the work. Thus, while to the beginner platinum prints are much more difficult to spot than bromides or matt C.C., the expert worker finds them easier for spotting; the colour being absorbed by the surface of the paper, causes the spotting to show much less, and second touches may be applied at once without waiting for the first to dry. There is also little or no danger of the applied colour "lifting" on a second application of the brush. For more elaborate finishing the paper is well adapted to air-brush work, and lends itself better than bromide to the use of powdered plumbago, or artist's stumping sauce, applied with a small tuft of cotton wool, principally in finishing vignettes. In colour work there is apt to be a little loss of brilliancy of colour, due to the colour sinking into the paper rather too much. Where prints have to be coloured, it may be well to size them in a plain solution of gelatine after the final washing. Owing to the different degrees of hardness of gelatine it is difficult to give a definite strength, but the sizing should on no account be so strong as to show a gloss when the prints are dry. A 3 per cent. solution of Nelson's No. 1 gelatine may be used as the basis of experiment. It will be found about right, but the amount of sizing may require adjusting to the finisher's methods of working. The same solution — warm, of course — may be applied with a brush to prints already mounted.

The Word

We may direct attention to the "Daily Photograph" of Monday last, December 4, in which Dr. J. A. H. Murray ridicules, with justifiable warmth, the suggestions of the writer whose blunder we were able to demonstrate in our last issue. Mr. Murray naturally resents the implication that the compilers of the "New English Dictionary" should not have verified statements in standard works on the history of photography, and hence the vehemence with which he applies such terms as "absurd bubble," "ridiculous blunder," to our contemporary's canard. Further confirming the facts as we stated them last week, it is interesting to learn that Dr. Murray, thinking that after all Niepce may have said something of "photographie" or "photographique," has had the original MS. examined by the Archives of Saône-et-Loire, and reports that the letter contains not a word derived from "photographie." Hence students of photographic history have still before them the task of discovering the word "photography" in any printed or written document prior to the paper of Sir John Herschel's read on March 14, 1839.

The Sale of Cyanide by Dealers.

In a Poisons Act Amendment Bill, now before the Legislative Council of New South Wales, it is proposed to permit bonâ-fide dealers in photographic materials to retail potassium cyanide for photographic purposes, such dealer, on satisfying a magistrate that he is a fit and proper person, to receive a certificate granting him the right to retail the poison. Quite possibly such a provision is more necessary in Australia than in this country, where potassium cyanide is but little used by the large majority of photographers, and where, also, the photographic dealer may often be the

only man from whom supplies of chemicals can be conveniently drawn. Yet we have always held that the photographic dealer is as well qualified to sell poisonous substances as the certificated pharmacist. He equally understands their dangerous character, and is able to observe the formalities insisted upon by the Poisons Act. The concession proposed in amendment to the Victorian Bill seems based on commonsense.

* * *

Terms of Apprenticeship.

Those who place youths as apprentices to learn photography, and those who take apprentices, will do well to duly stipulate as to what, or what not, the apprentice is to be taught. Too often an apprentice is taken with the sole object of getting work done at a quite nominal cost without any real intention of teaching him the business throughout. Frequently the tuition is confined to printing and mounting, and little else, and when the apprentice is out of his time he finds that he is only qualified to take an engagement merely as a printer. Many who take apprentices to learn photography, with the above object only in view, do not always realise that, if they do not teach the business throughout, they lay themselves open to an action for breach of contract, and for damages. A correspondent, whose letter will be seen in the "Answers" column, sends us his indenture, and says that during his apprenticeship he was not taught retouching, and on his father writing to the master on the subject, he was told that retouching was a different branch altogether, and did not come within the apprenticeship indentures. In the indenture now before us the master "covenants to instruct the said apprentice in the art, trade, or business of photography, and, by the best means that he can, shall teach and instruct or cause to be taught and instructed, the said apprentice."

* * *

Is Retouching "Photography?"

Can an apprentice be taught the "art, trade, or business of photography" if he is not taught retouching? The term "photography," as here used, is a wide one, and one would think it included retouching as it is a portrait business, unless there was a clause in the indenture excluding it. Every operator nowadays is expected to be able to retouch his own negatives if required to do so. There are retouchers, it is true, who do not take negatives, but an apprentice to learn the business of photography should be taught retouching as a part of the business as much as printing and studio work. In this latter, by the way, many apprentices get but scant tuition, though it is the most important part of professional photography. This matter is specially referred to here to point out to those who take apprentices the responsibilities they undertake, and that they are compelled by law to teach what they covenant to do, whatever that may be, and that if they fail to do it they lay themselves open to an action at law. If certain portions of the business are not to be taught, they should be mentioned in the indentures. We would also suggest that friends, when apprenticing youths, should stipulate in the indentures what they are to be taught and that in very definite terms. If his were always done there would be no after questions as to whether the contract had been properly fulfilled.

* * *

"Mixed Soda."

Recent prosecutions of retailers who have sold impure carbonate of soda as "soda crystals" or "washing soda" have induced a body called the "Metropolitan Grocers, Provision Dealers, and Oilmen's Association" to decide that the method of selling this substance should be altered. This body naively pro-

poses that carbonate of soda shall be sold as "mixed soda," and a placard displayed in the shop to the effect that it cannot be guaranteed that the washing soda is wholly composed of carbonate of soda. The association further suggests that all parcels should be labelled "mixed soda," and that this term be employed on invoices. Photographers need no further hint to avoid "carbonate of soda" so described, as it is sold by devices which give the retailer the license to supply an article which may be loaded with sulphate, and is as ineffective for development purposes as it is unsuitable for employment as a detergent.

ELECTION PHOTOGRAPHY.

It may be that by the time these lines appear in print we shall know the date of the General Election; if not, we, at any rate, are, according to the opinion of all who ought to know, within "measurable distance" of an appeal to the electorate. An election is not, fortunately, the money-making possibility it once was; there are "oldest inhabitants" in many a town or village who can remember the good old days when the possession of a vote in some pocket borough was worth golden guineas to the fortunate owner. It is but a few years ago since every hireable vehicle used to be commandeered by one party or the other to bring voters luxuriously to the poll, while those who lived away from their qualifications received first-class return tickets on the railway. All that is changed now, and a parliamentary candidate of the present day trembles lest some enthusiastic helper should tip rather too lavishly, or, in some other apparently innocent way, infringe the Corrupt Practices Act. But though all these illegitimate influences have been swept away there is yet a considerable volume of trade caused by elections, and among the people who benefit by this must be reckoned the photographers.

In the aggregate a large amount of money will be paid to photographers, and the number of men among whom the money is divided may be reckoned by hundreds. Of course, a few firms who specialise on portraits of public men will get a large share of the business, and those who turn their energies largely or exclusively to press photography will cover most of the incidents. But when an intense local interest is aroused in some five or six hundred centres at once, the local men each in their own districts are the only men to take advantage of the chance. Let us figure it out a little. There are 670 seats in Parliament, and most of them will be won only after a contest, and so we may reasonably assume that the number of candidates will be well over the 1,000 mark. Many of these men will figure in the London illustrated papers, more of them will appear in the various local papers, and probably there will not be a single one whose portrait is not reproduced in one form or another. And on an average they will appear several times. Without going to any carefully accurate estimate—a thing that is not possible—we may reasonably assume that the total number of these "reproduction rights" will run over five thousand. Dividing this number by two we arrive at the number of guineas which should be distributed among photographers. Many pounds, too, will be paid for pictures of election scenes, for though artists hold their own here, with their impressions of evening gatherings in large halls, the press photographer is more and more scoring with the superior realism of his work.

The sources of revenue are not limited to newspaper demands. Two lines, which if well managed, will bring in revenue in some districts, are postcards and photo-buttons. In regard to postcards, it should be possible to run two sets. It is not covering the ground to merely publish portraits of the candidates. The rival headquarters, the public hall in which the votes are counted, the candidates' residences (if they are local men), and, possibly,

a snapshot or two, if these can be secured in time, would go to make up sets—one for each party. Photo-buttons are used in some places, and if judiciously pushed should go in more. These lines should scarcely be advanced at the photographer's sole risk. An order from the interested parties should first be canvassed for, and this should be forthcoming, for the goods could be supplied at a very reasonable rate. Post-cards or buttons can be mechanically produced by trade firms at a tithe the cost to a photographer who makes individual prints; a glance through our advertising columns will give the names of several firms who do this work—in half-tone, collotype, or purely photographic process. Committees, and some individual enthusiasts should buy enlargements of their candidate, and a small business could be done in direct sale of photographs. To those who retail photographs at a time like the present, a word of warning may be addressed. Showcase, or window display, appeals only to people who pass; and the more window displays there are the more people will see them. And so it is a wise plan to act as merchant as well as retailer, and arrange with booksellers and stationers to place the photographs in their windows also.

A further word of caution is in order here, for few

things are more "fugitive" than election photography, and it is very easy to overstock. The moment the election is over, interest will turn to something else, and any pictures left on hand will be so much waste paper. Success will come only to the man who bestirs himself early, who obtains his orders, or, at least, carefully canvasses the possibilities before the excitement has really commenced—in short, Now. And the countryman ought to be very chary about sending prints to London papers. One paper may publish portraits of all the successful candidates, another portraits of men entering Parliament for the first time; but their space is limited, and some papers will almost ignore the candidates. Those who have a good recent portrait which they wish to sell would be well advised to drop a line to some editor, and as he may not care to speculate, it would be allowable to let him hold it for use conditional on the candidate's success. It is little use submitting a print after the candidate's fate is known. Let photographers consider an election as a business opportunity for making a little money through a period when trade is usually dislocated, and they should be successful; but let them beware lest they be carried away by a wave of enthusiasm, and so land themselves, after the wave has ebbed, amid a mass of unsold and unsellable stock.

THE PRACTICE OF THREE-COLOUR WORK.

I.

The following notes by Dr. König on some of the practical difficulties met with by three-colour workers, which appear in the current number of the "Photographische Mitteilungen," will be found of considerable interest.

The Blue Filter.

The blue filter is the least troublesome to adjust, for even when a panchromatic plate, which is extraordinarily sensitive to yellow, is used for the yellow printing negative, it will be quite sufficient if the blue filter absorbs the yellow and yellowish green. As a matter of fact, negatives of equal character will be obtained with a reddish violet and a pure blue filter. If the blue filter transmits the green up to the E line, it can still be used, for with the short exposures required for the blue, this green will not act. It is quite another matter, however, if the blue filter is damped with yellow, and requires a comparatively long exposure, so that that for the red appears comparatively short. The author has already pointed out that it is somewhat misleading to give only the relative exposures for a given set of filters with a given plate, and it is obvious that to get a true statement the necessary increase by the blue filter must be stated.

The Green Filter.

Unquestionably this is the most difficult filter to make correctly. If the extreme red is transmitted, it can do but little harm, as the panchromatic plates are not sensitive to such light. The new green filter of the Höchst dye-works absorbs also this extreme red.

In the first place, the green filter must dampen the blue so strongly that the green and yellow can act sufficiently. According to the yellow-green sensitiveness of the plates used must the damping of the blue be adjusted. With plates strongly sensitive to yellowish green, this blue damping need not be so great as with those plates which are less sensitive to yellow-green. As almost all yellow-green sensitive plates have their maximum in the yellow or yellow-green, it is also necessary to dampen the yellow or yellow-green; the time of exposure is thus naturally prolonged, and so that the green, for which the plates are always less sensitive, can thus act sufficiently.

What will be the result of pushing the damping of the blue and yellow too far? If the blue is damped too much, or if for the negative exposure an additive filter (as used for projection),

which cuts the blue out absolutely, be used, the blue will not be opaque on the red negative, so that in printing a lot of red will print in the blue, and violets will be obtained instead of blues. If we had an ideal dye for staining the blue print, such as bluish-green with as narrow an absorption band as possible, that is to say, of the greatest colour purity (as described by von Hübl in "Three-colour Photography"), we could then completely cut out the blue by the green filter, and a pure blue would be formed by the mixture of the greenish blue with the bluish red. Since, however, our blue-green dyes, which are stable to light, are not sufficiently pure, the admixture of this with red would give only a dirty colour, and therefore we must try to obtain our blue dense in the red printing negative.

If, on the other hand, we damp the yellow too much, the filter will also cut out some of the orange; and, as a result, the orange would be as little represented as the red, and would therefore be reproduced too red.

In practice it will be found more satisfactory to damp the blue rather too strongly than too little. It is obviously the lesser fault for the pure blue, which so rarely occurs, to appear a little too red, than for the green, which is so frequently met with, to be a dirty brown.

The Red Filter.

The preparation of this filter is undoubtedly much easier than that of the green. Violet, blue, and blue-green must be absolutely cut out; red, yellow, and yellowish-green must be transmitted. In conjunction with good red-sensitive plates all red filters, whether they incline to a red or yellow tint, will be satisfactory; it is only when unsatisfactory red-sensitisers are used that special attention must be paid to the red filter.

Although the spectroscope is so indispensable for testing filters and sensitisers, the practical worker must take care not to lay too much stress upon spectroscopic results. The colours of objects, which we have to photograph, are not spectrum colours, and the absorption curves of filters and the sensitising of dyes are too frequently inclined to give a false impression of the action of these things. If the results of spectroscopic tests are controlled by practical three-colour work, some odd surprises may be encountered. Two green filters, for instance, which, tested spectroscopically, show a distinct difference in the

limits of the absorption, will give with a practical test absolutely identical negatives; blue filters of the most different hues will give faultless yellow printing negatives, and so on.

The same applies to sensitisers. Ethyl-red, which in the spectrogram shows a somewhat fainter minimum in the blue-green than pinachrom, gives with a camera test, behind the same green filter with equal exposure, always less density in the green than the latter dye. Hence that it is correct to say that pinachrom is one of the best sensitisers for green. Dr. Aarland, notwithstanding the experience proved by our innumerable three-colour negatives, states that plates sensitised with pinachrom leave a good deal to be desired in the green.

The best practical test is to expose in one camera behind the one filter plates of the same mother emulsion sensitised with the different dyes. Undoubtedly that dye is the better sensitiser for practical work, which *ceteris paribus* gives with equal exposure the better negative of the two.

The Sensitisers.

Ethyl-red, introduced by Dr. Miethe, was the first dye which made a plate sufficiently panchromatic, that is, sensitive to all colours. With more careful testing, it was found that the panchromatism of the ethyl-red plates left much to be desired, for the sensitiveness scarcely extends beyond the D line. In spite of this, however, as Dr. Miethe's results have proved, excellent three-colour work can be done with ethyl-red plates, a proof of the previous statement as to the spectroscopic tests; for, from a spectrogram one can only come to the conclusion that it is impossible to use this dye for the blue-printing plate in trichromatic work.

On the other hand, we must again give the spectrogram credit. If we do not succeed with ethyl-red plates in obtaining sufficient reproduction of the deep red. In this, pinachrom has made an important advance; it gives in the extreme red not only sufficiently dense negatives, but cuts down the exposure enormously, as compared with ethyl-red. As the plates sensitised with pinachrom possess, as already mentioned, good green-sensitiveness, this dye is unquestionably, up to the present, the best panchromatic sensitiser. According to the author's latest experiments, it is advisable to omit the ammonia in sensitising with pinachrom; the plates thus prepared are not markedly less sensitive.* They work quite clean, and will keep absolutely free from fog for four months.

The ratio of exposures for the pinachrom bathed plates behind the filters made by the Höchst dye-works is as 1:4:3. As the

blue filter prolongs the exposures about four times, the total duration of exposure is about thirty-two times as long as an ordinary exposure under similar conditions.

Pinacyanol.

Although very careful experiments have been carried out by the author with the isocyanines, pinachrom has proved to be the dye which most satisfies the requirements in practical trichromatic work. In very rare cases, however, it may happen that pinachrom will not give a satisfactory reproduction of deep red or dark brown colours, as the sensitising power of this dye does not extend into the extreme red. Some of the older cyanines, especially ethyl-cyanine, act better, but the last-named, on account of its tendency to fog and forming spots, is not desirable. Pinacyanol, a new dye prepared by the Höchst dye-works, combines with the good qualities of the isocyanines a power of sensitising into the extreme red which is extraordinary. Pinacyanol forms beautiful green crystals which dissolve in water with a blue-violet colour, and in alcohol with a pure blue tint. This new dye differs from the old and the isocyanines by its stability to acids, for whilst the aqueous solutions of the older dyes are completely decolourised by the least trace of acid, a much greater quantity of acid is required to discharge the colour of pinacyanol.

Pinacyanol, used like pinachrom, gives clean-working, very sensitive plates that will keep, which, behind a red filter, require a somewhat shorter exposure than a pinachrom-bathed plate. With equal density in the whites and yellows, the blue printing negative on the pinacyanol plate shows a much better rendering of deep red.

For preparing panchromatic plates, however, pinacyanol is not otherwise applicable, for it has practically no sensitising action in the green. It is possible, therefore, to work a pinacyanol plate in a deep green light, of the tint of about the F line, with tolerable safety. For those who lay stress upon the obtention of all three-colour negatives on one plate, pinacyanol is useless. Admixtures with other dyes, such as ethyl-red, pinachrom, or erythrosine have given no useful results, for the green sensitiveness, which is with such plates so desirable, is, by the addition of pinacyanol, much lowered.

It would be, doubtless, an advance to use only one dye, which should give the same character of negative for all three negatives. As a matter of fact, hitherto erythrosine has been used for the green and cyanine for the red, and these two dyes give negatives of totally different characters, for erythrosine gives hard negatives and cyanine tends to flatness.

Pinacyanol further possesses another advantage of the isocyanines, namely, that it does not markedly alter the gradation of the plates.

THE TRIALS OF A NATURALIST PHOTOGRAPHER.

THE lot of the naturalist photographer is by no means always a happy one. Many are the difficulties and tribulations that he has to face and conquer, and rarely are his labours thoroughly appreciated. Very few people realise the amount of patience, thought, anxiety, and nerve-wearing concentration that has to be exerted in the production of really successful photographs of wild life. They do not realise that the naturalist photographer has to study for days and weeks together the creature he wishes to portray, so as to make himself thoroughly familiar with its habits of life and environment, its characteristic movements and attitudes, ere he attempts to expose the plates from which he will make his finished pictures. But it is only by acquiring this thorough knowledge, and familiarity with his subject, that he can hope to produce really truthful, lifelike, characteristic pictures, and not mere chemical, libellous sketches.

During his wanderings by land and water, in search of his models, the naturalist photographer has it in his power to make many interesting friends—two-legged and otherwise—to gather much information on country lore, and will undoubtedly meet with some laughable accidents. Some years ago I was out pond hunting for microscopical material when I met with a laughable but, for the chief performer, somewhat unpleasant accident. I had found a pond covered with a growth of various water-weeds, except for a small patch of clear water right in the centre, and which was yielding me some very interesting material. Absolutely absorbed in my work, I was standing on tiptoe at the very edge of the pond, leaning forward and trying with my collecting stick and bottle to obtain a sample of the clear water from the centre, when I suddenly received a lifting blow from the rear which sent me flying slap into the middle of the pond. Imagine my indignation when I rose to

* The decrease in sensitiveness is only one-fifth by the omission of the ammonia. See B.J.P., October 13.—Eds. B.J.P.

the surface, and began to make my way ashore covered with slime and water-weeds, to see a great, big, old billy-goat standing on the bank looking at me with the most self-satisfied expression at the entire success of his sudden charge. What I said to that venerable billy-goat, will not bear publication; it had nothing to do with photography.

On another occasion I had set up my camera at the edge of a lake among the hills, to photograph a moor-hen's nest, and was busy focussing, when I was startled by the thud, thud of rapidly approaching hoofs and the bellowing of a bull. Looking round I saw a herd of shaggy, long-horned Scotch cattle charging down the hillside straight towards me. Thinking, under the circumstances, discretion the better part of valour, I made a bolt for the nearest tree, which partially overhung the lake, and climbed up it in a hurry, leaving the camera to take care of itself. Safely seated astride a bough, I awaited the arrival of the enemy. It was a beautiful sight to see the shaggy rascals sweep down the hill, tossing their great horned heads. Down they came to the edge of the lake and into its cool, still waters, where they stood knee-deep, drinking, and blowing from their gallop. What a picture they made, and how mad I felt not to have my camera with me to photograph them! After slaking their thirst, the cattle began to look around, and one of them catching sight of the camera and tripod promptly started to investigate it. Having gazed at it from a respectful distance, he marched up and closely examined it, giving forth a snort of disapproval. Finally, after walking round it once or twice, the rascal lowered his head, and getting a horn between two of the tripod legs lifted the whole apparatus and tossed it into the lake. He then marched up to the tree in which I was perched, and had a good, comfortable rub against it, inviting me in unmistakable language to come down and follow my camera. Needless to say, I did not accept his kind invitation, and had to sit in that tree for over two hours before the herd took its departure.

While taking cinematograph pictures of wild life for Mr. Charles Urban, I have had many exciting and not always pleasant adventures; indeed, as leader of the Urban Expedi-

tion to South America last autumn, I nearly lost my life, thanks to the agency of some of those minute forms of microscopic life, whose shapes and movements have been made familiar to the public through the exhibitions of the "micro" bioscope. When I was bioscoping the taking of a swarm of bees, for a series of animated pictures of bee life, I had a very painful and lively time. It was a windy afternoon, and the bees, who greatly dislike the wind, were very angry. I had my head and face protected by a veil, but was obliged to have my hands uncovered so as to manipulate the apparatus. By the time I had got my apparatus fixed up in position for bioscoping the swarm, I was simply covered with bees, and they were crawling all over the camera. The trouble, however, did not begin until I started to take the picture; then in rapidly turning the handle of the bioscope, which feeds the films through the camera, I began to knock the bees down. Up went the hum of challenge and anger, and the bees, now thoroughly enraged, settled on my hands and began to sting right and left. The bee-farmer was at work in the act of taking the swarm, and to stop turning the handle of my camera would have meant losing the picture, for which I had tramped so far and waited so long. There was nothing for it but to set one's teeth and go ahead, every turn of the handle knocking more bees and adding to my winged foes. At last it was done, and I was able to stop and shake the bees from my hands. That night I had practically no sleep, my temperature went up, and my hands swelled to an enormous size, the fingers sticking out straight like great sausages. When I next met my bee-farming friend, and poured into his ear the tragic story of my sufferings, all the sympathy I got from him was the remark, "Well, sir, there's one thing about it, you will not suffer from rheumatism this winter. Nothing like bee stings for rheumatics!"

Such are a few of the experiences which the naturalist photographer has to go through, but the knowledge and insight which he gains by so intimate a study of Nature, will far out-weigh all the troubles and trials that he will have to encounter.

F. MARTIN-DUNCAN.

THE WEEK IN HISTORY.

Niepce's Photography in England in 1827.

WHEN Nicéphore Niepce visited his brother—Claude—at Kew in 1827, he came in contact with a Mr. Francis Bauer, a Fellow of the Royal Society, through whom he submitted an account of his heliographic work to the Society. His manuscript, however, was never placed before the society, for the reason that it spoke only of results, and not of the methods employed by the author for preparing his photo-engraved plates. It was on December 8, 1829, that Niepce drew up this document, which he entitled, "Note on some results obtained spontaneously by the action of light." He must have taken it back to France with him, because it appears with the other papers which his biographer, Fouqué, collected in 1862. Mr. Bauer, however, kept a copy, for in 1839, when the rival processes of Daguerre and Talbot began to be talked about, he gave an account of his relations with Niepce in "The Literary Gazette" of March 2. He took the view that Niepce was the inventor of the process which Daguerre was then bringing before the French scientific men, but he did so obviously before he had seen a specimen of Daguerreotype, which he would at once see to be a totally different process from that of which Niepce left him specimens.

This note of Niepce's intended for the Royal Society does not, it must be said, say anything of the real inwardness of the process, and on that ground the society were justified in refusing it, though one wonders whether they have been quite con-

sistent in this admirable policy. Practically all M. Niepce has to say is contained in the following paragraph:—"The experiments which I have the honour to present are the first results of my long researches on fixing the images of objects by the action of light, and of reproducing them by engraving processes. . . . I may claim indulgence for my work, which will be the more readily granted when it is remembered that it is the first step in an entirely new field. No doubt my designs on pewter are too feeble. The defect arises mainly from the fact that the lights do not contrast sufficiently with the shadows, resulting from the metallic reflection. It would be easy to remedy this by giving more whiteness and lustre to the parts representing the effects of light, and receiving the impressions of this latter on a silver plate well polished and browned. For then the contrast between the white and black would be more pronounced, and this last shade rendered more intense by some chemical reagent, would lose the brilliant reflection which strikes the eye with a sense of incongruity."

A Notable Advance in Daguerreotype.

Daguerre's original process, as I suppose my readers well know, consisted in the iodizing of the silver plate with vapour of iodine. It was soon found, however, that the use of Bromine with the iodine was a great aid to the superior sensitiveness of the plates. The suggestion was first made by John F. Goddard on December 12, 1840, in "The Literary Gazette." Goddard

wrote:—"Having been engaged for some time past in investigating the different means of preparing the plates for the action of light in photographic delineations of daguerreotype, in the hopes of being able to render them more sensitive, the result of my experiments has been the valuable discovery that when the bromide of iodine is used instead of the simple iodine, this very desirable object is attained in a most extraordinary degree. So delicately sensitive are the plates, when properly prepared, that the faintest light acts upon them: even on the dull, cloudy days of November, with a London atmosphere, if not too foggy, and there is sufficient light to produce a picture, it will, by a few minutes exposure, be delineated. I have not had an opportunity of experimenting with bright solar light since I made the discovery, but from the experience I have had in the old processes during the last summer, I have no doubt that with a clear summer sun in London the effects will be almost instantaneous. With the light of the ordinary gas, a picture of a plaster bust may be obtained in three or four minutes."

The Invention of Collotype.

The art of lithography, which inspired Niepce to commence his researches, also prompted Alphonse Louis Poitevin to devise the method of photo-mutamine printing, which we now know as collotype. Poitevin's process was essentially the modern collotype. His patent for it (No. 2,815) was taken out exactly fifty years ago, i.e., on December 13, 1855. He sensi-

tised stone, metal, or glass with a mixture of a colloid body, such as gum, albumen, or gelatine, with bichromate of potash. He printed under a negative, and from the exposed film prepared the surface-printing plate.

The Daguerre-Niepce Partnership.

It was on December 14, 1829, that the celebrated partnership between Niepce and Daguerre was entered into. A "provisional agreement" it was called, but Nicéphore Niepce never lived to see any other: he died four years afterwards, and his relations with Daguerre were continued by his son Isidore, as provided in the agreement. The general terms of the agreement were that each inventor should communicate to the other the results of his investigations. M. Daguerre, it is specifically mentioned, shall describe in writing a camera newly designed by him. Niepce was to hand to Daguerre a written statement of his researches, and this he did in the "Notice sur l'Héliographie," a translation of which appeared last week. Whether Daguerre ever communicated anything to Niepce is more than I can say. I know of no evidence that he did. Isidore Niepce, in his "Historique de la Découverte de la Photographie," states that his father never received any photographic print from Daguerre, but that the latter did once show him some yellowish powder which was luminous in the dark. Daguerre appears to have associated it with some possible photographic process.

HISTORICS.

SOME NOTES ON COLLODION SELF-TONING PAPER.

The combined fixing and toning bath has been called the lazy man's printing process. With greater reason this name might be applied to the use of self-toning paper. Nevertheless, these papers are so handy, and have such advantages, that many who are not lazy photographers may well use them. Absolute permanency they cannot claim. Platinum and carbon prints alone have this merit, and the latter only when the pigment used is itself permanent. I have, however, made prints and postcards on collodion self-toning paper, some of which have been exposed in a window to sunlight for several months without showing any signs of fading. Care, of course, and absolute cleanliness in working are indispensable if good results are to be obtained. There are several points in the procedure where it is easy to go wrong. If, after printing, the prints are washed in plain water, and are not kept in constant motion, and if the water is not continually changed, the silver washed out is apt to produce stains. The addition of some common salt to the water, which, however, gives a colder tone to the prints—the more salt used the colder the tone—prevents this tendency to stain. All that is needful is to see that the salt solution acts evenly. When soaking prints of a small size in salt and water, I use a dish, the area of which is four times that of the print. I place in this three prints face downwards, then turn them face upwards to see that no bubbles of air are adhering to them, then turn them face downward again, and in the same way put three more prints in, laying them on the former ones. I go on till I have three piles, each containing six prints. One corner of the dish is left free, say, the one nearest to me on the left hand. I then take the prints in the right-hand bottom pile one by one, and turning them over, place them in the vacant space. Then I bring those down from the top right-hand pile, one by one, into the now vacant right-hand bottom corner and so on, continually changing and turning over the prints in this manner for the space of five minutes; this will ensure even toning. After this, the prints

can be washed in a big basin or bath, but must not be left in a strong light or they will be stained. I once had a large batch of postcards ruined in this way. I was called away just after I had got the prints from the salt bath into the washing water, and put them under the table. A servant, seeing them there, and not approving of a basin being on the floor, put it on the window-sill in bright, diffused daylight. Every print when I came back was covered with yellow stains, which the fixing bath did not remove. After the prints are washed, I put them into the fixing bath in exactly the same manner as I put them into the salt bath, and move and turn them over in the way described above for about ten or twelve minutes; if any prints are rather too dark, they can be left a little longer in the fixing bath—this reduces them, but if they require a long immersion to reduce them, the colour suffers. After well washing, they can be dried.

The advantages of self-toning paper are:—(1) There is no danger of double-toning; (2) the process is extremely simple; and (3) if collodion paper is used, the prints can be rapidly dried before a fire.

It often happens, when loaded dark slides are carried by rail, carriage, or cycle, that pinholes caused by dust are found on the negatives. These one naturally spots out with water colour, and as a result small white spots may appear on the print. I find that the best way to touch these out on collodion paper is by using a black-lead pencil; the grey colour and slight gloss of the lead shows far less on the print than if water colour is used. The pencil, too, is very handy to use in working up the print, if a process block has to be made from it. I have, with certain kinds of collodion self-toning card, found a tendency to blister badly in the solutions, even when every precaution to keep them at the same temperature has been taken. Most of the blisters disappear on drying. If they should not, but leave little raised ridges round the margins, I immerse the card for a few seconds in water, mop off the surface moisture with blotting-paper or

a cloth, lay them on a sheet of glass, then place some transparent water-proof paper over the face of the print and rub down the blisters with the smooth handle of a knife. In this way they can be almost, if not quite, got rid of. A little practice will show how far printing should be carried. The directions generally recommend printing until the print is *slightly* darker than the finished picture is desired

to be. I however find that this is hardly enough, as the prints become considerably lighter in the fixing bath, and although they darken a little in drying, I find that prints which, when taken from the frame seem much overdone, generally give the richest results when finished.

T. PERKINS.

THE NATURE OF THE LATENT IMAGE.

The Probable Composition of the Latent Image.

It is obvious from this that a strongly overexposed image can be separated into three substances, and probably there are different kinds of silver subbromide of different chemical composition present in the latent image or possibly solid solutions of half-bromide of silver in silver bromide with constantly changing chemical and photographic properties.

When the latent image is treated with a 5 per cent. solution of potassium cyanide almost the whole of it is destroyed, so that only a very slight trace can be physically developed; if plenty of sulphite is added to the cyanide it acts less strongly, but after both methods, nitric acid destroys every trace of x, and the image cannot be physically developed. Probably the cyanide decomposes the subbromide more thoroughly into metallic silver and soluble bromide than hypo, so that nitric acid dissolves it.

Ammonia acts like hypo, but it dissolves the exposed bromide much more slowly than the unexposed, and it can be better physically developed, probably because it leaves undissolved most of the hypothetical subbromide.

Saturated solution of ammonium bromide may also be used as a fixing agent, but it attacks the less-exposed latent image, much more than hypo, which is not surprising, as Lüppo-Cramer has pointed out that solutions of bromides markedly weaken and practically destroy the latent image on collodion (reformation of the normal bromide from the subbromide).

The Silver Sulphide Theory Untenable.

In the face of the above experiments Precht's theory that the primary fixed latent image consists of a "silver sulphide grain," formed by the sulphur compounds of the fixing salt, must be rejected as the least probable of all theories.

If the collodion film be orthochromatised with any of the usual dyes and exposed in the spectrograph, and then treated as the plain collodion in the above experiments a developable x remains in the yellow green, exactly the same as in the blue and violet, we may therefore assume that in the region of colour sensitising a normal latent image is formed as in the blue and violet portions. It is questionable, however, whether this applies to the solarisation phenomena in the red region of the spectrum.

Silver iodide, using it in the form of wet collodion, behaves practically like the bromide, but chromic acid destroys the normal and the solarised latent image in about an equal degree, wherein it differs from the bromide, and hypo appears to alter the chemical constitution of the latent image on iodide, as after primary fixation with hypo, nitric acid, Sp. Gr. 1.20, destroys it completely in a few minutes.

The Authors' Conclusions.

The subhaloid theory can easily explain the complicated behaviour of the latent image to chemical agents. The substance of the normal latent image of the negative of the first order consists of silver bromide reduced in different degrees, and containing subbromide. We assume that with progressive exposure a silver subbromide is formed, as the result of the photo-chemical splitting off of bromide, which is very like the normal bromide, but which, as is seen in the ordinary negative process, is more quickly reduced to metallic silver than the

II.

unexposed bromide: this kind of subbromide is destroyed by hypo and nitric acid. With a more generous exposure, a subbromide is formed, which is the latent image of the normal negative, and is slightly attacked by nitric acid; with progressive exposure and development it gives a normal negative with a normal characteristic opacity curve. This subbromide dissolves less readily than the bromide in ammonia, ammonium bromide, and hypo, and there remains after the primary fixation of the latent image a residue which can be physically developed, but it undergoes some change. According to the nature, concentration, and temperature of the fixing solution the subbromide is more or less split up into soluble bromide and metallic silver, so that the residue consists of subbromide with more or less metallic silver. Cyanide splits it up most completely, so that only metallic silver remains.

If nitric acid is allowed to act on the primary fixed latent image, its substance is still further destroyed, especially as regards the metallic silver, as this is dissolved, so that more or less of the image substance is removed, and there remains behind some silver subbromide, the existence of which can be proved by physical development. This, however, is split up by continued action of concentrated nitric acid into soluble silver and silver bromide, which, without the action of light, cannot be physically developed, but which serves as new nuclei for physical development if it is re-exposed and thus converted into developable subbromide.

With long over-exposure of the bromide a solarised image is formed, the substance of which is, as a rule, not identical with the darkened silver bromide, which simultaneously makes its appearance, and has another chemical composition and behaviour to the substance of the normal negative of the first order.

With still stronger over-exposure and the subsequent development a negative of the second order appears, which, at least in the cases described above, consists of three substances, chemically different—namely, of metallic silver, of the substance of the solarised image, and the subbromide, the latter forming the negative of the first order. All these substances are distinguished by the well-known behaviour to photographic developers, but show also a different chemical behaviour to hypo, ammonia, nitric acid, etc. The substance formed when silver bromide blackens in the light shows a different photographic behaviour to the latent and solarised images, which can be less easily explained as a solid solution of variable quantities of half-bromide in bromide, but rather corresponds to different kinds of subbromide occurring in the films of bromide exposed for different times.

The latent image on silver iodide with excess of silver appears to consist of subiodide, which, however, is more easily split up by hypo into metallic silver and iodide than the subbromide.

The substance of the normal latent image on silver bromide is in its qualitative behaviour to chemical agents independent of the wave length of the incident light. Colour sensitisers (eosine, ethyl violet, etc.) enforce on the silver bromide in the light of the wave-length for which they sensitise, the same photo-chemical reaction, namely, the formation of subbromide, as the bromide itself undergoes in the blue, violet, and ultra-violet regions of the spectrum.

FOREIGN NOTES AND NEWS.

Combined Reducers.

M. COUSTET, after pointing out in the "Photo-Gazette" that if we were always sure of giving correct exposures and developing to the exactly correct stages we should have no need of intensifiers or reducers, offers some notes on the use of the correcting mediums at disposal. It is well known that the hypo and ferricyanide reducer increases contrasts and persulphate of ammonia reduces the same, and he suggests a combination of the two, particularly for flat negatives, fogged all over. Although intensification judiciously carried out may be useful in such cases, we really want to reduce the fog and reduce the high-lights. In cases, therefore, where plates have been over-exposed or over-developed, he advises the use of the following:—

Ammonium persulphate	20 gr.
Potassium ferricyanide	2½ gr.
Hypo	25 gr.
Water	1 oz.

The proportions may be altered to suit individual cases, bearing in mind that the ferricyanide acts more energetically than the persulphate. The mixture, as above, will remain clear whilst in use, but should be thrown away when done with, as it will not keep. In order to arrest the action of this bath, it is advisable to plunge the negative at the moment of correct reduction in a 10 per cent. solution of sulphite of soda. An alternative method of using these reducers is to make them up into separate solutions and place the plate alternately into each, with or without washing.

The Relation Between Visual and Chemical Absorption.

It has been a long established fact that the position of the maximum absorption of a sensitising dye does not correspond with the maximum of photo-chemical action, but that there was a shifting towards the red by about 20 wave lengths. In a series of spectrophotometric tests, undertaken by Drs. Precht and Stenger with plates sensitised by the new dyes—ethyl-red, pinachrom, homocol, orthochrom, pinaverdol, and pericol—this law is proved to hold good, and in the "Zeitschrift für Reproduktions-technik," they give a table in proof of the same.

Increasing the Sensitiveness of Bichromated Gelatine.

Although MM. Calmels and Clerc have advanced the statement that the sensitiveness of bichromated gelatine, fish glue, and albumen can be increased by the addition of some dyes, such as eosine and erythrosine, as used in dry-plate work, this has been denied by Tschérner; and now Dr. Neuhauss has been carrying out experiments on the same lines, and finds that no increase in sensitiveness can be obtained by this means.

Pyridine in Emulsion Making.

About twelve months ago a German patent, taken out by Dr. Witt, was published, in which it was stated that extremely fine grained and rapid emulsions could be obtained by using pyridine in place of ammonia for ripening emulsions, and that there was greater freedom from fog. Although plates thus prepared were placed on the market some few months ago, the reports on the same were not very favourable, it being stated that the speed was low and the grain not abnormally finer than in plates prepared in the usual way. Dr. Lüppo-Cramer has now reported on this process, and finds that pyridine is practically useless, that no high speed can

be obtained, and that emulsions prepared in precisely the same way, with and without pyridine, show but little difference in the size of the grain.

A New Transfer Paper for Carbon.

There has just been placed on the market a new transfer paper, which presents some features of novelty. It has merely to be soaked in cold water for ten seconds and the wet carbon print then squeegeed on to it. Development is effected in the ordinary way, and the wet print can then be squeegeed to any ordinary paper without any preliminary coating, dried, and the transfer paper stripped. A further advantage is stated to be that the carbon print has a protective and varnish-like film on its surface, which protects the print from dirt and accidental damage.

The Microscopic Examination of Unexposed and Exposed Films.

In the abstract of the paper by Dr. Eder, which appears on the previous page, attention is directed to that theory of the latent image which attempts to explain the same by the formation of metallic silver. Dr. Neuhauss, of Berlin, has now attacked this problem from the optical side. It is well known that by the so-called ultramicroscopic method—which was first worked out by Siedentopf and Zsigmondy, it is possible to see particles, the existence of which is otherwise unprovable; such, for instance, as the minute particles of metallic gold in homogeneous ruby glass, coloured by the same. There are extreme difficulties in the way of examining the unfixed films, for the simple reason that the more intense the light the greater the resolving power, and even ruby light of the necessary intensity is not without action on the silver salt. And, further, the solvent power, even of the best micro-objectives is not sufficient for detecting the extremely minute change in the bromide of silver molecule. There might be a possibility of detecting some change in plates which had been exposed and fixed. Such plates can, as is well known, be developed with a developer containing silver *in statu nascendi*, and there is therefore something which remains from the primary image. As the source of light, sunlight was used, for the solvent power, as already stated, depends to a great extent on the intensity of the light. The gelatine to be examined was placed in a small trough, which only held a few drops. The results were: (1) that pure emulsion gelatine, filtered through leather, shows a very large number of bright shining particles, of different sizes, close on the limits of visibility, and without decided colour; (2) the gelatine melted from an unexposed and fixed plate showed the same appearance; (3) a drop or two of gelatine melted off a plate, which had been exposed for a short time in the camera and then fixed and washed, showed precisely the same appearance as in 1 and 2; (4) a plate exposed as in No. 3 was fixed and washed, and then physically developed till just the first traces of an image were visible. A drop of melted gelatine from this plate showed innumerable brilliant yellowish specks of about the same size (metallic silver); (5) a plate was exposed without a camera for ten minutes in a room to diffused daylight. It was then fixed and washed, and showed the same appearances as in Nos. 1, 2, and 3. (6) A plate was exposed for ten minutes to direct sunlight, then fixed and well washed. The film, which had turned bluish-green, looked after fixing greyish, and in the ultramicroscope showed innumerable very bright yellowish or yellowish-red specks of practically the same

size. (7) A plate was exposed for an hour in the sun, then fixed and washed. On examination, which was extremely difficult on account of the dark colour, the film was seen to be crowded with flocculent masses of particles of the same colour as in No. 6. The experiments gave no satisfactory proof of the existence of particles in the gelatine, caused by exposures within ordinary limits. Were it possible to replace the gelatine by an optically homogeneous substance, it might be possible to count the difference in number of particles in an unexposed and an exposed plate. We can, however, say with tolerable certainty that there is no separation of metallic silver by ordinary exposures. It was only when the exposure was so prolonged that the film visibly darkened that the existence of any particles could be seen, and then these could be detected with an ordinary microscope.

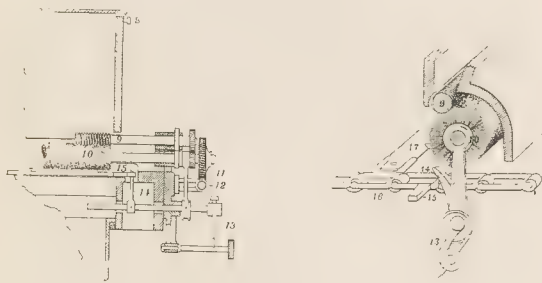
Photo-Mechanical Notes.

The Levy Etch-Powdering Machine.

FROM Mr. Louis Edward Levy, of Philadelphia, we are in receipt of a circular describing a new piece of apparatus supplementing the acid blast introduced by Mr. Levy a year or two ago for the etching of zinc and copper plates. The "etch-powdering machine," as it is called, is described at length in the circular, from which we may extract some salient passages:

The machine is a mechanism for preparing zinc or other metal plates with a powdered resinoid for the process of etching. The entire manipulation of the plate, as regards the application, clearing and melting of the powder and cooling of the plate is effected mechanically, and in one operation.

With this machine a plate of any size up to 24 in. square, and of any thickness in ordinary use, can be "topped," that is to say, prepared for the first etch, in $1\frac{1}{4}$ minutes, and given a "four-way" powdering, in readiness for the next etch, in five minutes. The ground is kept cleaner, and the powdering, especially on large plates, is more uniform than is practicable



with hand-work. The "banking" of the powder, whether "wide" or "close," is, of course, primarily dependent on the nature and condition of the powder in use, but is ultimately controlled by means of a movable handle which determines the position of the brushes in relation to the plate and the degree of their pressure upon it. Apart from this preliminary adjustment, the process is entirely automatic.

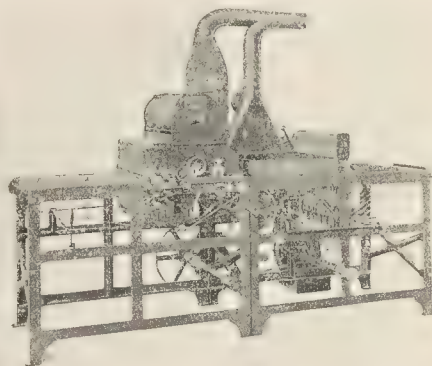
The plate to be powdered is laid on the receiving table, face up, against the projecting prongs of a carrier bar; the machine is then started; a small handle is next pressed down to bring the cylindrical feed-brush into operation; the plate is now carried forward by the carrier-bar under the feed-brush, thence

onward under a gang of elliptically moving flat brushes which pack the powder on the plate and clear away the surplus, still forward through a gas furnace which melts the powder in place, and finally on to a cooling table, where the hot plate is swept on both sides by an air blast which quickly cools it in readiness for a repetition of the procedure in another direction through the machine.

Putting the plate in its proper position on the receiving table, adjusting the gang brushes if necessary, starting the machine to go and bringing the feed-brush into operation is all the etcher has to do. When the plate passes the feed-brush the latter is automatically lifted out of operation; when it reaches the furnace, the gas is automatically turned on and lighted; when it arrives at the cooling table the air blast is automatically started.

After receiving powder from the feed-brush, the plate passes under sweep-brush, A, which packs the powder against the projecting features of the plate and sweeps back the surplus until it falls into the drawers below. The plate is carried beyond the feed-hopper into a gang-brush chamber, where the powder placed against the sides of the lines by the feed and sweep-brushes is further packed in place and the surplus brushed off by six gang brushes.

The revolution of the gang-brushes draws a current of air inwards through the exit opening, over the surface of the plate as it emerges from the brush chamber. This draft of air prevents any fine particles of powder from settling on the plate and leaves the ground perfectly clear.



The figure shows the general appearance of the machine, which consists of a feed platform on the left, the powdering chamber, and the gas furnace next in order towards the right, the powdered plate finally emerges on the delivery table.

The powdering chamber is provided with a feed-screw, which delivers the powder on to the brush, by which it is distributed on the plate.

PHOTO-MECHANICAL PATENTS.

Applications for Patents.

The following patents were applied for last week:—

Improvements in photo-mechanical printing. No. 23,990. Henry Lewis Reckard, 65, Chancery Lane, London.

Improved mechanical means of inking and preparing engraved plates for direct plate printing. No. 24,104. —Thomas MacDonald, Monument Buildings, Pudding Lane, London.

Exhibitions.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

CONSERVATIVE instincts of the good old-fashioned sort appear to prompt the management of the North Middlesex Society. Without beat of drum and blowing upon rams' horns it performs what it appears to regard as its first and chief duty to its own members—viz., the education of all of them in all things photographic. Thus it is that the seventeenth annual exhibition is of members' work only. Many societies of the age and standing of the North Middlesex would have aimed high at a show with all the notabilities represented. That is not the way at Stanley Hall, Crouch Hill, where they believe in bringing out the talents of their own people. They might do worse, perhaps, than provide stimulus in a small selection of photographs by a few prominent exhibitors, but there is a strong preference for devoting the whole wall space to the work of as many members as possible. Who shall say the policy is not the best? The persistent well-being of the North Middlesex Society may be taken as one proof of its correctness.

The exhibits number in all 350—199 in the pictorial section, 54 "record" photographs, and 96 lantern slides, among which latter are half a dozen three-colour transparencies. The judges, Messrs. B. Gay Wilkinson and E. T. Holding made the following awards:—

No. 17 ("Supplication"), A. G. Lawson; No. 32 (Towards the Close of a Summer Day), A. G. Lawson; No. 44 (In Old Burgos), W. Pringle; No. 68 (Fish Street Hill), H. W. Fincham; No. 69 ("Granny"), A. H. Piddington; No. 74 (A Bend in the River), S. C. Puddy; No. 106 (Venice—Early Morning), R. Child Bayley; No. 124 (North Aisle, Canterbury), W. Jackson. Lantern Slides.—No. 315 (Sunshine in the Woods), S. C. Puddy; No. 318 (Sunshine and Fog), R. R. Rawkins.

The record section represents a part of the excellent work done by the society during the past year or two in preparing a series of photograph representing the fast changing features of the northern district of London, which is the scene of its activities. This branch of the work was strongly pressed upon members at the last annual dinner of the society by the president, Mr. Charles Beadle, who, with the ex-presidents, Messrs. J. W. Marchant and J. C. S. Mummery, is among the exhibitors.

TYNEMOUTH PHOTOGRAPHIC SOCIETY.

THERE were some 250 specimens on view in the Northumberland Square Hall, North Shields, last week, at the second exhibition of the Borough of Tynemouth's Photographic Society. In making their report the judges, Messrs. David Blount and Edgar G. Lee, stated that the exhibits in the class open to the federated societies of Northumberland and Durham were of exceptional merit, the technique generally being of a high standard, and they experienced considerable difficulty in making their awards. The Federation plaque was won by J. Walton, of Sunderland, for ("Morning Mists") Arthur Payne securing the silver medal for ("Border Land") and the bronze medal going to E. Urwin, Consett, for ("An Old Shoemaker"). Certificates were also awarded by the judges to C. T. Cothay, Sunderland ("Stella"), and W. S. Corrier, Tynemouth ("The Dryad"). A special award for the best print in the exhibition by members of the Tynemouth Society was won by W. Coats. The bronze medal for postcards was won by Mr. Coats, and Mr. Scott also received the commendation of the judges.

LANCASTER PHOTOGRAPHIC SOCIETY.

THE fourth annual exhibition of this society was opened on November 27. The awards are as follows:—Open Classes.—Class A

(Landscape, etc.).—Silver medal (Tugging Home), William Clayden; bronze medal (Shades of Evening), R. T. Simpson. Class B (Portraiture and Figure Studies).—Silver medal, withheld; bronze medal (Portrait in Gum), Fred Judge. Class C (Architecture, Interior and Exterior).—Silver medal (Until the Day Break), S. G. Kimber; bronze medal (Peacefully the Shadows Guard their Tomb), James Dunlop. Class D (Lantern Slides, set of four, any subject).—Silver medal (Currants), E. Seymour; bronze medal (Hoar Frost), J. Emmott.

Members' Classes.—Class E (Landscape, etc.).—Silver medal (An Autumn Morning), C. D. Baxandall; bronze medal (Lakeland), Walter Gunson. Class F (Portraiture and Figure Studies).—Silver medal (Interested), C. D. Baxandall; bronze medal (Meditation), George W. Townsend. Class G (Architecture, Interior or Exterior).—Silver medal, withheld; bronze medal (A Corner of Borwick Hall), E. O. Harris. Class H (Lantern Slides).—Silver medal (Winter), R. T. Simpson; bronze medal (A Sunlit Street), Walter Gunson. Class I (Novices, Mounted Prints only, any subject).—Photo materials to value of 10s. 6d. (Sunshine and Shadows of Life), Fred Hargreaves.

HOVE CAMERA CLUB.

THE Hove Camera Club Exhibition was open from December 1 to 6, and the full list of awards made by the judges (Messrs. C. Job, J. C. S. Mummery, and J. H. Sussex Hall) is given below. The number of exhibitors shows no falling off this year, while a finer collection of pictures in the open class, numbering in all 424, has never been seen at Hove. The exhibition was the second of the "Southern" series, and a large number of the exhibits had already been shown at Southampton. Apart from the prize-winners, very fine work came from G. H. Capper, W. Clayden (Tugging Home), S. G. Kimber, E. Seymour, E. H. Hazell, Dan Dunlop, R. Eickemeyer, jun., Douglas English, W. Farren, H. P. C. Harpur, C. W. Howdill, P. Judge, H. W. Lane (whose "Shoeing" could not have been far behind the plaque winners). O. G. Pike, W. Rawlings, Basil Schön, the Misses Tomlinson, Miss A. B. Warburg, J. C. Warburg, and many others. The Club Classes, with the exception of the landscape, were hardly up to last year's standard; but F. J. Phillips had several good things, including "The Groote Kerk, Edam," which won for him the Challenge Salver for best picture in the Club Classes. F. R. Richardson won two first prizes, his best picture being "The Portrait," a girl painting a portrait on an easel. There was plenty of promising work among new and younger members.

For the first time the exhibition was held in the Large Hall at the Hove Town Hall, the pictures looking extremely well on screens round the room. Hove believes in having an attractive lecture list, and the lecturers this year were O. G. Pike, Douglas English, F.R.P.S., E. R. Ashton, Martin-Duncan, and Ormiston-Smith.

The following is the complete award list.—Open Classes. Class A (Framed Picture, any subject).—Plaque (In an Old Harbour), A. Marshall, A.R.I.B.A.; plaque (The Shoal), F. J. Mortimer, F.R.P.S.; plaque (The Parting Glance), Mrs. G. A. Barton; plaque (A Norman Procession Path), W. A. Clark; plaque (Onora), Miss M. Silverston; plaque (Grey Morn), J. C. Batkin; plaque (The Life History of a Splash), A. C. Banfield; plaque (Fantasy), P. G. Terras; plaque (Through a Norman Arch), T. R. Somerford; plaque (Beyond), D. J. Scott; plaque (Portrait of Miss K.), Dudley Hoyt; plaque ("Intent he seemed, and pondering, future things of wondrous weight"), Miss Marion Woods; hon. mention (Into the West), W. A. I. Hensler; hon. mention (Snow Scene in a London Park), J. H. Anderson; hon. mention (The Tiffany Glass), Miss E. T. Brailsford; hon. mention (In the Evening Light, Haddon Chapel), Rev. H. R. Campion; hon. mention (Sunlit Snow), W. B. Post; hon. mention (Maternity), T. H. Head. Class B (Lantern Slides).—Plaque

(A Norman Triforium), G. J. T. Walford; plaque (A Tree in a Mist), Ellis Kelsey; plaque (At Varenna), H. Wild; hon. mention (A Stream of Light), E. R. Bull; hon. mention (A Recess in the Woods), W. A. I. Hensler; hon. mention (Currants), E. Seymour; hon. mention (Pollen of Holly Hock), Dr. G. H. Rodman.

Club Classes.—Challenge Silver (presented by W. A. Hounsom, Esq., J.P.) for the best picture in the Club Classes.—The Groote Kerk, Edam, F. J. Phillips. The President's (Alderman J. Colman, J.P.) Prizes—the first award in each Club Class.—Class J (Landscape, River Scenery, and Marine).—Plaque (Unloading Lime at Beddingham), F. R. Richardson; plaque (Let not ambition mock their useful toil), H. P. Everett; hon. mention (Watching for Smugglers), Miss V. M. Wainwright; hon. mention (On the Banks of the Maine), L. J. Steele. Class K (Portraiture and Animal Studies).—Plaque (The Portrait), F. R. Richardson; plaque (Lighting Up), F. J. Phillips; hon. mention (Swan Study), Douglas English, F.R.P.S.; hon. mention (A Busy Maid), H. H. Eltenton. Class L (Architecture, Still Life, etc.).—Plaque (The Groote Kerk, Edam), F. J. Phillips; plaque (Autumn Roses), C. S. Simpson; hon. mention (Great West Door, Lichfield Cathedral), V. E. Morris; hon. mention (A Corner of Exeter Cathedral), W. Bailey. Class M (Lantern Slides).—Plaque (Where Trespassing is not Illegal), W. White Palmer; plaque (When the Tide is Out), V. E. Morris; hon. mention (Archway, St. Ives), W. Bailey. Class N (Novices).—Plaque, W. Chater Lea; hon. mention, E. Noel Wilson.

FORTHCOMING EXHIBITIONS.

December 12.—The Scottish Photographic Federation Lantern Slide Competition. Entries to Hon. Secretary, John B. Machlachlan, Blairgowrie.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph. A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January, 1906.—The Dover Institute Photographic Society. Hon. Secretary, H. Plowright, 47, Maison Dieu Road, Dover.

January, 1906.—Brierley Hill Camera Club. Hon. Secretary, J. Thomas, William Street, Brierley Hill.

January 11-13, 1906.—Boston Camera Club. Hon. Secretaries, H. M. Hames and R. W. Halliday, 65, West Street, Boston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

January 25-27, 1906.—South Essex Camera Club. Hon. Secretary, Thomas Michell, 180, Browning Road, Manor Park, E.

January 31, 1906.—Tring Camera Club. Hon. Secretary, J. Owen Raymond, Frogmore Road, Tring.

February, 1906.—Windsor Camera Club. Hon. Secretary, Thomas J. Cartland, Thames Side, Windsor.

February, 1906.—Cardiff Windsor A.P.S. Hon. Secretary, W. A. Woodward, 187, Mackintosh Place, Cardiff.

February-March, 1906.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

February 3-10.—Cape Town Photographic Society International Exhibition. Entries close January 13, 1906.

February 3-February 25, 1906.—Marseilles Fourth International Salon. M. Astrer, Sec. Gen., 11, Rue de la Grande-Armée, Marseilles.

February 6-9, 1906.—Guisbrough Fine Art and Industrial Society. Hon. Secretary, George Page, 34, Westgate, Guisbrough, Yorks.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

February 20-21, 1906.—Royal Albert Institute, Windsor. J. W. Gooch, Hon. Secretary.

Feb. 22-24, 1906.—Bowes Park and District. Hon. Sec., H. C. Bird, 91, Whittington Road, Bowes Park, N.

February 24—March 10, 1906.—Edinburgh Photographic Society. Hon. Secretary, J. S. McCulloch, 3A, N. St. David Street, Edinburgh.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Sec., W. B. Woodland, 18, Beckingham Road, Leicester.

March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.

March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.

March, 1906.—St. Helens Camera Club. Hon. Secretary, John Glover, 14, Ormskirck Street, St. Helens.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 7-8, 1906.—Doncaster Camera Club. Hon. Secretary, T. Haigh Connor, 39, Market Place, Doncaster.

March 12-15, 1906.—Cripplegate Photographic Society.—Secretary, Fred. Leeks, 8, Barford Street, Islington, N.

March 13-14, 1906.—G.E.R. Mechanics' Institute (Stratford). Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.

March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Yines, Market Chambers, South Parade, Nottingham.

March 19-24, 1906.—Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

FORTHCOMING COMPETITION.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

CATALOGUES AND TRADE NOTICES.

FREE Samples of Red Seal Plates.—Messrs. Elliott and Sons have just issued an attractive circular to professional photographers for the purpose of drawing attention to the merits of the Barnet Red Seal Plate for studio work during the dull days of winter. An opportunity for testing the merits of these fine plates is offered in the shape of free samples, which will be sent on application. The Red Seal plate, on the rapidity of which we recently commented, is sold at popular prices, and liberal discounts will be allowed to professional photographers.

MESSRS. GAUMONT and Co. have sent us their latest catalogue of new bioscope productions. The films listed include many popular subjects, and are not expensive. Cinematographers should write for a copy of this booklet to 22-27, Cecil Court, London, W.C.

New Materials.

"Bromyl" Paper. Sold by F. Douet, 6, Wellock Road, Chiswick.

This is quite a new kind of P.O.P., which is stated to be prepared with silver bromide according to the method of Dr. Foucault.

Printing under a negative composed of a series of opacities ranging in geometrical progression from 1 to 1,024, the latter corresponding to an H. and D. density of 3.1, which is much more than is usually met with in any negative, we find that the full scale will print out. The paper is, therefore, very suitable for obtaining soft results from harsh negatives.

The paper must be over-printed, as there is some loss in the lighter tones when the prints are merely fixed, but if toned with gold, or platinum, this is not so apparent. The range of colours obtainable is very great according to the method of treatment, and vary between a deep black with a trace of purple, through purple brown, sepia, and French greys.

We find the paper to be about six times faster than a P.O.P. made with citrate and chloride of silver, to daylight; but by gaslight there is practically no comparison, as ordinary P.O.P. when exposed under the above-mentioned actinometer, showed but a very faint image under the lighter squares, with half an hour's exposure at six inches from an incandescent gas burner. The "Bromyl" paper, however, printed out the full range of gradation and intensity in the same time.

The paper may be obtained with glossy, matt, and rough surfaces, and also in the form of postcards, and we are bound to describe it as a noteworthy addition to the printing papers at present on the market.

Patent News.

Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."

The following applications for Patents were made between November 20 to 25:—

VIGNETTERS.—No. 23,875. A vignetting attachment for photographic cameras. John Williams, 36, Chancery Lane, London.

ENLARGING.—No. 24,101. Improvements in enlarging or reducing apparatus. Gaston Clement and George Gilmer, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

PRINTING APPARATUS.—No. 24,120. Improvements in photographic printing apparatus. Albert Ashby, Frederick Horace Ashby, Major William Carter, and Edwin John Fletcher, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

LENSES.—No. 24,391. Improvements in photographic lenses. Harold Dennis-Taylor, Buckingham Works, Bishopill, York.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W. O.

PRINTING FRAMES.—No. 3,375, 1905. The invention consists of a pair of hinged boards, one provided with a central opening, rabbetted round the edges, and the other with a raised portion fitting in the rabbetted opening. The construction of the frame will be seen from the drawings. Figure 1 shows the frame open, and with springs E2 and E3 to keep the printing paper in place on the negative. Figure 2 shows the section of the frame with

the two parts brought together. Edward Rosell Petrie, 76, Second Place, Brooklyn, U.S.A.

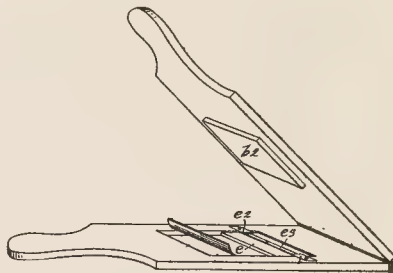


Fig. 1.

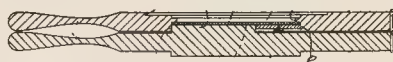


Fig. 2.

CINEMATOGRAPHS.—No. 7,482, 1905. The invention is for a system of cinematographic projection by means of two plane mirrors, forming a right angle, and moving at its edge in a direction at angle of 45 degrees, with each face, and with a speed equal to half that of the film. Figure 1 explains the principle of the system.

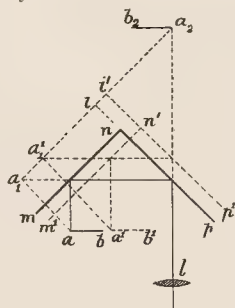


Fig. 1.

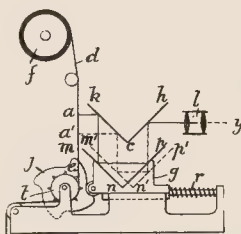


Fig. 2.

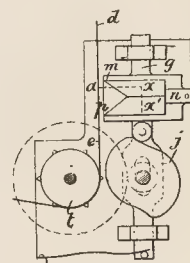


Fig. 3.

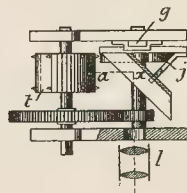


Fig. 4.

Referring to Fig. 1, M N and N P are two plane mirrors arranged at right angles to each other and at right angles to the plane of the figure. Let A. represent a luminous point; its image with respect to the mirror M N will be at A1, symmetric to A., the image of A1. relative to N. P. will be at A2., symmetric to A1. with respect to N. P.; consequently A2. will be the final image of the point A after reflection by the two mirrors. Let it be supposed that the point A. is removed from A. to A'. upon a right line making an angle of 45deg. with each of the mirrors, and

that at the same time the combination of the two mirrors is moved parallel to this direction, a distance N , N' , equal to half of A , A' . It is evident that the image A_1 , of A , given by the first mirror will remain during this movement on the line A_1 , A_2 .

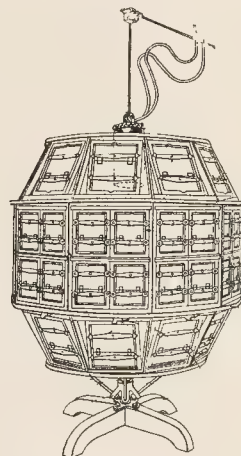
and that $I. P. = \frac{A_1, A_1'}{2}$; this will therefore give $A_1', P. = P. A_2$.

and the point A^2 will be still the image of the point A' . Consequently if any optical system L , is arranged in front of the system of the two movable mirrors, it will give from a luminous point A , moving under the conditions above stated an immovable image which will be exactly the image of the point A_2 . The above reasoning may be extended to a collection of points constituting any object or a drawing, the system of the two mirrors will always substitute for the collection of movable points of this object, an absolutely fixed image of the same size, for its distance from the nodal point of the optical system remains invariable and of the same form, for the plane of the virtual image also remains invariable. The principle is evidently reversible the optical system L will give from an exterior point an image which will move a distance double of that which corresponds to the movement of the mirrors. If A , B , represent a portion of a cinematograph film, there will be at A_1 , B_1 , a fixed image of this portion, and this image will be visible (either direct or by projection) during the whole time that the portion A , B , remains in the field of the mirrors. It is thus possible to conceive that a continuous chain of double mirrors may be arranged which will furnish at a fixed point of space a fixed image from successive images on a cinematograph film moving on the line A , A' , it is thus possible to realise the complete synthesis of movement of the subject printed on the film. It is possible also to imagine that the system of the double mirror, after having accompanied the film during a certain time, returns quickly to its first position to take a following image, which will be projected exactly at the same point as the first and so on. It is of this last means that two examples of application will be given. These means permit of continuous illumination. It would be practically difficult to retain the cinematograph film and the objective L , in the relative positions which they occupy in Fig. 1, but they can always be transferred to more convenient positions by conveniently deviating the luminous rays. This result may be obtained as shown in Fig. 2 by reflection upon two fixed mirrors K , C , H , parallel to the movable mirrors M , N , P . In this arrangement the cinematograph film D , E unrolls vertically from a roller F , and is drawn off with a continuous movement by the toothed drum T . Upon the same axis as this drum is mounted a cam J , acting upon a horizontal carriage G carrying the movable mirrors M , N , P , forming a right angle the bisecting plane of which is parallel to the film D , E . The profile of the cam J is such that when the film D , E descends a certain distance A , A' , the carriage K , is removed from this film a distance N , $N' = \frac{A, A'}{2}$. The fixed mirrors K , C , H .

are placed above the movable mirrors M , N , P , to which they are parallel, it is evident that the reflection upon these mirrors does not in any way change the principle enunciated above, and that if at the position M , N , P , of the movable mirrors, the point A , forms its image at Y , when the point has traversed the path A , A' and the mirror the path N , $N' = \frac{A, A'}{2}$ it will still form its image at Y . Thus in passing from A , A' , a certain point of the film D , E , will be constantly projected on the same point of the screen placed at Y . If A , A' is the size of an image, each of the points of this image will have during this

movement its fixed projection upon the screen and reciprocally if the apparatus is employed for taking views, each point of space will form its image at the same point of the film. After the passage of an image, the cam J , allows the carriage G , to return rapidly, it being pushed back by a spring R , during this return the objective is closed by an obturator. It will be understood that with this arrangement the cut off need only last during a very small fraction of time of exposure. Figs. 3 and 4 show in elevation and in plan another means of carrying the cinematograph film in a better position without employing extra mirrors. In this case the mirrors M , N , P , still forming a right angle, have their edges horizontal and are placed at 45deg. with relation to the axis of the lens L , they are mounted on a vertical carriage G , moved as in the preceding case by a cam or connected by gearing to the drum T , which draws forward the cinematograph film D , E , situated in a vertical plane parallel to the axis of the objective. C. K. Mills, for A. Lumiere et ses Fils 21 and 23, Chemin St. Victor, Lyon-Monplaisir, France.

PRINTING APPARATUS.—No. 3,475, 1905. The claim is for a rotatable cabinet, provided with a fixed light, and with racks for printing frames of various sizes, which are arranged horizontally to the



rays of light from the lamp. The figure shows one form of the cabinet. Kodak, Ltd., 57, Clerkenwell Road, London.

THE following complete specifications are open to public inspection before acceptance under the Patents Act, 1901:—

SUPPORTS.—No. 23,115. Supports for photographic plates of all kinds. Campagne Générale de Phonographie, Cinématographes et Apparat de Précision.

STEREOSCOPY.—No. 23,591. Stereoscopic apparatus. Pigeon.

THE Scottish Salon will have for the first time in its history the novelty of a Photographic Art Union drawing. This feature, although new to the Salon, proved very successful at the last International Exhibition promoted by the Dundee and East of Scotland Association. Mr. W. F. Hill, 18, Meadowside, Dundee, who is hon. sec. of the Art Union, will be pleased to supply tickets, and give all information.

"THE AUSTRALIAN PHOTO REVIEW," we are interested in noting, has secured Walter Burke, for its editor, and its current issue shows a commendable improvement in typography, and a general smartness of contents, for which presumably we must give Mr. Burke the credit.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
8	Watford Photographic Society	"Three-colour Work." Mr. D. Geddes.
8	Leicester Lit. and Philo. Society	Enlarged Negatives and How to Make Them. Demonstrated. Mr. A. Newton.
8	Barrow Naturalists' Field Club	"The System of the Stars" Distribution of the Stars in Space. Illustrated. Rev. T. E. R. Phillips, M.A.
8	Aberdeen Amat. Photo. Assn.	"Colour Photography." Mr. G. Robertson.
8	Glasgow Southern Photo. Assn.	Social Evening. Members and Friends.
8	Colne Camera Club	"Killarney." Mr. W. Hyde.
11	Wallasey Amat. Photo. Soc.	Lantern Lecture. Pictures taken with a Goetz Lens.
11	Oxford Camera Club	"The Property Value of Photographs." Mr. George E. Brown.
11	Widnes Photographic Society	"Combination Printing." Mr. Arthur Poole.
11	Luton Camera Club	Exhibition of Members' Work at the Club Rooms, including Pictures prepared for the Lea Valley Evening.
11	Scarborough and Dis. Ph. Soc.	"Bromide Enlarging." Demonstrated. Messrs. A. Palford and A. E. King.
11	Dewsbury Photo. Society	"A Week in the Kent Hop Fields with a Camera." Mr. W. H. Atkinson.
11	Southampton Camera Club	Photography Prize Slides.
11	Cripplegate Photo. Society	"Toning Bromides." Mr. Leonard M. Wilde.
11	Barrow Naturalists' Field Club	"Wild Life in Norway." Illustrated. Rev. C. L. Hulbert.
12	Nelson Photographic Society	Lantern Slides for Yorkshire Photographic Union.
12	Worthing Camera Club	Lecture, illustrated with Slides. Mr. Walter D. Welford.
12	Bristol Photographic Club	Lecture and Lantern Exhibition. Mr. W. A. Duncan.
12	Gateshead Camera Club	"Stand Development of Plates." Mr. Brownlow.
12	Halifax Camera Club	Y.P.U. Members' Folio.
12	St. Helens Camera Club	Amateur Photographer Prize Slides.
12	Jersey Photographic Society	Members' Slides.
12	Sheffield Photographic Society	"Hints and Advice to Beginners, and Others." Demonstrated. Mr. F. B. Hirst.
12	Birmingham Photo. Society	"Some Dutch Places and People." Mr. Arthur Marshall.
12	Thornton Heath Photo. Soc.	"Spirits." Humorous. Mr. Ben. E. Edwards.
12	Sunderland Camera Club	"How to Expose and Develop, and after Treatment." Demonstrated. Mr. J. T. Brownlow.
12	Otley & Dis. Cam. & Art Soc.	"The Land of Burns and Scott." Mr. W. A. Kay.
12	Hackney Photographic Society	Presidents' Outing Lantern Slide Competition.
12	Darlington Camera Club	"Experiments on Self-toning Papers." Mr. F. B. Hirst.
12	Huddersfield Nat. and Ph. Soc.	Members' Evening.
12	Cricklewood Photo. Society	"Interior Photography." Mr. D. M. Stone.
12	Coventry Photo. Club	Lantern Slide Making. Messrs. Hoare and Riley.
12	Acton Photographic Society	Members' "Christmas Card" Exhibition and Competition.
12	Redhill and District Cam. Club	Committee Meeting. Mr. T. Haldane Harrison.
12	Edmonton and Dis. Photo. Soc.	"A Motor Tour to North Wales." Mr. E. T. Coombes.
12	G.E.R. Mechanics' Institution	"Architecture." Competition.
12	Leeds Camera Club	"After Work on Negatives." Demonstrated. Mr. H. W. Bennett, F.R.P.S.
12	North Middlesex Photo. Soc.	Intensification and Reduction.
12	Croydon Camera Club	"Gaslight Papers." Demonstrated. Mr. Charles B. Howdill, A.R.P.S.
12	Hull Photographic Society	Ten Minutes Papers by Members.
12	Rodley, Farsley, & Calverley Dis.	"The Philosophy of Science." Mr. C. E. Kenneth Mees, B.Sc.
12	Glasgow Eastern A.P.A.	"The Optical Lantern." Mr. H. A. Harrison.
12	Rugby Photographic Society	"Lantern Slide Making." Mr. F. Nicholson.
12	Bolt Court School of Ph. Eng.	"Transparencies and Enlarged Negatives." Mr. M. Crosbie.
12	Pudsey and District Photo. Soc.	"Portraiture." (Affiliation Lecture). Mr. Harold Baker.
12	Darwen Photo. Association	"Latest Developments in Multi-Colour Printing." Mr. Frank Colebrook.
12	London and Prov. Photo. Assn.	Members' Competition. Printing and Developing Bromides.
12	Richmond Camera Club	"Making Enlarged Negatives." Mr. C. J. Harrison.
12	Harrogate Camera Club	"Copies of Enlarging." Mr. H. Stuart.
12	Leek and District Photo. Soc.	R.P.S. The Affiliation Competition Slides (1905). Demonstrated. Rev. J. Beanland.
		Print Competition Awards and Exhibits.

MEETINGS OF SOCIETIES FOR NEXT WEEK (Continued).

Dec.	Name of Society.	Subject.
14	Balham Camera Club	"Making Lantern Slides." Demonstrated. Mr. J. H. Wilkie, R.P.S.
14	Liverpool Amateur Ph. Assn.	"Orthochromatics." Demonstrated. Mr. J. W. Charlesworth.

ROYAL PHOTOGRAPHIC SOCIETY.

TUESDAY, December 5.—Major-General Waterhouse in the chair. Sir William Abney gave—before what was probably the largest audience yet gathered in the rooms—an extremely interesting demonstration, the first of a series on three-colour work. The particular point with which the lecturer dealt was the determination of the colour-filters or screens for obtaining the negatives. Particular stress was laid on the fact that the only true basis of three-colour work was colour sensimetry scientifically and rigidly followed out; rule-of-thumb methods, which were far too common, were absolutely valueless if accurate results were required. Most of the three-colour prints, which were now so widely disseminated, left a great deal to be desired, and this was due primarily to the use of improper filters, and, secondly, to deficient inks. Most methods of producing the filters were based on Maxwell's colour sensation curves, but the lecturer demonstrated the superiority of using the luminosity curves of the spectrum obtained from the positive crater of the electric arc. Abandoning his former glass screen colour sensimeter, Sir William Abney now recommended rotating templates of coloured pigments—emerald green, vermilion, chrome orange, chrome yellow, ultramarine, and Brunswick green being the colours used. These, when rapidly rotated by means of a small motor, were reduced of equal height. Having found the screens, they were then tested on Each set of colours was then matched with a spectrum colour, which gave the dominant hue of the filter. The absorption curves of the filters for the ideal panchromatic plate were then projected on the screen, and for the blue the limits were from the violet to little b, for the green from the red Li line to the blue Li line, and for the red from little b to the extreme red, the curves being practically all of equal height. Having found the screens, they were then tested on the three necessary templates, and adjusted till the same gave equal densities on the negatives. To find the necessary exposures, a white surface, illuminated by sunlight, was used as the test object, and in front of the sensitive plate was inserted strips of measured densities, and trial exposures were then made through the filters till equal density was obtained under the strips. Great importance was laid on the necessity of giving absolutely correct relative exposures, and the futility of trying to compensate for errors by subsequent faking. The practical application of the methods suggested was then proved by the projection of a series of extremely fine slides by means of the triple lantern.

SOUTHAMPTON Camera Club.—Mr. C. H. Hewitt, of the Polytechnic School of Photography, lectured on Monday evening last to the members of this club on "Portraiture." Among the points discussed by the lecturer were the following:—The difference between outdoor and indoor portraiture was shown to consist largely in the great diffusion of light in the former, which tended to general softness and difficulty of obtaining proper shadows; while in indoor portraiture the difficulty lay in dealing with the concentration of light, leading to great contrasts. Dealing first with outdoor work, Mr. Hewitt, after pointing out the correct position of the sitter in relation to light and camera, viz., the light striking the face laterally and vertically at an angle of 45 deg. to the line of sight, advised amateurs to avoid copying orthodox studio styles of portraits, and pointed out what effects might be obtained from such methods—as, for instance, the use of

a semi-translucent parasol held by the sitter—pleading, also for originality in the work. Turning to indoor photography under conditions ordinarily available for the amateur, Mr. Hewitt showed, by diagram, the right and wrong of the matter; how the usual method of placing the sitter immediately in front of the source of light, with the face in profile to that light, while the sight line from the camera made an angle of 90 deg., produced the portrait of extreme contrast, great high lights, deep shadows. Then how, with the light coming from directly behind the operator on to the sitter, was produced the flat portrait, devoid of moulding of features; and, finally, how the normally correct portrait was produced by the light reaching the face both laterally and vertically at an angle of 45 deg. from the line of sight. Mr. Hewitt then showed how a diffusing screen of tissue paper, or similar substance, interposed directly between the light and the sitter produced the half tones between the extreme high lights and shadows, and, proceeding to the further aid of a reflector to lighten the too dark shadows, pointed out the danger of cross lights. The rule laid down for this was that the reflector, of suitable description, should be so placed as to carry on the high light from its vanishing extremity without break, and in proper degree, into the shadows. Among a host of practical hints, Mr. Hewitt dealt with the matter of lack of symmetry in feature, and pointed out that in this matter the law of perspective should be regarded; that is, if, for instance, a nose were crooked or one eye lower than another, the trend of the nose or the lower eye should be the farther from the camera.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—An extraordinary general meeting of this society was held on Thursday evening of last week, in the rooms in Eberle Street. The business before the meeting was the election of hon. secretary in the place of Mr. A. C. Butt, who had been elected to the council. Mr. C. F. Inston was proposed, and unanimously elected. Mr. James Shaw, of Manchester, then delivered his lecture, on "O'er Mountain, Lake, and Lagoon," the venue being Switzerland and Italy.

CRIPPLEGATE PHOTOGRAPHIC SOCIETY.—On November 27, Mr. J. McIntosh gave a lecture on "Intensification and Reduction," before the members of this society. He said that negatives might conveniently be divided into seven classes, thus:—1. Correctly exposed, and correctly developed; 2. Correctly exposed, but under-developed; 3. Correctly exposed, but over-developed; 4. Under-exposed, and lightly developed; 5. Under-exposed, and fully developed; 6. Over-exposed, and lightly developed; 7. Over-exposed, and fully developed. He advised for the improvement of negatives such as above the following:—1. Of course, required no after treatment. 2. Immerse and bleach the negative in a saturated solution of mercuric chloride containing $\frac{1}{2}$ per cent of hydrochloric acid. Wash the negative in a $\frac{1}{2}$ per cent. solution of hydrochloric acid, wash in plain water, and then blacken in a solution of formaline 34 minims, sodium hydrate 10 grains, water 4 ounces. Negative must remain in this bath until the image is well black, then wash thoroughly. 3. Reduce in a 2 per cent. solution of ammonium persulphate, containing $\frac{1}{4}$ per cent. of sulphuric acid; rinse in a 5 per cent. solution of sodium sulphite, wash, fix in hypo, and thoroughly wash. 4. Intensify in the following:—Mercuric chloride, 1 grain; potassium iodide, 3 grains, sodium sulphite, 40 grains; water, 1 ounce. After intensifying negative in this solution, develop it in any clean working developer, and wash. 5. Reduce in a 2 per cent. solution of ammonium persulphate, mentioned in No. 3. Intensify with the solution given in No. 4, as though negative was under-developed. 6. Intensify in (1) Mercuric chloride, 100 grains; potassium bromide, 100 grains; water, 10 ounces. Bleach in this and wash well. Then blacken in the following mixed together:—(2) Silver nitrate, 100 grains; water, 10 ounces. (3) Potassium cyanide, 100 grains; water,

one ounce. For use of 2 and 3 take sufficient of 3 to dissolve the precipitate first formed. As soon as blackening is complete, wash thoroughly. 7. Reduce in:—Sulphuric acid, 8 minims; potassium permanganate, 16 grains; water, 10 ounces.

ABERDEEN PHOTO ART CLUB.—At a meeting of this club, last week, a practical demonstration on X-ray photography was given by D. A. Christian, one of the members. Several radiographs were taken and developed—a hand requiring two minutes' exposure, and a foot, with boot on, about three minutes.

Dews and Notes.

THE Photographic Convention Winter Re-union.—As announced in our last issue, the members of the P.C.U.K. will have an opportunity of meeting at a social function, on Friday, January 12, 1906, to be held at the Galleries of the Royal Society of British Artists, Suffolk Street, Pall Mall, London, S.W. The attractions of the evening will include a reception, and an exhibition of modern paintings by British artists, vocal and instrumental music, and a little dance. Light refreshments will be provided. Invitation cards will be forwarded only to those members who have intimated their desire to be present, and will not be transferable. Members desirous of introducing friends on the occasion, may obtain visitors' tickets at 2s. 6d. each. The number, however, of these will be very limited, and early application for them is desirable. Applications for tickets should be made to the hon. sec., Mr. F. A. Bridge, East Lodge, Dalston Lane, N.E.

ROYAL Photographic Society.—At the ordinary meeting to be held on Tuesday, December 12, at 66, Russell Square, the Rev. H. W. Dick will lecture on "Art and Photography."

THE Postal Camera Club's Exhibition at the R.P.S.—This exhibition at 66, Russell Square, will remain open to the public daily, from 11 a.m. to 5 p.m., on presentation of visiting card, until January 13, 1906.

ROYAL INSTITUTION.—The following are the lecture arrangements at the Royal Institution before Easter:—A Christmas course of six illustrated lectures, adapted to a juvenile auditory, by Professor H. H. Turner, on "Astronomy." Professor E. H. Parker, three lectures on Impressions of Travel in China and the Far East; Professor William Stirling, six lectures on Physiology Subject; Dr. J. E. Marr, three lectures on the Influence of Geology on Scenery (The Tyndall Lectures); Rev. Canon Beeching, two lectures on Shakespeare; Mr. Benjamin Kidd, two lectures on the Significance of the Future in the Theory of Evolution; Mr. H. B. Irving, two lectures on the English Stage in the Eighteenth Century; Mr. Francis Darwin, three lectures on the Physiology of Plants; Professor B. Hopkinson, three lectures on Internal Combustion Engines (with experimental illustrations); Mr. J. E. C. Bodley, two lectures on the Church in France; Mr. J. W. Gordon, two lectures on Advances in Microscopy; Mr. M. H. Spielmann, two lectures on George Frederick Watts as a Portrait Painter; and Professor J. J. Thomson, six lectures on the Corpuscular Theory of Matter. The Friday evening meetings will commence on January 19, when Professor J. J. Thomson will deliver a discourse on Some Applications of the Theory of Electric Discharge to Spectroscopy. Succeeding discourses will probably be given by Professor S. P. Thompson, Mr. H. F. Newall, Mr. W. C. D. Whetham, Dr. R. Caton, Dr. Hutchison, Sir Andrew Noble, Bart., Professor P. Zeemann, Mr. W. B. Hardy, and other gentlemen.

From the report of the third competition and exhibition organised by the Association Belge de Photographie we learn that the fixture has proved very successful, work having been sent in from all parts of Europe. The only English worker whose name appears in the award list is Mr. F. J. Mortimer, who has gained the premier prize (silver-gilt medal) for his lantern slides.

MESSRS. HOUGHTON are publishing some new calendars for 1906, which are specially intended for the use of amateur photographers. These calendars are likely to be exceedingly popular as Christmas and New Year cards. A space is provided at the top for a photographic print, and the colouring and design is in good taste. The photographic application has been kept in mind, and soft, rich tints have been utilised with the design in a lighter shade of the same colour. Full particulars and an admirably illustrated booklet will be sent on application to 88-89, High Holborn, W.C.

THE South London Photographic Society.—This society's annual lantern lecture competition was decided at the last meeting, the medal going to Mr. F. W. Jeffery, who has thus won the competition two years in succession. Second and third positions fell to Mr. W. F. Slater, F.R.P.S. The judges, Messrs. J. M. Sellors and R. J. Terry, of the Croydon Camera Club, had to again complain that many competitors jeopardised their chances by including so many slides of an inferior quality.

THE scheme, put forward by the International Society, for erecting a public monument to Mr. Whistler, is chiefly to be welcomed because the work is to be entrusted to M. Rodin. A characteristic piece of work by a sculptor of his distinction would be, no doubt, an important addition to the monuments which are to be seen in London, and would have the greatest possible claim upon the attention of all intelligent art lovers.

SIR WILLIAM PREECE, K.C.B., F.R.S., will distribute the prizes and certificates at the annual prize distribution and students' conversazione to be held this evening (Friday), at the Northampton Institute, Clerkenwell, E.C. The conversazione for members and students will be continued to-morrow, December 9, when the building will be thrown open to the whole of the members and students and their friends.

Commercial & Legal Intelligence

ACTRESSES' Photographs.—An action was brought, in the King's Bench Division last week, by Mr. Alfred Ellis, of Baker Street, to recover damages for an infringement of the copyright in photographs of Miss Letty Lind and Miss Fay Davis, and for an injunction against Mr. Hearnden, proprietor of "The Gentleman's Journal," who purchased the blocks from the proprietors of the "St. James's Budget," and published reproductions in his issue. The defence was that the infringement was an innocent one, and defendant offered five guineas in settlement. The judge said he would accept defendant's undertaking to give up the blocks and copies, which was equivalent to granting an injunction. However, he would impose a penalty of one guinea on each of the two copies, and he assessed the damages at five guineas, and directed that each side should pay their own costs.

TRouble About a Photograph.—At the Greenwich County Court on Friday last, Thomas Kennett, of Vauxhall, sued Thomas K. Warhurst, of Ermine Road, Lewisham, for £2, or the return of a photograph of his father. This was handed to defendant to be copied and placed in a pendant, but he had not been able to recover it. He had taken proceedings at Westminster County Court

against a firm in the Strand to whom the defendant had sent the photograph to be copied, but the judge dismissed the case, telling him that Warhurst was the proper person to proceed against. Defendant did not appear, but it was stated on his behalf that owing to financial difficulties he had been unable to pay for the work. His Honour gave judgment for 1s., and ordered the return of the picture within a week.

EASTMAN Kodak Company of New Jersey.—In addition to the ordinary quarterly dividends of 1½ per cent. on the Preferred and 2½ per cent. on the Common Stock of this company, there will be paid on January 1 next an additional dividend of 2 per cent. on the Common Stock, making 12 per cent. paid during the past year.

Correspondence.

- * * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- * * We do not undertake responsibility for the opinions expressed by our correspondents.

PERSPECTIVE AND VIEW POINT.

To the Editors.

Gentlemen,—I have to thank you for the notice you gave last week of my book "Perspective Tables." That the subject I drew your attention to requires accentuation may be seen in a paper by Mr. Leisk, in your issue of to-day's date. While much that he says is interesting from a rule-of-thumb point of view, and so far as I know may be of use to many, some of his statements are certainly misleading.

One would imagine, for instance, from what he says, that every quarter-plate lens when used in a half-plate camera, would act as a wide angle lens, which is not the fact.

The statement, however, that attracted my attention most was "The shorter the focus of the lens the more violent will the perspective be," which is diametrically opposed to the real state of the case, as I stated last week. "From the same station point all lenses give the same perspective." When you alter your station point, of course the perspective is different, but you should not blame that on the lens. "The moral or lesson" Mr. Leisk goes on to say, "is that the lens whose focal length is nearest to the distance we hold a book from our eyes when reading is the one that will most truly render natural objects, as we see them." Now, any picture he may take, say with a 9in. or 14in. focus lens, may be taken with a 3in. lens of similar angle only smaller, and if it is good perspective in the one it will be good perspective in the other. So that what is called good perspective in a picture is more a conventional selection than anything else. His remarks as to looking at photographs through a lens of similar focus to that with which the photograph was taken are interesting, and the facts stated are made use of, as he says, in the stereoscope but his statements are incomplete from a scientific point of view for before distortion entirely disappears all the fundamental conditions of perspective projection have to be complied with. He only deals with one "distance" of the eye from the picture.

The subject may be of very little importance to the ordinary photographer who does his work only as he has been taught and who has no individuality, but difficulties are continually cropping up where a knowledge of this part of the subject is essential. Such as in the correction of perspective distortion by the lantern, the photographing of groups and figures to suit certain backgrounds, or the photographing of certain backgrounds to suit certain figures, etc., etc.

—Yours truly,
ROBT. F. SHERAR.

To the Editors.

Gentlemen,—With regard to your correspondent's letter in your issue of November 17, re "Makers' Formulæ," it may possibly be a help to him to know that the usual custom amongst photographic chemists in making up such formulæ is as follows:—Ounces of solids are taken as avoirdupois, i.e., 437.5 grains to the ounce; liquids ordered in ounces are measured, i.e., 480 minims to the ounce. When manufacturers wish to have the apothecaries' ounce they are usually careful to specify that, or as an alternative to order quantities in grains, which does away with any ambiguity. In the absence of any instructions to the contrary, it is usually safe to conclude that when ounces of solids are given in formulæ, they refer to the avoirdupois ounce (437.5 grains). ALFRED R. WHEATLEY, M.P.S.

22, High Street, Burton-on-Trent,
November 28, 1905.

THE FREE PORTRAIT SWINDLE.

To the Editors.

Gentlemen,—Thanks for your corroborative comments on Messrs. Brigham's action, re "The Free Portrait Swindle," at Scarborough, but please also read Hull for Scarborough, as the facts are as true of one town as the other.—Yours faithfully,

W. BARRY.

7 and 8, Park Street, Anlaby Road, Hull.
December 5, 1905.

DEVELOPING P.O.P.

To the Editors.

Gentlemen,—In reply to Mr. E. A. Bartlett's letter of inquiry respecting the development of faintly printed images on P.O.P. and P.O.P. postcards, I wish to give him a few hints, and to put him in the way of obtaining further information on the subject.

1st. The light for manipulation.—I have found from experience and experiment that the most important thing to attend to is the colour and power of the light in which the various operations must be conducted, in order to ensure perfect freedom from fog and stains, the former often being mistaken for the latter. It is almost impossible for anyone at first to realise how rapid P.O.P. really is until a developer of a suitable kind has been applied to it under favourable conditions. Then it is found that an image so faint as to be all but, if not quite, invisible to the eye before development can be developed into a strong image. This being the case, it is most important, and absolutely necessary, that all the operations (except the printing) connected with the P.O.P. be conducted in a room illuminated by an artificial light of a yellow colour; that produced by an ordinary paraffin candle, or of a paraffin lamp, without a yellow screen, is usually quite safe. But if one thickness of light yellow coloured tissue paper is placed in front of the light, perfect safety will be ensured for this purpose. If daylight must be used, the window should face the north, and must be glazed with yellow glass, or covered with canary fabric, in a similar manner to that adopted in a room suitable for working the wet collodion process in. But the former plan is recommended as being safer, because the source of light is much more uniform in power.

2nd. The printing.—This is best done by daylight (but any highly actinic artificial light can be used instead if desired or necessary), but the progress of the printing must be examined by a yellow artificial light only, otherwise fogged and useless prints will be the result. But if very dense negatives are to be printed from, or the daylight is very poor in actinic quality, as it usually is during very dark or foggy weather in the autumn and winter, it will be found convenient, if not advisable (although not absolutely necessary) to use a printing gauge or actinometer, which can be permanently attached to the printing

frame. As by ascertaining the number of tints necessary with each negative, and marking the latter with the number ascertained after the first satisfactory print has been obtained, it will not only be of present use, but will be useful in the future. It will only be necessary to know when the printing has proceeded far enough, which will save much time if many negatives are being printed from and several prints are required from each. Of course the number of tints necessary for the negative in the frame must be indicated outside on the front of the frame.

As the exposure required may vary from about one-fifth to one-twentieth (or even less than this) of the full "printing-out" time, the amount of printing necessary is not very exact in order to obtain satisfactory results. But of course printing time is saved if, as near as possible, say one-twentieth of the full "printing-out" time is given to each print instead of printing for a longer period, which, of course, is important if a large number of prints are required from certain negatives in as short a time as possible.

3rd. The developer.—I believe that almost every developing agent known may be employed with success after being rendered freely acidic. I have used hydroquinone, ortol, and pyro. with satisfactory results, but prefer the two latter, as they produce much more harmonious prints (i.e., they give more detail all over, and less blackness than hydroquinone does) and develop much faster. I can recommend the developer made from the following stock solution of pyro, viz.:—

STOCK SOLUTION.

Distilled, or other pure water, 5 ounces; metabisulphite of potash 1 to 2 drachms; pyrogallie acid (heavy crystals), 4 drachms. The quantity of metabisulphite of potash must not exceed two drachms, the development may be too slow.

To develop take:

Pure glycerine (or very thick gum arabic solution), 2-6 drachms pyro. solution (as above), 40 to 60 minims; water (boiled rain, tap, or well), to make 4 ounces.

This is the correct quantity to use in a half-plate glass or porcelain developing dish; if more is used the development will be slower, and stained prints more likely.

Immerse the dry print in the above developer, and quickly turn over and over to avoid air bells and other defects.

Only develop one print at a time unless several can be developed side by side, and then it is well not to do more than two. The development takes from about four to two minutes, as it becomes gradual quicker with each successive print, because the developer becomes richer in free silver which is added to it by each successive print.

The developer must be freely acid to blue litmus paper in order to work clean. It must also contain some gum arabic, fish glue, isinglass, or glycerine, in order to prevent the film or back of the print from being stained.

The proportion of either of the latter necessary will vary from about twice to six times as much as of the developing agent present in the developer. The above formula will serve as a guide, as different developing agents and formula may require more or less than that stated above.

The quicker the development is within reason the freer the prints are likely to be from stain, but if it takes place in less than one minute, it is very difficult to avoid over-development.

If the development is too slow, it may be caused by the developer being too weak generally, or it may be too acid, or too much gum, fish glue, or glycerine may have been added to it, or too much developing solution may be in use for the size of dish in use and the size of prints being developed. Or it may be due to there being too little free silver present in the developer, owing partly to the paper used only having a small quantity of silver present in it, or the developer

may have too much water in it, the latter being most probable. In the latter case the addition of a few drops of a 10 per cent. solution of nitrate of silver to it will increase the speed development.

4th. The stop bath.—A "stop bath" must be used, because it is impossible to stop the development quickly enough with water alone. The following is cheap and effective:—

STOP BATH.

Water 20 ounces.
Chloride of sodium (table salt)..... 2 to 4 ounces.

Immerse the developed print quickly in the "stop bath" and keep it moving for at least one minute, and let it remain in it for five or ten minutes longer. Then transfer it to a large dish of water, or, better still, to another "stop bath" half or a quarter the strength of the above "stop bath," in which it is allowed to remain until the whole batch of prints have been developed. It is then well washed in clean water before toning and fixing as usual. Always well rinse the fingers with clean water and wipe them dry after placing each print into the "stop bath" before proceeding to develop another print, otherwise finger-marks may be made on the prints.

As fuller working details, formulæ and other methods of working cannot very well be given in a letter owing to the space necessary, I must refer the reader to several very good articles on the subject which have appeared from time to time in the BRITISH JOURNAL OF PHOTOGRAPHY and elsewhere during the last few months, and from time to time for many years past also in the photographic annuals. The reader will also find much useful information on the subject in the "British Journal Photographic Almanac" for 1903, pp. 703 to 744, and to a letter which appeared in the BRITISH JOURNAL OF PHOTOGRAPHY for January 30, 1903, p. 98. The only thing I need say respecting the above article and letter is that since they were written I have found that boiled rain, well, or tap water, after being filtered, can be used for all the solutions with success, instead of the distilled water I recommended, as certain defects that I then thought were caused by the water I had used I afterwards found were due to other causes.

By both the methods indicated above, a reddish-coloured image is produced by development alone, which can be easily toned with gold, provided it has been well washed after the "stop baths" before toning. As I prefer to tone my prints with gold, I always use a developer that produces a reddish-coloured image, and have not tried to obtain a more or less pleasing tone by developing and fixing alone and I feel sure that the former plan of working is much easier and much more certain in action than the latter, because the correctness of the exposure is not so important when the former method is adopted. If the latter method is employed (i.e., developing and fixing alone), the use of an actinometer as a guide to the exact depth of printing necessary, in order to produce the tone desired, is almost indispensable.

The foregoing refers to the development of P.O.P. with an acid developer, which requires the presence of free silver. This is termed "physical development." But P.O.P. can be developed with a well-restrained alkaline developer if the prints are treated by a method previous to development, first introduced to the photographic public in 1893, full details of which are given by Mr. Wilson in a little book entitled "Paget Prize P.O.P., and How to Use It," to be obtained gratis from any photo dealer or from the Paget Prize Company, Ltd., Watford. No doubt one or the other of the methods indicated above will suit Mr. Bartlett, and perhaps some other readers of this journal. Thanking you in anticipation.—I am, Gentlemen, yours truly,

J. T. HACKETT.

3, Cherry Orchard Lane, Eastwood, Rochford, Essex,
November 30, 1905.

Answers to Correspondents.

*• All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

*• Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

*• Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

*• For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

F. C. Macmahon, 23, Academy Street, Inverness. Photograph of J. Stirling, Esq. of Farnham, Ross-shire.

P. Jones, 55, Victoria Street, Lincoln. Photograph of the Opening of the Lincoln Electric Tramway.

Mrs. E. Goodwin, 93, Church Road, Smethwick, Birmingham. Photograph, Old Chapel Farm, Smethwick.

DRAWING REGISTERED:—

S. Ashton, 91, Waterloo Street, Oldham. Drawing of St. Peter's Church Oldham.

RETOUCHING (A. E. Henson).—Your circle prints worked two years ago show very fair retouching in the fine-grain method; although the lines and shadows appear to have been unduly removed. You do not send prints before retouching, however, so it is difficult to judge exactly. Your present film may possibly affect rough matt papers in preference to glossy, and hence they desire greater breadth of treatment, and the only advice that seems sensible under the circumstances is—when in Rome do as the Romans do. A skilled retoucher should not be confined to one set or mechanical touch, but should be able to adapt himself to circumstances and the exigencies of the particular studio in which he finds employment. A coarse grain on heads of the size shown depends entirely upon subject and the printing paper used.

APPRENTICESHIP.—I herewith enclose my indenture of apprenticeship, wherein you will see I was to be instructed in the art, trade, or business of photography. I served my three years faithfully, but during my apprenticeship I was never allowed to do or instructed in retouching. My father wrote asking my employer to do so, but he said that was a different branch altogether, and did not come within my apprenticeship indenture, and, of course, I am greatly handicapped in obtaining a fairly remunerative berth, having to go as a printer only. Could you kindly inform me if I have good grounds of action against my late employer for breach of contract? You will see by my indenture I have been out of my time and away from my late employer about six months, as although he gave me a good reference as to my being a good printer and general assistant he only offered me 10s. per week, so my father refused to let me start for him, and I have applied for many situations, but not being able to retouch I suffer in consequence.—NEWCASTLE-ON-TYNE.

The "art, trade, or business of photography" is a wide term, and we should certainly say includes retouching, when the apprentice is bound to a portrait photographer. Retouching nowadays is really a very important part of the business. We

should say there is good ground of action for damages, but should suggest that the question be submitted to a solicitor. The indenture has been returned to you.

SOLAR PAPER.—I should consider it a favour if you would kindly inform me through the medium of your esteemed paper the formula for sensitising solar paper. The raw paper is, I believe, salted in the first place, then, when dry, it is sensitised and exposed while still wet. What I want to know is the method or formula used. This solar paper is very slow, and it requires an arc light for exposing.—**BROMO.**

A good formula for this will be found in the B. J. Almanac for 1906, p. 799. Immerse sheets of paper for 5 or 6 minutes in (1) silver nitrate, 150 grains; distilled water, 10 oz.; then hang up to dry. Then immerse in (2) potassium iodide, 500 grains; distilled water, 10 oz.; for five or six minutes and dry. After washing in clean water the paper can be dried by a gentle heat, and will keep for some time. For sensitising use equal quantities of (a) silver nitrate, 48 grains; distilled water, 1 ounce; (b) gallic acid sat. sol. Brush over the iodised paper, allow the coating to sink in, and then brush over again. Wash and dry. The developer is a saturated solution of gallic acid plus a little silver nitrate solution, and some acetic acid. If this works too hard use instead of No. 2 solution above the following: Potassium iodide, 240 grains; potassium bromide, 80 grains; distilled water, 10 oz., and add to A 2 or 3 grains of citric acid. After development wash well and fix in a 1 in 4 hypo solution as usual.

PROCESS.—We are not aware that Warnerke's tissue can now be obtained, but if anywhere it would be from Penrose and Co., 109, Farringdon Road, E.C., from whom also you would probably be able to get the photo-litho papers.

E. GOODWIN.—We have read through your rather long communication, but we are not clear as to the points you desire information upon. However, you, or the other photographer, have no copyright in any photographs you are paid for taking, unless the customer assigns it to you in writing. Therefore it would be useless to register it unless that has been done. The copyright in the painting belongs to the one for whom it was painted, unless the artist specially reserved it to himself by agreement. The search fee at Stationers' Hall is one shilling, but we do not undertake to make searches. If you send us two photographs of each subject, and one shilling and sevenpence for each we shall be pleased to effect the registration for you.

PLAIN PAPERS.—Can you through the medium of the B. J. give me a formula for sensitising plain drawing papers. I remember one in the Year Book of about 15 years ago. The paper was soaked in bichromate of potash and then sensitised. If you can give me particulars I shall be obliged.—**C. M. CLARK.**

A complete series of articles on plain salted papers appeared in our issues for April 28, May 12 and 19, and June 2 this year.

FERROUS OXALATE INTENSIFIER (J. B.).—Bleach in saturated solution mercuric chloride to which 20-50 minims hydrochloric acid has been added. After bleaching wash for about one hour. The negative is blackened by application of saturated solution of potass. oxalate, 6 parts by measure; saturated solution of ferrous sulphate, 1 part by measure. The ferrous sulphate being poured into the other. Well wash after complete intensification.

BROMIDE.—In your issue of B. J. of October 13, you give a pyro developer for bromide paper. (1) Is it any use for bromide postcards? (2) Is washing necessary between developing and fixing? (3) I want to enamel bromide postcards; what is the best to treat them with and when? (4) How much washing after fixing?

(1) Yes; but stains are more likely to make their appearance on the back of card. (2) Yes. (3) Squeegee them to talced plate glass, or ferrotype plate will give them the necessary high glaze. Squeegee them down after fixing, aluming and washing. (4) One hour's washing in several changes will be sufficient.

ENGLISH WEIGHTS.—Will you kindly oblige an old reader, who is not a chemist, by putting the following recipe into good old English? As it stands now it is not clear to a poor professional like myself:—Metol solution 1.10, 10 cc.; soda sulphite solution 1.5, 10 cc.; pot. bromide solution 1.10, 0.5 cc.; water, 200 cc.—**A. WHITELEY.**

Our correspondent should turn to the B. J. Almanac for 1906, p. 1081 et seq., where he will find the question of weights and measures clearly explained. Converting the formula into English measures, however, and assuming that the total bulk of developer is to be a pint, the formula reads, disregarding fractions:—Metol (dry), 44 grains; sodium sulphite (crystal), 88 grains; potassium bromide (dry), 2 grains; water to 20 ounces.

THE Second American Salon.—The British work has scored extremely well at the Second American Salon, for out of 100 pictures sent by 27 exhibitors, 67 pictures by 23 exhibitors have been accepted, and the jury of painters has selected "The Mother's Kiss," by Mrs. G. A. Barton, as the picture in the exhibition, and this will be purchased for the permanent collection of the Metropolitan Camera Club, at the handsome price of 100 dollars (£20). The third "honourable mention" in the exhibition was given to W. Clayden, of Plymouth, for his well-known picture "Tagging Home," while the first and second "honourable mentions" were also secured by non-Americans, going respectively to Guido Rey and to Alfredo Ornano, two of the Italian competitors. The pictures finally accepted for the American Salon are 221 from 81 American exhibitors, and 132 from 42 non-Americans. The latter include England, France, Germany, Italy, India, Holland, Spain, Austria, Ireland, Mexico, the Argentine Republic, and Cape Town.

SUNDERLAND Photographic Association.—Entry forms are now ready for the forthcoming exhibition of this society. Silver and bronze plaques (specially designed) are offered. The judges will be Messrs. Alex. Keighley, F.R.P.S., and Frank M. Sutcliffe. The Hon. Secretary is W. E. Kieffer, Stirling Street, Sunderland.

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EX CATHEDRA.

The P.P.A. Assistants' Certificate. That the Committee of the Professional Photographers' Association are genuinely anxious to meet the wishes and requirements of assistants in the certificate scheme is undoubted. On the publication of the prospectus, just a year ago, it was announced that it was on trial and would be reconsidered in the light of experience at the end of the twelvemonth. In fulfilment of their promise, the Committee are now engaged in an investigation of the practical working of the scheme then devised, and have taken the judicious step of inquiring where the difficulty lies of those, who, from their having sent for the prospectus and not followed the matter up by applying for certificates, presumably, have some fault to find with the system. The brief report of the last meeting of the Committee, which appears in another column, shows that the opinions of those assistants who replied to the inquiry have been treated with the consideration that should be accorded them, and that the desire, throughout expressed, to benefit equally both employers and those they employ, is being acted up to. That such a comprehensive scheme as was attempted proves to be capable of improvement is not to the discredit of those who devised it, and it is to their credit that they have displayed the broadminded, and we may add, the benevolent spirit they have in dealing with the matter. Professional photographers and their assistants have more interests in common than either side appears to recognise, and if the Professional Photographers' Association is the means of causing the fact to be realised, assistants will have almost as much reason to bless its existence as that class on whose behalf it was primarily established.

* * *

Photographic Miniatures. In the early days of photography miniature painting was about at its zenith, and the old miniature painters obtained exceedingly high prices for their very beautiful portraits on ivory. Photo-

graphy, however, killed that class of work, and many of the artists were forced to take to colouring photographs for a livelihood, in which branch of work they produced much that was altogether admirable. At that period portrait jewellery, brooches, and lockets were very much in fashion, and it was the rule to see a fashionably dressed lady wearing a brooch or locket containing the portrait of some esteemed relative or friend in the form of a Daguerreotype, coloured paper picture, or even the humble glass positive. Fashions change, and for many years this class of jewellery was no longer seen. A few years ago miniature painting again came to the fore, and locket miniatures are now much in evidence. Many photographers, particularly those who were the first to take it up and make it a specialty, have found it a very profitable branch of business, but it may be doubted whether the high-class ivory miniature is destined to have a long reign. It is well-known, of course, that the best houses obtain large sums for a miniature in colours on a photographic base, and even photographers whose businesses are outside the circle of "society" can depend on not infrequent sales of miniatures at ten guineas apiece to the bourgeois ladies of Crouch End or Brixton. Yet fashion is a fickle jade, and a thing which is all the rage one season may be unheard of the next. It is conceivable that by its very popularity with other sections of society the miniature portrait at its best may fall into disrepute. We are not decrying the cheaper miniatures which are remarkable at the price and appear to satisfy quite fashionably dressed people, but it is highly probable that this vulgarising of the genuine miniature will prove its quietus until, in course of time, it comes out again. The other day, in passing through the West End, we heard a tout at a cheap photographer's calling out miniatures sixpence a dozen, and we are told that in the neighbourhood of Islington they are even being done at threepence the dozen. Be that as it may, we know that for some time past miniatures, tinted with aniline dyes, in an imitation gold locket, are being supplied from any portrait by stationers, drapers, and the like for something like a couple of shillings.

* * *

Stained Negatives and the Preventative.

Readers of our "Answers" columns have probably noticed that one of the most frequent queries concerns the removal of silver stains from negatives which have been printed from while they were damp, or which have been in contact with damp paper. The query is one more easily put than answered. Some stains are deeply seated; that is, if they are well in the film, for hypo left in the film adds to what would otherwise have been confined to a stain on the surface. Such stains are more difficult to remove, and in some cases cannot be removed. One is inclined to have but little sympathy with those who have valuable negatives ruined in this way, because the evil might have been avoided by the simple precaution of

varnishing. But varnishing negatives seems to be looked upon as a bugbear by the present-day photographer because it involves a slight—very slight—extra amount of trouble, which, under the most favourable circumstances, can be dispensed with with impunity. Collodion negatives had to be varnished—the film was too tender to dispense with protection—and hence varnishing was never regarded as an extra trouble. Nor can it well be so regarded nowadays, seeing the great immunity it confers upon a negative. Collodion negatives, stained in the printing, were things unknown, and so it would be with gelatine ones if they were protected with varnish.

* * *

Varnishing. While varnishing negatives is looked upon as a troublesome operation, it is, as a matter of fact, an exceedingly simple one. In the *ALMANAC* are several formulæ for negative varnishes, but few, we suspect, will care to make their own varnish. Some varnishes take several hours to dry, and have, to some persons, an unpleasant odour; others, on the contrary, dry at once and are comparatively free from smell. The question is which is the one to be used. Our preference is for a good spirit varnish with shellac as a base, i.e., the usual commercial spirit varnish. Some persons complain that spirit varnishes are difficult to apply and do not flow evenly over the plate, and therefore we may perhaps give a hint or two to those who use such a varnish for the first time. In the first place, the film should be made perfectly dry, as any moisture in it will tend to repel the varnish and prevent its flowing freely. If the moisture has been driven off before the fire the plate should be allowed to cool until it is nearly cold, or with just the chill off. The varnish is then poured on, flowed over the negative, and drained off into the bottle. The plate is then held in front of the fire and made quite as hot as the hand can well bear, keeping the plate in the position it was when the varnish was poured off. In five minutes, or when the plate is cold, it is ready for the printing frame. The great mistake of novices is in making the plate too hot in the first instance: the varnish does not then flow freely. The varnish may really be applied to the plate while it is perfectly cold if it be heated directly afterwards to prevent the varnish from "chilling." It may be mentioned the varnish does not flow quite freely over a gelatine film as it does over a collodion one, particularly if the plate is made very warm; but if the plate is cool at the time of application there is very little, if any, difference.

Finishing Prints with the Point.

* * *

We referred last week to the spotting of platinotype prints, our remarks being entirely in connection with the use of colour such as Chinese ink or charcoal grey applied with a sable brush. In some studios the spotting, and in some cases even more elaborate finishing, is done with a pencil. The objection to this method lies in the shine of blacklead which becomes prominent on a perfectly matt surface print. In the article we printed last week on matt collodion paper, Mr. Perkins recommended pencil for this type of paper, and if the lead matches the colour of the print, the spotting will be practically invisible on account of the equal semi-glaze of the print. We remember seeing some fifteen years ago a number of very finely finished cabinet platinotypes, the face being stippled in much the same way that a negative is retouched, and the backgrounds carefully worked in. The whole of the work was done with the point, a lead pencil being used, and the gloss of the work was very prominent. A couple of guineas for each print was the price asked and obtained, and, of course, at such a figure practi-

cally every print was framed, and under glass the shine of the pencil was not noticeable. A good deal of work may be done on larger prints and on enlargements with the carbon pencils which are supplied by artists' colourmen. The pencil is something between a crayon and an ordinary blacklead, and, while easy to use, leaves no shininess. In conjunction with the air brush such a pencil is very effective, the air brush being used for tones of some area, such as vignette backgrounds, strengthening masses of shadow and so on, while the point is employed for the sharper touches. Of course, for simple spotting and touching up platinotypes and bromides, a finely pointed carbon pencil may be used, keeping the point fine on the usual glass-paper pad, working on the print by fine stippling and carefully avoiding anything in the direction of a pencil mark which could be identified as a line. With extremely light, delicate prints, an H or HH retouching pencil may be employed with less danger of producing a hybrid effect.

Point Finishing—A Suggestion.

* * *

A modification, or, perhaps, an elaboration of the ordinary finishing with the point to which we have referred in the previous paragraph may be suggested, and, in the hands of a clever artist, should provide something in the way of a novelty. It is, frankly, a hybrid production, though the finished work may be very effective and successful commercially. An ordinary half-length portrait may be taken, and the whole of the figure stopped out on the back of the negative, so that when the print is made there is nothing but the head with, perhaps, the collar and tie, the rest of the paper being quite white. Either paper the same size or larger than the negative may be used. When dry the print will have the figure suggested by a sketchy line drawing, the work being finer and a little more filled in where the dress comes near to the head. A few touches will be necessary on hair, eyes, and so on to prevent the contrast between the photographic image and the sketched-in portion from being too marked. Of course platinotype and bromide are the most suitable processes, with carbon in cases where a print free from any glaze in the shadows can be obtained. If the newer glazeless tissues be employed, then carbon on a suitable single transfer paper might be used even with a fairly strong negative. Red chalk carbon would be very effective if the chalk used in finishing could be obtained of exactly the same colour as the carbon tissue. If the stopping out of the figure be done on the film side, and the principal lines are left, they will indicate the drawing and facilitate the hand-work. Care must be taken to cover the whole of the back of the negative, except the face, with two or three layers of tissue paper, so that these lines, suggesting the drawing of the figure, will only give the faintest indication on the print. The sketched-in portion would need to be done with accuracy of drawing and a certain amount of dash. Anything in the nature of a hesitating line would at once produce a feeble result.

A CAUTION.—We are asked to warn photographers against a woman of about fifty years of age, medium height, slender build, pale complexion, and dark brown hair, and generally of good address and appearance. She has been calling on photographers and picture dealers with two old-looking water-colour pictures, which she represents as the work of the late Peter de Wint, by whom they were left to her father. On a photographer in Scotland purchasing these for £2 10s., they were found to be copies and of no value. The woman sometimes sells through her daughter, a young woman wearing glasses, and at other times the "works of art" she has to dispose of are by David Cox and other artists.

THE WORD "PHOTOGRAPHY."

THE propagation of historical errors appears to be the self-assumed task to which the writer on photography in the "Daily Telegraph" is now applying all his powers, and for which he appears to be highly qualified. Much as we may regret the publicity which is thus granted to absolute misconceptions, we would ignore such lapses from accuracy did not the writer impute to others a like ignorance of the early literature of photography. What can one think of a writer who glibly puts aside the conclusions arrived at by such distinguished investigators as Dr. J. A. H. Murray and Major-General Waterhouse, and then proceeds to make statements which are simply naive admissions of unacquaintance with the best-known classics of photography? Thus in last Friday's "Telegraph" we are told that the paper which Niepce offered to the Royal Society in 1827 was long believed to be lost, and came to light in 1884. Does the writer know that it was printed in full in the "Literary Gazette" of 1839 (p. 138); that M. Biot was evidently acquainted with Niepce's work in 1839 ("Comptes Rendus, Vol. 8"); that Isidore Niepce, we believe, included the paper in his "Historique de la Découverte, improprement nommée daguerreotype," published in 1842? Historically its publication in these places is not of great importance, but the fact that our author pronounces it lost until 1884 is a disquieting commentary on his qualifications to discuss history with anybody moderately well read on the subject. The "Amateur Photographer" of Tuesday last, in the course of some lengthy notes on this same topic, omits to mention its confirmation of the canard (which first appeared in the "Telegraph") as to the alleged use of the word photography by Niepce in 1816. We are still without a shred of positive evidence that Niepce did use the word then or at all. The negative evidence, viz., Niepce's use of "heliography," in that last important document, his "Notice sur l'Héliographie," which he wrote four years before his death, is against the supposition.

Our contemporary, by way of "finally putting to rest" the question as to whether the word photography was used earlier than in Herschel's paper of March 14, 1839, refers to Dr. Meme's translation of Daguerre's "Historique et Description des Procédés du Daguerreotype et du Diorama," in which the translator explains (in a footnote) that the word "photographic" is used by him in preference to "photogenic" as more exactly translating the French "photographique." But the argument ignores the date of the French original, viz., June 30, 1839, by which time—three months after Herschel's paper—the word had commenced to become current. It leaves us still without one solitary instance of the word "photography," "photograph," or "photographic" ante-dating Herschel, and merely amounts to throwing dust in the eyes of those who might take the matter up.

We are told that Arago's reference (again on June 30) to the partnership between Niepce and Daguerre disposes of Dr. Murray's contention that the use of photography and the allied words goes back no further than Herschel. But have our "historians" compared the vital passage (as translated by Memes) with the French original? We will put the two side by side for them:—

Meme's (p. 13): . . . The original (Daguerre's "Of producing images with "Historique," p. 14): . . .
 sixty or eighty times greater . . . "de reproduire
 rapidly than the earlier les images avec soixante
 applications of the photo-ou quatre-vingts fois de
 graphic principle." promptitude, que les
 procédés anciens."

The italics are ours. Into the passages to which Dr.

Murray's critics attach such precious importance, the word "photographic" is introduced by the translator!

The crucifixion of fallacies is a thankless task, and we would not dwell at such length on the false issues which have been raised in the present etymological enquiry were we not desirous of recording the plain facts in such a way that any student of photographic history who may wish to lend Dr. Murray his aid may not be misled by speculations which have the one prominent merit that they draw attention away from an egregious historical error.

PRINTING PROCESSES.

XVI.—GASLIGHT PAPERS.

THERE can be no doubt that "gaslight" papers are coming more and more into favour as their good qualities are more appreciated. The ease, too, with which warm tones can be obtained by mere prolongation of the exposure and dilution of the developer has caused them to be received with favour by amateur workers.

As is probably well-known, the emulsion used for these papers is a chloro-bromide, that it to say, a mixture of chloride and bromide of silver, and to this must be ascribed the ease with which warm tones can be obtained, and also the slowness of the papers. It is impossible to state definitely the speed, but using a graded negative, it was found necessary to give from thirty to thirty-six times the exposure required for an average make of bromide paper. There are, of course, as with bromide papers, various kinds of "gaslight" papers, and each must be tested for its own speed and gradation.

Gaslight papers have long been credited with a somewhat short scale of gradation, and it is generally assumed that they are certainly prone to blocking up in the shadows. Whilst this is true to some extent, so much depends upon the exposure and development that it is unsafe to dogmatise, for we have found that some papers will give, with correct exposure and not too prolonged development, a scale of gradation from bare glass to an H. and D. density of 2.0, within which will lie the densities of the average negative.

It is an open question as to the best method of developing these papers, but from a series of tests which we have carried out we have come to the conclusion that a full exposure and a very brief development with a strong developer will give the longest scale of gradation with the most satisfactory colour of image: that is if black is aimed at.

It may be asked why one should use gaslight papers to obtain black images when equally good results can be obtained on bromide paper with greater ease and less expenditure of time. But this very fault, the necessarily long exposure, is one of the strongest arguments in favour of gaslight papers. If, for instance, it is desired to turn out a large number of prints from some half-dozen or a dozen negatives, one can actually get through the work with greater expedition and certainty by using gaslight paper than with bromide, unless a rapid printing machine is available.

In a case, such as we have just outlined, the method which we have seen most successfully worked is to use a number of printing frames, and place them on a table or bench underneath a Wenham gaslight or inverted incandescent burner. To these lights the exposure is not inordinately long. In another case in which only the incandescent electric light was available, the printing frames were placed on a bench in two or three rows, and the lamp set swinging in an ellipse over the same. Whilst we had very grave doubts as to the results, these were put at

rest when the prints were developed. When a large number of prints are required of one subject, it would naturally be necessary to make a series of duplicate negatives, and thus ensure that all had the same density, when the question of correct exposure would be at once solved: this being the only difficulty when different negatives are used.

Gaslight papers, of course, have received their name from the fact that they can be manipulated in gaslight, that is without any dark room, but whilst it may be necessary to work them in actinic light occasionally, for turning them out in quantities, it is certainly advisable to use some non-actinic medium in the dark room lantern; for this enables one to work with greater freedom and with a total absence of fog. The colour of the medium, however, can be very light, either a very pale yellow, or simply a piece of matt opal, or one of the pleasantest lights of all is that given by light chromium green glass. Both these will give a brilliant illumination all over the room, and yet be perfectly safe, even when the most sensitive of these papers is worked close to the lamp.

As regards the developer, the favourite seems to be the well-known combination of metol and hydroquinone, and it certainly works satisfactorily in most cases. Working out all the formulæ to grains per ounces, the following appears to be the mean:—

Metol	...	...	...	0.8 grains.
Hydroquinone	...	...	...	3.0 grains.
Sodium sulphite	...	...	...	24.0 grains.
Sodium carbonate	...	...	...	36.0 grains.
Potassium bromide	...	...	...	0.3 grains.
Water	...	...	...	1 ounce.

Making up a developer on these lines we have found that it will suit every make of paper, though some require a slight increase of the bromide. It gives a pure black and white image, which has no tinge of rustiness, and it is rapid in its action. If development is prolonged the shadows will readily block up, thus giving one more contrast if this is desirable. Some operators prefer to so adjust their exposure to the developer that the print can lie in the same until finished. When working in quantities this course is no doubt satisfactory, but even then we prefer to give such a generous exposure that the print must be removed very quickly from the developer, before development ceases—in fact, as we have found that in working by this method a much longer scale of gradation is obtained, there is less blocking up of the shadows and absolutely no tendency to fogged or stained edges—a fault which prolonged or forced development is very apt to cause.

To arrest development some use an acid bath, but we think it preferable to wash the print at once in plenty of water, and use a fairly strong running stream. This may be more trouble, but we have found even when the prints are thus washed for five minutes that there is no increase in density, that is development does not continue, and there is far less likelihood of stains in fixing.

Stains during fixation are one of the chief bugbears of gaslight papers. They are invariably caused by allowing the prints to lie one over the other, particularly when not thoroughly freed from all traces of developer. If an acid fixing bath be used, and if the prints are thoroughly well washed prior to immersion in the same, and then kept well under the surface of the fixing bath and constantly on the move, there is very little chance of brown or yellow stains.

Before considering the question of warm tones we may possibly give the following developer as typical of those which will give the blue-black print which is occa-

sionally preferred to the pure black, particularly with glossy surfaced papers:—

Sodium sulphite	...	...	...	50 grains.
Amidol	...	...	...	5 grains.
Potassium bromide	...	...	...	1.5 grains.
Water	...	...	...	1 ounce.

This must be made up within two or three days of use, as it will not keep well.

To obtain warm tones with gaslight papers it is only necessary to increase the exposure and dilute the developer, or one may do both the above and add ammonium bromide and carbonate. In the ALMANAC for this year, pp. 822-5, will be found various methods of obtaining warm tones. Using the above mixture of metol and hydroquinone and diluting one part with 19 parts of water, one can obtain any tone from black to red chalk by practically increasing the exposure in geometrical ratio.

It will occasionally be found that gaslight papers, particularly the glossy varieties show when finished certain streaks and marks, which look very much like pencil scratches. These are due to abrasion of the surface, and whilst it is not quite clear why they should arise—for bromide prints are certainly not so prone to them—they can in almost all cases be removed by rubbing them with a pledget of cotton wool wetted with spirit. If this fails to remove them, then they should be gently rubbed with the following:—

Thiocarbamide	...	...	...	5 grains.
Nitric acid	...	...	...	5 minims.
Methylated spirit	...	...	...	$\frac{1}{2}$ ounce.
Water	...	...	...	$\frac{1}{2}$ ounce.

Care must be taken, however, when using this as it is a fairly energetic reducer. The best way is to lay the print face up on a sheet of glass, then to gently rub the spots or marks with a bit of cotton wool damped with the above solution, and immediately to plunge under a stream of water, continuing the rubbing and alternately washing and applying the solution until the marks disappear. This solution will also remove developer or fixation stains.

There is possibly only one other point upon which we need touch, and that is as to the stability of the warm-toned prints. Some years ago it was advanced that the warm tones obtained on lantern plates by increase of exposure and modification of the developer were not stable. This has also been supported by Bakelandt as regards gaslight papers, but we cannot see how this can be upheld, particularly, if as stated, it is supposed that the image consists of silver *plus* organic matter, for we cannot see where the organic matter is to come from.

It is well known that on pure chloride of silver films, with increased exposure and modification of even ferrous oxalate developer, warm tones can be obtained, and some such images we now have which, so far as one can judge, still show all their original vigour although twenty years old. If this be so, we cannot quite see why the introduction of a little silver bromide into the film should produce an image which is other than pure silver. It is far more likely that the silver is deposited in a much finer physical condition, and thus gives rise to warm tones.

There is another point, which, however, has nothing whatever to do with the chemical constitution of the image or its stability; it is one purely of photographic ethics. Can a gaslight print be called a bromide? We must confess that we are not quite sure how to answer this question. "The custom of the trade," which is a recognised legal argument, is that a "bromide" is a print prepared on bromide of silver paper. If a photographer

were to receive an order for a certain number of bromide prints and be supplied prints on gaslight paper, could the customer, if he became aware of the fact, refuse acceptance of goods or claim damage for substitution of an inferior article? This is one of those delicate questions on which we think to quote a learned judge in a famous case "expert

evidence must always be received with caution; whilst I have no intention of impugning either the veracity on honesty of the witnesses that we have to-day heard, I feel that they have done their best to complicate matters, and you, gentlemen of the jury, had better reject the whole of their evidence and use your common sense."

THE WEEK IN HISTORY.

Claudet's Patents.

THE early experimenters were assiduous patentees, and if all the things for which protection was granted them were still private property, the art of photography would be very strictly limited. For example, in the year 1841, Claudet, on December 18, obtained protection for a number of improvements which we rightly regard as the property of everyone at the present time. One is for "performing all the operations upon the plates (Daguerreotype) which were formerly carried on in the dark, in a room lighted through the media of various colours, such as red, orange, green, or yellow, but red, I prefer, which, having little effect upon the plates covered with the sensitive coating, allows the operator to see how to perform the work without being obliged as before to remain in a dark-room."

Claudet, also, in this same patent, describes the often patented and advocated scheme of developing the exposed plate in situ in the camera.

Further, it is curious to find him patenting the photographic background:—"A third feature of my improvements consists in applying to portraits taken by the Daguerreotype process painted backgrounds or scenes, representing objects which, by the various distances of their parts, could not otherwise be correctly introduced in a Daguerreotype portrait on account of the different foci of the several objects."

The Great Photographic Lawsuit of 1854.

On Monday, December 18, 1854, commenced the hearing of the celebrated case of Talbot v. Laroche in the Court of Common Pleas. The action was brought by Fox Talbot against Mr. Laroche on the ground that the working of the collodion process was an infringement of his (Talbot's) patents in calotype. Talbot, no doubt, was himself convinced that he was morally entitled to benefit from a process which certainly owed something to his researches but had completely supplanted his calotype process. However, the case was notable in the number of leading characters in photography who figured in it, but chiefly for the light which it throws on some dark places of photographic history. In particular, on the relative shares of Reade and Talbot in the invention of photography. It has been argued that the Rev. J. B. Reade was the discoverer of the development of a latent image, and that Talbot had got the idea from him. But in the scanty literature relating to Reade

there is nothing to show that such is the case, and the facts of the case appear to be as stated by Reade during his cross-examination in Talbot v. Laroche. He said: "He washed paper with solution of common salt, then with nitrate of silver, and that he placed it before the solar microscope to receive the picture, and he washed it with an infusion of galls, and proceeded to take the picture. He found it necessary to keep the paper wet, and in order to see how the picture was being developed, though he had no idea of an absolutely invisible image, but in order to strengthen the image which had been produced, he put his head in the microscope and watched how the picture was being developed, and when it had come to a certain tone of blackness, which he termed solar mezzotinto, he suspended the operation and fixed by hyposulphite of soda; and that he had, on one occasion, been called away, and at that time a piece of paper had only been a short space of time under the action of light, but when he came back he found an image on it. This, however, did not give him the idea of a latent image, and he had not the slightest notion of it until he learned it from Mr. Talbot."

Talbot, of course, lost his action, and the collodion process was thereby relieved from the attacks which threatened to extinguish it.

Fox Talbot's Patenting.

Fox Talbot, too, patented almost every one of his discoveries, and on December 19, 1849, he was actively engaged in depositing at Southampton Buildings the specification of a number of improvements. Among these was the use of porcelain as a support of the photographic image, the use of varnished paper as a substitute for glass, and a curious method of obtaining more complete fixation of photographic prints on paper. "For this purpose, the picture, after undergoing the usual fixing process, is dipped into a boiling solution of strong caustic potash, which changes the tint of the picture, and, usually, after a certain time, induces something of a greenish tint, which we consider a sign that the process is terminated."

In his next sentence Talbot anticipates, in a measure, the current processes of "sulphide" toning. "The picture," he adds, "is then well washed and dried, and if the tint required by it is not pleasing to the eye, a short exposure of it to the vapours of sulphuretted hydrogen restores an agreeable brown and sepia tint."

HISTORICS.

THE PRACTICE OF THREE-COLOUR WORK.

II.

AN ideal panchromatic sensitiser for trichromatic work must sensitise equally and vigorously, for green, yellow, orange, and the actual red. We have already seen that ethyl red does but badly satisfied these requirements, that pinachrom is far superior, but is not quite perfect. Finally, pinacyanol cannot be considered as a panchromatic sensitiser. Mixtures of different dyes have up to the present not proved satisfactory.

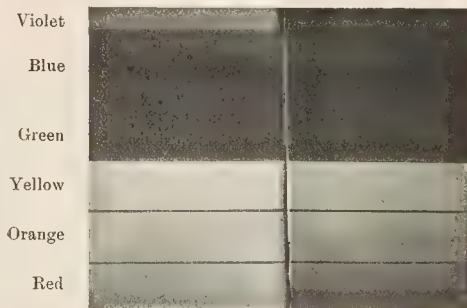
We consider, that if not absolutely impossible, it is at least improbable, that one dye will be found which will combine all the above qualities.

Those who want a sensitiser for as far into the red as possible, must use three separate plates for his negatives. If a Lumière "Blue label" plate be exposed behind the blue filter, a plate sensitised with pinachrom behind the green filter, and a plate of the same kind sensitised with pinacyanol behind the red filter, the gradation, and therefore the character, of the negatives will be the same throughout.

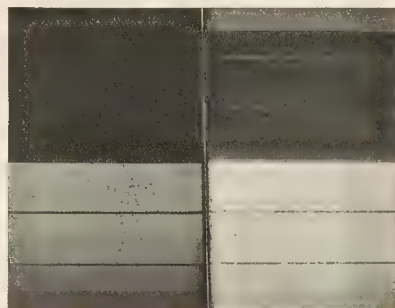
A new and extraordinary red sensitiser has been called by the Höchst dye-works, dicyanine. Plates sensitised with this greenish blue dye show in a spectrogram a maximum between

A and B, and work extraordinarily cleanly. But in spite of this sensitiveness extending into the extreme red, the dicyanine plates require behind the red filter a considerably longer exposure than pinachrom or pinacyanol plates, which is plainly shown by the spectrograms herewith. For practical three-colour work dicyanine will be of little value, but very valuable for scientific spectrophotography.

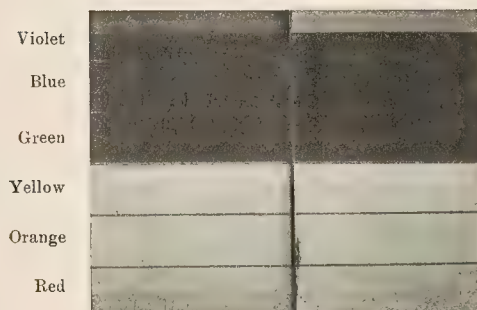
sufficient density is always obtained with ease; the dark summer green acts too slightly on the plate, so that this colour may easily be represented by a dirty brown. This defect can be obviated to a great extent by so damping the blue and yellow of the green filter that it will require a long exposure. But this, however, has its limits, for if the green filter is made darker, the green itself will be weakened, and even with longer



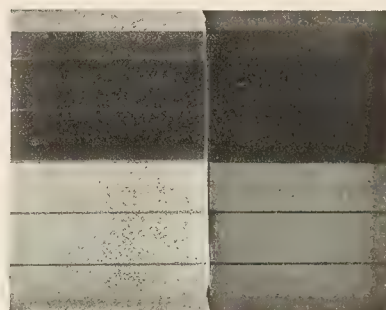
Pinachrom Ethyl red
Fig. 1.



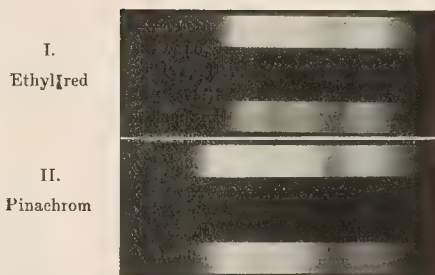
Ethyl red Pinacyanol
Fig. 2.



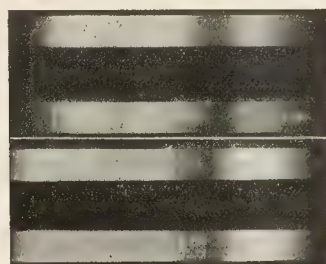
Pinachrom Pinacyanol
Fig. 3.



Pinacyanol Dicyanine
Fig. 4.



Na D



Li α Na D K β

Exposures for the Green.

We have already seen above that the green filter exposures are the longest, and that also the best green sensitisers, such as ethyl red, orthochrom, and pinachrom leave something to be wished for in the green sensitiveness. In the yellow-green

exposure there is no better density in the green. When photographing dark green leaves, especially shiny ones, it frequently happens that they appear equally dense on all three negatives. This is not the fault of the filters, but is caused rather by the fact that we have only photographed the white light reflected

from these leaves, and this white light will, with correct exposure, naturally act equally on all three plates.

Light Tints.

The reproduction of light tints by trichromatic work offers many difficulties. In every case very exact work and an accurate estimation of the exposures is necessary to reproduce bright-coloured tones correctly. Let us take, for example, a very bright blue. Such a colour consists of a little blue mixed with much white. The bright blue must, if it is to appear in the prints in the correct tone, act through the green and blue filters like white, but slightly weaker through the red filter. If the exposure through the red filter is too long, white will frequently not be differentiated from the bright blue in the negative. Another difficult colour is a light neutral grey, that is, black diluted with more or less white. Our eyes are very sensitive to very faint differences in shades of grey, and it requires an accurate agreement of the constituent images to reproduce this colour quite correctly.

The three fundamental colours used for pinatype give, when correctly-mixed, an absolutely pure grey, so that it appears as well rendered as all the other compound colours, because the colours in a pinatype print do not lie one on top of the other, as in other three-colour pictures, but are combined in a very thin film of gelatine.

Often enough our colour prints show impossible greens, violets, and other tones. We will not further advance the contention that these tones actually occur, but are not recognised by us. It is more correct and laudable to call them

faults which are still adherent to colour photography, and to try and improve them by working in common.

Explanations of the Chart and Spectrum Tests.

The plates to be compared were simultaneously exposed behind the same red filter, and then developed and printed.

Figs. 1 and 2.—The plates sensitised with ethyl red reproduce the red strips very badly. The top strip of the colour chart, which is a reddish violet and obviously contains besides the blue red of tolerably small wave-length, appears as black on the ethyl-red plate, but as a half-tone on the pinachrom and pinacyanol plates.

Fig. 3.—The superiority of pinacyanol as a red sensitiser is distinctly shown in the lowest deep red strip and the top reddish violet one.

Fig. 4.—Dicyanine, which from its spectrogram should be the best red sensitiser, is for practical three-colour work less useful than pinacyanol, as its sensitiveness leaves something to be desired. At the same time Figs. 1 and 2 distinctly mark the difference between this dye and ethyl red.

The spectrograms were taken with a diffraction spectroscope by gaslight. The datum lines are the line of lithium between B and C, the yellow D of sodium, and the β line of potassium in the blue. The exposures were as 1 : 2. In taking the dicyanine spectrogram the position of the camera as regards the grating had to be altered in order to include the extreme red of the spectrum on the plate. This explains the shift of the K β line towards the D line.

Dr. E. KÖNIG.

[For the blocks illustrating this article we are indebted to our contemporary, "Photographische Mitteilungen."]

MORE LETTERS TO A MIDDLE-CLASS PROFESSIONAL.

DEAR J.,—It is getting rather late to write you about Christmas work, but photographers are as fond of procrastination as the public, and probably your Christmas rush will not commence until shortly before the day, and will doubtless continue up to within a few hours of the midnight chimes of Christmas Eve. We have had people come in at four o'clock on the day before Christmas Eve and want a dozen carbons for presents next day. You can't oblige them at that, but, doubtless, you can in other ways, and I am writing you to ask if you are making the most of your opportunities, and to point a few of them out to you. If you have already made your arrangements all well and good. Christmas is a regular institution, and you will, perhaps, remember to get ready early next year.

I suppose you will have already got your specimen Christmas cards out, and, perhaps, a neat circular announcing that you make them, for as yet the public are in many instances unaware that we make these cards.

Anyway, they should be reminded, for we ought to have two weeks clear for getting them off when the state of the light is considered.

At the same time you should take the opportunity of emphasising the value and appropriateness of photographs as Christmas presents. Laying great stress on the very personal nature of such a gift, and its power of recalling, and recalling in a favourable manner, the donor.

The new private cards, with space for photograph, cannot be too highly commended, and all photographers should get a specimen book. It is the private card that in the past has been the unconquerable rival of the photographic card. Now we can combine the two photographic private cards should begin to go with vigour.

In my last letter to you I had something to say about mounting; the same rules with regard to harmony and contrast apply equally to Christmas cards.

Therefore, mount your prints on suitable colours. Warm tones on warm tones and black prints on greys.

The ordinary cards are all very well in their way, of course, but why not have your own special design? They will attract attention and custom. It is easy to make a border negative of design, and a mask for negative, so that portrait is printed with plain paper surround. The border negative, with opaque patch corresponding to shape of portrait, is placed in register, and printed on the aforementioned surround. Two registering guides on mask for portrait negative and two on design negative are all that are required. Carbon or artificial light papers, with no visible image before development, can be printed as easily as P.O.P.

The design should embody the date, and some seasonable wish. A fancy design should be worked in also. Any black and white artist will draw this for you for a few shillings. The finished prints may be mounted on your ordinary mounts.

I am working an idea of my own just now; valuable, since it combines the Christmas greetings with the photograph, and yet the photograph can later be used as a print of the ordinary description. This is done by having the folders printed with a Christmas design and wishes.

Our local printer did it from his stock blocks, and charged me very little. After Christmas, of course, the folder has only to be removed to leave the plain mount and print. We make no extra charge for this, and as a consequence our orders for photographs as Christmas presents are largely increased, and many which would have had the ordinary cards now pay for cabinets, for a small extra cost we tie up in silk ribbon. This greatly adds to the effect. The ribbon is exactly the same colour as folder.

Beside the special folder and cabinet we are making as a speciality, and at a further small cost, a photographic inset for folder in the shape of a four-leaf sheet printed on two pages. This is, a leaf folded

in the middle is printed from the sitter's negative on one side and on the other from a special negative made from a design in Indian ink on white card. One design is a black and white drawing of a snow scene, with the usual greeting, but more usually we make a special design and negative for each client. The design in this case is merely "A Merry Christmas" in fancy lettering, whilst below is the sitter's ordinary signature. When we cannot obtain this we stick a visiting card on to the card bearing the other lettering.

Are you doing anything in Christmas postcards? As we do not see the force of doing a cabinet-size picture at a ridiculously low rate, we are not. If, however, you get the chance of doing a hundred or so they are worth it. In this case either get the commercial card with inscription printed on address side of card, or put whatever wording you require on the film in reversed lettering.

An almost unexploited field is the production of almanacs. This is surprising, when one considers that nearly all fancy almanacs have pictures of some description upon them. How well some of your best specimens would take their place.

Why do not photographers make an almanac for their own advertisement? A really artistic production could be done at a cheap rate, and would not be confounded with the monstrosities of the grocer. A taking child study would be just the thing, and if really good, the calendar would obtain a place on a wall and be a standing advertisement for the next twelve months.

The best method of making almanacs, either for this purpose or for clients, is to get an ordinary white plate-marked mount with wide margins and get the printer to put the months and days round the plate-mark. If this is not done too stiffly, and if the printing is forceful, the effect is good.

For one of our clients we have a good order for a calendar, made as follows:—Three different positions were selected of the whole-plate size. These are dry mounted on to 14 x 11 rough white imitation hand-made paper mounts. On each mount four mounts are printed, and the three mounts making the complete twelve months, with the three different positions upon them, are tied with silk cord.

Even simpler than the former idea is to get a number of date pads from the stationer, the cost being merely nominal. These pads are then stuck on the foot of the ordinary mounts either with adhesive or a couple of brass paper fasteners.

If further elaboration is wanted, anyone who can write a fair hand can easily write greetings, mottoes, or any special wording on the mount in fancy inks. Many colours can now be obtained, as well as gold and silver inks made by Rowney.

Well, as it is so near Christmas, and you will practically have no time to carry out these ideas this year, I say no more.—Yours,

STUDIOSUS.

A CHARGE OF VULGARITY.

MR. JUSTICE BUCKLEY having recently from the Bench commented on what he calls "the offensive vulgarity of the present day in using photographs of people—even on postcards," Mr. Louis Langfier, of Langfier, Ltd., Old Bond Street, makes a lengthy reply in the London "Evening News" of Monday last. We may quote the major portion of the article, in which Mr. Langfier makes a strong claim for the recognition of the photographer as an artist:—

Vulgarity, it has been stated, has defamed the photographic art, and the picture postcard and the illustrated weekly have worked the ruin—so some would have us believe—of a once honourable, although modern, profession. Never, to my mind, have more unjust and undeserved aspersions been cast on a business in which there is a high standard of professional conduct and honour. On behalf of the photographic world I desire to uphold the reputation of our profession, and to show how ill-judged are such general comments as are made without a full knowledge of the facts. I can, with authority, as representative of the opinions of the leading photographers, emphatically disclaim any insinuations that vulgarity has vanquished art in our business.

Never, at any time, has Art (with a capital A) played such a prominent part in our professional methods, and without a good claim to being "an artist and a gentleman" no West-End photographer could possibly hope to succeed. There is no taint of vulgarity on our business, for if there were we should instantly lose the support of our clients who look for refinement and artistic effect—and not in vain.

Photography has, in my opinion, not only removed itself far above any suspicion of vulgarity, but it has proved the chief means of popularising art. Modern methods and up-to-date processes have enabled the masses to obtain the most beautiful and artistic pictures and portraits they have ever had.

Artistic Revival.

It is to the photographic picture postcard, circulated in countless millions at popular prices, that much of the prevailing high taste is due. These have educated the masses in art, and fed the

flame of artistic revival. If it were not for the illustrated papers and picture postcards many celebrities of the State, Society, or the stage would be unknown to and unrecognised by the public—a loss that the ordinary man would most certainly deplore. To carry the matter to a higher and more artistic plane, it is only necessary to remember that many of the masterpieces of the great painters, Rembrandt, Vandyck, and others, with most of the pictures in the Louvre, would be almost unknown to the public if it were not for their photographic reproductions on postcards and elsewhere. In the name of my profession, I take grave objection to the allegations of "offensive vulgarity," and contend that, on the contrary, much has been done by the chief photographic artists and the rank and file to elevate art once again on her pedestal in the sight of all men. When it is said that to reproduce a picture "without permission" is "vulgar" the true state of affairs must first be known. Many ladies of title, and others whose portraits are in great demand, are given complimentary sittings by the chief photographers on the understanding that the copyright of the photograph in question for purposes of reproduction and illustration belongs to the artist. Lady So-and-So and the Marchioness of Such-and-Such, with the clever or beautiful Miss "Leading Light," are thus able to obtain the most artistic results possible free of any charge, and the public gets the very latest and best pictures at the cheapest possible rate. This arrangement has been found to be to the satisfaction of all parties in the past, and to call it "vulgar," in theory or practice, would seem to me inaccurate and absurd. In the great majority of cases, of course, this is done with the full knowledge and consent of the ladies and gentlemen concerned, and in nearly every case it pleases the photographed person immensely. At one time or another the majority of our aristocrats have been photographed in this way, and knowing that full justice will be done them in the matter of obtaining an artistic likeness, they have expressed the liveliest satisfaction at the method and its harvest of popularity.

General Election Cards.

The only occasions on which there is the slightest grumbling is when by some mischance "a bad print" obscures the beauty of some fair and not unvain sitter, and only then. No respectable high-class photographer would ever utilise a photograph which a sitter had ordered and paid for unless he felt satisfied that by so doing he was acting with the permission and approval of his client. It is self-evident that no photographer would run the risk of involving himself in vexatious litigation and the certainty of losing some of his best sitters for the sake of the half a guinea or a guinea he would obtain for its reproduction in a paper or on a card. It is only, of course, the photographers of the highest class

who would have the opportunity of obtaining the clients whose portraits are in public demand, and these naturally always seek to act in the best interests of their clients. Of the value of picture postcards the forthcoming general election will prove an eloquent testimony. By the thousand portrait cards will be sent out to their constituents by the Parliamentary candidates, and the utility of, and high place held by, photography will be once again exemplified. In my profession, more perhaps than in any other, we are advancing fast. The wheels of progress have carried the camera to a point where it is the most exact and satisfying of all the arts. The fact that we have "studios" is not our only claim to be considered artists first and photographers afterwards.

BACKGROUND HANGING.

THE hanging of background is a somewhat important matter and should receive more than cursory attention, more especially from the owners of small studios. Backgrounds have a knack of being decidedly in the way in anything but a very large gallery, and frequently the operator, rather than move chairs and tables, and do athletic feats with 8 by 8 cameras, prefers to dump all sitters in front of one background, thus spoiling his own work, and giving an appearance of sameness to all the photographs turned out.

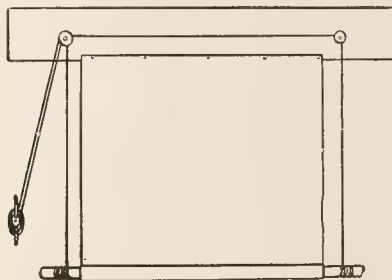


FIG. 1

Without a doubt, the best means of mounting a background is on a stretcher, this keeping the canvas absolutely taut, and without the annoying creases common to other methods, which cause so much trouble when working up prints. They suffer, however, from the disadvantage of requiring much space to turn grounds and stock them, but being undoubtedly the best method we must discuss them.

The stretcher to take ground need not be weighty: a skeleton frame of 3 by 1 stuff is right. The corners should be absolutely at right angles and firmly joined. When stretching background, place one tack in the centre at top and bottom, and then work from these tacks outwards to the ends, stretching ground. Meanwhile, before getting quite to the corners, place tacks centrally at the sides, and work outwards from them, leaving corners until the last. If there are any well-defined straight lines in the background, say, in an architectural subject, see that they are not screwed or leaning. With very thin stuff for the background base, it is as well to tack through small squares of card, thus preventing tears, or to run tape round the edges. With paper grounds, the edge of stretcher should be well covered with glue, the ground placed on, and allowed to dry. If the centre now sags, it is only necessary to very slightly damp the back with an almost dry sponge.

Large 8 ft. by 8 ft. stretchers, for convenience in moving, may be provided with two feet, complete with two castors, the whole being so arranged that the bottom stretcher is only about $\frac{1}{2}$ of an inch from the floor. The feet may well be of 3 by 3 stuff, and project 8 inches each side of ground, this being ample width of base.

With this type of stand it is usual to place a ground on each side. The only drawback is the amount of moving required to

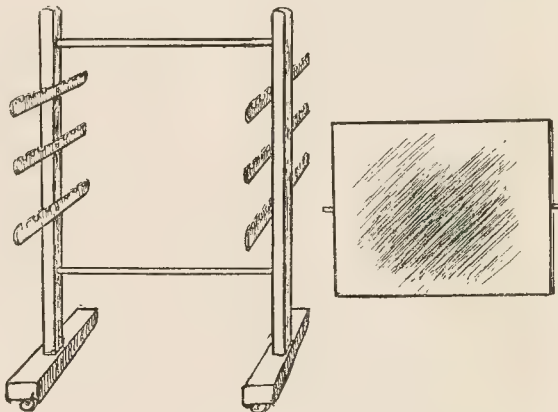


FIG. 2

get out a ground wanted, if there happens to be two or three others in front of it.

A very excellent idea used in a well-known Northern studio is to have all the stretchers made quite uniform and perfectly rectangular. Into the bottom bar two small wheels are sunk. The backgrounds are now placed in shallow grooves, quite at the side of the studio and parallel to the end wall, the grooves being about 4 feet longer than the stretchers, when the latter are pushed home. When a ground is wanted, it is only necessary to pull it from amidst the other ones out into the studio, the extra 4 feet of groove being sufficient to hold the frame upright. Of course, only one ground can be mounted on a frame. The one disadvantage to this system is that it is not possible to use the background diagonally, or to shift its position to any great extent. But we think that this does not amount to much, since these big grounds are usually used for full-length figures. The small head-grounds can be on a different system. Those who have a wide enough studio cannot do better than use this system, as, for

perfect stretching and ease of access to all grounds, it is unsurpassed, 10 seconds sufficing to push back ground not wanted, and to pull out fresh one.

The small head grounds, mentioned above, are apt to get in the way if left lying about, or piled up against the wall.

A new stand, of my own design, may be of interest, since it is for grounds on stretchers—most of the commercial apparatus being for grounds on rollers. The chief advantage is that it can be so constructed that eight or more grounds only take up the space of one stretcher on feet.

To begin with, all the frames must be of an exact size. The side-pieces are then divided exactly into two halves. At this point a hole is to be bored, and a round pin let in exactly at right angles to the side of stretcher, and projecting about 2 inches.

A stand is now to be made with two uprights, which may be of any height, joined with two crossbars of such a width that the two uprights are kept slightly more apart than the width of the stretchers. These two uprights should be supplied with feet and castors, but as the whole complement of background will be heavy, a large base is advisable.

On the uprights, on the inner side, facing one another, and at an equal height to their fellows, place transversely two, three, or any number of pairs of arms, noting only that the lowest arm is of such a height that when the background frame is hung between on the pins the bottom shall just miss the ground. The others may be at any varying distance required—three we find enough, giving three different heights for ground.

It will be seen also that either end of background can be used with equal facility, and there can be a ground on each side of frame. Our first support was made like the stand of a cheval glass, so that the background could be swung at an angle, but we found this of doubtful advantage.

The supporting arms may be of any convenient length, but must be shorter than the feet. There should be two, four, or six U-shaped slots in these arms to take the pegs in background frame, an equal number on each side of the stand, and as close as the width of the frames will allow.

You now see that any number of stretchers can be hung on this frame out of the way, and that it is quite an easy matter to get at any ground wanted. Moreover, the stand is easily placed in any required position.

So much for stretchers. The only other practical method of hanging is on rollers. There are two roller systems, one resembling an ordinary roller-blind, the other rolling from the bottom.

Of the two the last is far preferable, the former method always allowing the ground to crease, at least, a little.

However, the blind system may be preferred by some, and we will discuss the chief points to be noted.

The roller on which the ground is to be packed should be of a good diameter, say, 3 inches, and quite parallel to the floor at the required height. The background must be now fixed to this so that the top edge is quite straight, not spiral, and so that when unrolled the side of ground is quite at right angles to the roller. This is a ticklish matter, but freedom from creases depends almost entirely upon it.

The background-maker will usually pencil a line on ground where it should be tacked, and with a little ingenuity, a pencil and the skirting board, a line may be made on the roller in the correct position for the line of tacks. By far the best method of fixing ground to roller is not to tack, but to get a joiner to make a groove in the roller to fit into it a loose tongue, which will be so flush as to appear to be part of roller. To fix ground,

lay it over this roller (after taking out tongue), put in two or three tacks to get roller in correct position, and then laying cloth over groove, hammer in the loose piece of wood. The ground should be now firmly fixed, but capable of easy removal.

It has been thought that to get ground free from creases, the bottom roller, lath, or bar, should be heavy. Such is not the case, however. We have tried an iron rod of $\frac{1}{2}$ inch diameter with lamentable results, the ground being one mass of creases. The reason is that the bar, like all iron rods, was flexible and gave in the centre, breaking the inviolable rule, that to prevent sagging the bottom bar must be absolutely straight, with no warp or sag of any description—straight as a billiard cue, in fact. If this is borne in mind, an ordinary inch or inch and a half wood roller is as good as anything for the bottom of the ground. The rolling system is usually that of the endless cord.

By far the best roller method, however, is the theatrical system, the curtain rolling from the bottom.

Here the top of ground is tacked on to a flat, stiff board, taking care to get the line of tacks at right angles to the sides of ground. The bottom is fixed to a roller, a foot longer at each end than the background, and taking the same care to get it at right angles to the side and parallel to the top board. The roller should be about 2 inches in diameter. The only difficulty is to explain the cording of this system; it is perfectly easy when you are fitting it up, but intricate to explain. Take two separate pieces of thick picture cord, one twice the length, and the other three times the length of background. Obtain a single block pulley wheel and a double block wheel (i.e., two separate and distinct wheels in one fitting), and screw on to the top board of ground, an inch or two further apart than the width of ground. Now, for ease in fitting, put board in place with ground hanging down. Now take the longest piece of cord and fasten the end with a tack on to the free end of roller, which is just below the single wheel and on the opposite side to the cleats upon which the cords are to be fixed when the grounds are rolled away. Now make about a dozen turns on the roller, away from you (it is always an easy matter to give more if that is not enough to roll ground properly), and now pass the end of cord through the single pulley, take along the board, pass through the double block, and down to cleat. Now do the same with the other cord, but pass through the free wheel of double block only, and down to cleat. It is now best to join the two cords.

If all this has been done properly, when the double cord is pulled it will be found that the bottom rolls turns round and winds up the background as far as the board.

The only objection to this method is the quantity of cord left over when the grounds are rolled up. But if large cleats are fixed at side of grounds, this can easily be kept out of the way, preserving the qualities of compactness and easiness of access that makes the blind system the only possible one in some studios. We have tried both roller methods, however, and find the bottom roller one by far the best; in fact, if care is used in the rolling up, it is little short of the stretcher method for lack of creases. One of the disadvantages of this system, however, has been the fact that a foreground could not be used in one piece with background.

We have got over this difficulty, however, in the following way:—

A large roller was obtained with two instead of only one groove—half an inch separating them. It is almost impossible, by the way, to use this method without using this type of roller, tacking being so liable to screw. The background and foreground combined was fixed to the board, with the wheels attached, as before

explained, and allowed to hang loose. The roller, with tongues removed, was now laid on the background with the ends $\frac{1}{4}$ of an inch above the floor. The tongue was placed *behind* ground, and forced into the top groove, leaving the unoccupied groove open and in front of ground. The extension piece now comes from behind the roller. Now place the second tongue *underneath* the extension and force in groove, tightening the material round the roller. If the roller is now wound with cord, as in the ordinary way, the extension piece and background will roll up together. It is necessary, however, to keep the extension piece free from creases, as the marks will be communicated to background.

One of the best features of the roller system is the ease with which any number of grounds can be hung in a small space, whichever method of roller you use. It is best to have a wide, flat board, or boards, fixed in the studio at the requisite height from the floor and parallel to it. This board should be levelled with a level. On to this can now be screwed the bearings for the ordinary rollers to revolve in, fresh bearings being put a few inches further out as required.

If, however, the other system is used, some method of fixing the flat boards at the required height is necessary. They can either be screwed onto the top board with angle pieces or placed in the angle pieces.

W. FOSTER BRIGHAM.

SELECT METHODS IN LANTERN SLIDE MAKING.

[An Article by A. J. Jarman in the "Camera and Dark-Room."]

ONE branch of the photographic art that interests the amateur at this time of the year particularly is the making of transparencies for use in the lantern, especially if the pictures so made are from choice negatives that the amateur has produced during a summer visit to some interesting place, or during the summer recreation.

It will not matter whether the views are made upon plates or films, or whether they are 5 x 4 or 7 x 5; there is sure to be some suitable little spot upon such negatives where a picture can be obtained by contact with a good quality lantern plate. It may so happen that in a 7 x 5 negative there is a rustic bridge, with a running stream beneath, perhaps the tail-race of a rustic wheel, with a few bushes near; if so, that will be just the kind of view that will produce an excellent transparency.

Sometimes it is found that among many of the 5 x 4 negatives that we made on our outing in the country, or maybe in the street of a village, that there are some that possess the right quality for lantern slide making, and that the whole of the space is not required. All that will be necessary in such a case will be to place the sensitive plate so as to cover the desired view. Now, a careful slide maker always backs his plates. It is only when a backing is used that is in optical contact with the glass that crisp positives or negatives can be produced. If backing the plate is too much trouble, then place the negative and plate in a printing frame backed with a piece of dead black paper previous to making the exposure. This prevents, to some extent, the effect of halation, which at all times gives the effect of a blurred image.

As to the best kind of lantern plate to use it is difficult to state, because all of the makes of such plates to-day are good. Plates for such work are made now whereby they can be printed from the negative like printing out paper, and simply toned and fixed. The best advice that can be given here is for the amateur to take a certain kind of plate and adhere to the method of working, until he is master of the right exposure and developing. If it is desirable to be successful, thoroughly successful, do not try every kind of developer that is advised; learn to make up your own developer, become master of it; there will be found then no difficulty in making a good and successful lantern plate.

Lantern-plate Developers.

The formulae here given can be relied upon for giving good and satisfactory results, and should the resultant transparency sometimes be a little hard, or too contrasty, it can be reduced to the right density with advantage. In the first place, see that the dishes and trays to be used for transparency work are thoroughly clean; make up a new fixing bath as here given; be sure there is no stray light in the dark-room during all the operations, then

there will be no fear of fogging, the shadows will always be clean. Should the desire be that the whole of a view must be shown upon the slide, then there will be no alternative but to make a transparency by reduction by use of a camera and lens. For simple working there is no better plan than selecting a suitable part of the negatives as described.

Procure several clean glass bottles of about twenty-ounce capacity, fitted with clean corks; provide also a large bottle of distilled water, for the reason that more failures are due to the use of impure water than from many other sources. Dissolve in the following order in one of the bottles:—

1—Metol	30 grs.
Warm distilled water	16 ozs.
Hydroquinone	30 grs.
Pure sulphite of soda	$\frac{1}{2}$ oz.

Add the sulphite after the metol and hydroquinone are dissolved; now make up a solution of carbonate of soda, also mixed with distilled water—

2—Pure carbonate of soda	1 oz.
Distilled water	8 ozs.
3—Potassium bromide	$\frac{1}{2}$ oz.
Pure water	6 ozs.

The fixing bath must be made up and kept for use in a separate vessel after mixing; any sediment should be allowed to subside, retaining that which is clean and clear, pure.

Fixing Bath.

Warm water	24 ozs.
Sodium hyposulphite	$\frac{1}{2}$ pound.
Sulphite of soda	120 grs.

Stir well as soon as dissolved; add the following mixture made up or

Warm water	8 ozs.
Chrome alum (commercial)	$\frac{1}{2}$ oz.

Add this to the hypo solution, mix thoroughly with a strip of glass. The resultant clear solution is ready for use.

The following is also an excellent developer for lantern plates, but works more slowly. A rich warm black tone is obtained by its use. Make up the following:—

1—Warm distilled water	10 ozs.
Hydroquinone	180 grs.
C. P. sulphite of soda	2 ozs.
Potassium bromide	10 grs.
Sulphuric acid	10 drops

As soon as the mixture is well incorporated, add another six ounces of distilled water.

2—Carbonate of soda (crystals)	1 oz.
Carbonate of potash	1 oz.
Water	16 ozs.

The necessary solutions now being made up, take the negative from which the transparency is to be made, place it in an ordinary printing frame and repair to the dark-room. Open the box of lantern plates it is intended to use, brush the face of the negative with a clean, flat, camel's hair brush, and the plate as well. Adjust the plate upon that part of the negative it is intended to reproduce. Place over it a piece of black paper, press the backboard into position, and hitch the spring tight. Now make the exposure to a good source of light, such as a full gas jet of about sixteen candle-power; make the test by giving, say, four or five seconds at two feet from the light. Having made the exposure, take of the No. 1 developing formula, two ounces, No. 2 soda solution two ounces, add a few drops of No. 3 (the bromide solution), or, in place of the bromide solution, use four drops of citric acid to one ounce of water, rock the tray so as to mix the contents, then insert the exposed plate; rock the tray gently; in a few seconds the image will appear, and in the course of half a minute to one minute the development will be complete. Wash the plate well under the faucet, then place in the fixing bath, and allow the plate to remain some time longer in this bath than is necessary to dissolve or clear out the creamy portion of the plate. As soon as this is complete, wash the plate well for half an hour, then wipe the surface over very lightly with a tuft of wet absorbent cotton while the water is still running upon it; then place in a rack to dry.

To use the hydroquinone developer, expose the plate in the same manner as for the metol combined developer, only the exposure must be longer—from eight to ten seconds. The development will be a little slower. Take No. 1 two ounces by measure and one and one-half ounces of No. 2. If the image should develop at a slightly rapid rate, due to the negative being held too close to the light, or because the negative is very clear in the shadows, a few drops of the bromide solution must be added to the developer. This will assist slightly in retarding the development, but if the image develops up with good contrast, continue development until complete. If more plates are to be developed, start them in this developer without the addition of fresh solution; in fact, it is at all times a good plan to start the development of a plate in the developer that has been previously used. This plan will save many a plate, especially if the exposure has been a little too long; then, if necessary, a second tray containing fresh developer can be used to bring up the image to full density.

Collodion Emulsion.

The description given is only for the making of lantern slides by contact and development, but there are other ways of making lantern slides. One method is to produce them by reduction in the camera, the other is to print them out by a direct printing process, either by the carbon process or by the use of a simple collodion emulsion. To enter into the carbon process here would occupy too much space, but for the benefit of those amateurs who care to make their own plates the following simple and certain formula is given. In the first place, provide half-a-dozen amber-coloured six-ounce glass bottles, clean them out well, dry them, and fit a new cork to each. Prepare the following:—

1—Nitrate of silver	120 grs.
Distilled water	2 drs.

This mixture is best made in a small chemical flask, so that the dissolving may be aided by heat. Add two drachms of pure alcohol; when all the silver nitrate is dissolved it will be ready for use.

2—Chloride of strontium	64 grs.
Pure alcohol	2 ozs.
3—Citric acid	64 grs.
Pure alcohol	2 ozs.

Obtain six ounces of plain collodion from the stock dealers; take two ounces of this, add thereto thirty drops of No. 1, shake the mixture, then add one drachm of No. 2, a few drops at a time, shaking the mixture occasionally; then add half a drachm of No. 3. Give the bottle containing this a good shaking. The mixture will be ready for use within half an hour.

Clean a dozen cut lantern slide plates with a mixture of alcohol one part, strong water ammonia one part, water four parts. Polish the glass well with a new chamois leather, brush around the edges of the plates for about one-eighth of an inch a weak solution of albumen—the white of one egg to eight ounces of water; when dry, coat the plates with the collodio-chloride of silver by pouring a small pool of it upon the centre of the plate, allowing it to run to each corner by tilting the plate, then drain the excess from one corner into the bottle it was poured from, taking care to rock the plate backwards and forwards, so as to prevent the collodion running in streaks. In the course of five minutes the plate will be dry.

Coating with Emulsion.

It is needless to say that the operation of coating and drying of these plates must be carried on in a safe light, not necessarily ruby; a gas jet will do, with a sheet of orange paper placed in front just to screen the direct rays of the jet from illuminating the plate. As soon as the plate or plates are dry, place one upon the negative in just the same way as already described; then place the negative and plate in the sunlight or good, bright daylight; fit the back of the printing frame so that when the back half is opened about half of the transparency plate can be seen from the back. Continue the printing until the shadows appear to be bronzed in, then remove the plate and proceed to wash and tone it just the same way as for any printing out paper. Fix in plain hyposulphite of soda solution, one ounce to thirty of water. Wash the plate well in a tray by changing the water occasionally for half a dozen times. Do not wipe this plate; the films will be too delicate. Simply place it in a rack to dry, and, when dry, mount it in just the same manner as described. Be sure the water is free from dirt. By tying over the nozzle of the faucet a piece of cheesecloth in which a tuft of absorbent cotton has been placed, this will filter out any dirt that the water may contain. The collodio-albumen process is out of date to-day, but there has never been a process that surpassed this plan of making transparencies. Every quality desired in a transparency is obtained; as to lasting quality, they appear to be as permanent as the glass upon which they are made.

CATALOGUES AND TRADE NOTICES.

An attractive price list has been issued by Messrs. Elliott and Sons, containing full particulars of the range of photographic specialties made by the famous Barnet house. The booklet is designed by Mr. Charles E. Dawson, and is quite in that artist's happiest vein.

New Christmas postcards from Messrs. Griffin.—Messrs. J. J. Griffin, of 20-26, Sardinia Street, have put on the market a new line in Christmas bromide and P.O.P. postcards that are embellished with some attractive designs. They are being issued at popular prices, and are of the well-known quality associated with the firm's productions.

CHRISTMAS postcards in Barnet P.O.P., gaslight, bromide, and self-toning paper reach us from Messrs. Elliott and Sons, Ltd., who have enlisted the services of Mr. Charles E. Dawson in the ornamentation of the address side, with the result that selection can be made from half a dozen designs which are quite a refreshing variant on the style of embellishment commonly adopted.

Photo-Mechanical Notes.

The Etching of Labels.

A CORRESPONDENT from Birmingham sends us a neat metal label in which the bright letters stand out in relief on a dark ground, and asks us how this is done. In the first place, a negative must be made of the lettering or design (unless it happens to be the same size, when it may be printed direct on to the metal with suitable ink). This negative must not be reversed. Then a piece of sheet metal, which may be either zinc, brass, or copper is taken of suitable size, and the surface polished with fine pumice powder. It is now flowed over with sensitive solution as in ordinary zincographic printing, dried, and the negative brought into contact with this, film to film, and printed either by daylight or the arc lamp. The plate is then rolled up with stiff transfer ink and developed in cold water. After drying and dusting with bitumen or dragon's blood the plate is etched, nitric acid and water being used for zinc, and a solution of perchloride of iron for brass or copper. If greater depth is required than can be obtained in one etching, then it is recommended to protect the sides by means of dragon's blood, dusted on four ways (i.e., the American powder process of line etching), as this will afford sharper sides than the English "rolling-up" method. When the etching is complete the resist is cleaned off by means of lye and turpentine, the ground blackened, in the case of zinc by flowing over sulphate of iron solution, in the case of brass and copper by means recently given in this paper, and the surface of the design polished with fine charcoal, when the lettering will stand out brightly in relief.

Mercury Vapour-Lamps in "Process."

THE L.C.C. School of Photo-Engraving and Lithography has recently had installed a pair of Cooper-Hewitt mercury-vapour lamps designed for process work. These have been tested by students against a pair of "Westminster" enclosed arc lamps. Firstly, a careful and accurate test was made of the current consumed by an independent electrical engineer. He stated that two arc lamps took 14 ampères, while the two vapour lamps took $3\frac{1}{2}$ ampères. The voltage was 200, direct current. The students making the tests were not informed of this until afterwards. A glossy bromide print having had graded exposures going from black to white was then pinned on the board, and one half covered with black velvet. A plate was coated with Mawson's collodion, and sensitised in an 8 per cent. silver bath; exposure was then made with one pair of lamps; these were then switched out, the velvet was then transferred from the one half of the graded original to the other, and the other pair of lamps switched on and exposure made. By this device both exposures were on the same plate, and therefore had the same sort of film and afterwards the same development. The result proved to be that the mercury-vapour-lamps required more than three and a half times the exposure of the arcs, and the exposures were repeated several times, both for short and long times, and all gave the same result. There is no doubt that in this case there is practically the same cost of current for the same effect produced—that is to say, the vapour-lamps take only one quarter the amount of current that the arc lamps take, but they take about four times as long to do the work, though for certain originals they can be very conveniently used, and they may be safely placed closer to the originals than arc lamps, which makes them a little more economical, but against this must be set the much heavier initial cost of the mercury lamps, and their more expensive up-keep.

A. J. NEWTON.

Printing from Intaglio Plates.

According to a patent (No. 28,392) of Sir Joseph Wilson Swan and Mr. Donald Cameron-Swan, a photo-engraved intaglio plate is

printed in the lithographic manner by a method such as the following:—

A sheet of prepared lithographic zinc is coated with bichromated albumen, gum, gelatine or other sensitised medium. When the coating is dry the plate is exposed to light under a half-tone positive made as described in patent No. 28,392, 1904. After exposure it is rolled up with lithographic ink, developed in cold water, gummed up, allowed to dry, then damped and rolled up with stiff lithographic ink, and dusted with bitumen, dragon's blood, French chalk, or other similar or suitable powder.

The plate is then etched with dilute nitric acid to a sufficient depth, washed in water and dried, and the whole surface washed clean with turpentine. The plate is now in intaglio, the hollows being clean zinc whilst the surface retains its coating of albumen.

Bitumen, resin, or other similar and suitable powder is next dusted over the whole plate so as to fill up the hollows caused by the etching, and the surplus is wiped off the surface, and the plate heated sufficiently just to melt the bitumen or other powder. The plate is then placed in a bath of dilute caustic potash so as to remove the albumen film from the surface whilst leaving the bitumen or other powder in the etched parts. The surface now being clean zinc, it is gummed up, the gum adhering to the surface but not to the hollows filled with bitumen or other powder.

The gum is allowed to dry, and the plate is immersed in benzole, turpentine, or other suitable solvent of the bitumen or other powder, so that it is completely dissolved, and the hollows left clean. Lithographic transfer ink is then dabbed into the etched intaglio portions of the plate, the surface washed with gum and water, and the plate is ready for rolling up with a lithographic roller, when it is printed in the usual manner of lithographic printing, either on a hand lithographic press, or on a lithographic machine having a flat or curved printing surface.

In printing, the hollow recesses of the plate receive the ink, and the surface of the plate is kept clean by the repulsion of the greasy ink by its periodic damping with water, glycerine and water, or such similar or usual methods.

Instead of using metal for our plates, lithographic or other similar or suitable stone, or any substance possessing the special properties necessary for lithographic printing may be used.

On Thursday, December 7, Mr. R. Busch lectured at the London County Council School of Photo-Engraving and Lithography on "The History of Colour Printing in England." He traced the steps in colour printing from the time of rubricating with red down to the elaborate methods of this and the last century, and illustrated his remarks by a collection of books and prints probably unequalled outside the British Museum.

THE Nottingham Camera Club Exhibition will be held on March 14 to 17, when handsome bronze plaques of special design will be offered for competition. The Ilkeston Exhibition closes on March 5, and arrangements have been made for sending exhibits on to Nottingham, free of cost to exhibitors, and afterwards to the Leicester Exhibition, which opens on March 24. Prospectus and entry forms may be had on application to the secretary, S. W. Barlow Vines, Market Chambers, South Parade, Nottingham.

THE Berlin Photographic Exhibition of 1906.—The fine prospectus of this exhibition, in course of organisation by the Verein zur Förderung der Photographie for July next reaches us from the secretary, Paul Hanneke, 41, Bamberger Strasse, Berlin, W.50. As we have already announced, the exhibition will include all departments of photography—scientific and pictorial, applied photography and "process" processes, colour photography, and exhibits of the trade.

Exhibitions.

THE AMERICAN SALON.

THE second American Salon is now open in New York, and the following list of exhibitors and recipients of awards appears in the issue of "The Photographer" just to hand, from which journal also we glean some particulars of the exhibition. The Jury of Artists have made the following awards:—

\$100 Purchase Prize of the American Federation for the Best Picture, Second American Salon.—Mrs. G. A. Barton, Birmingham, England, "The Mother's Kiss"; 1st hon. mention: Guido Rey, Turin, Italy, "Scene Antique"; 2nd hon. mention: Alfred Ornano, Genoa, Italy, "M. Maeterlinck la Mort de Tintagiles, Act IV."; 3rd hon. mention: William Clayden, Plymouth, England, "Tugging Home"; hon. mention: Louis Fleckenstein, Faribault, Minn., "The Lily Pond"; hon. mention: Frederick Haven Pratt, Worcester, Mass., "Study of a Face."

\$50 Award by "The Country Calendar" for Best Landscape (American Work).—James E. Underhill, Brooklyn, N.Y., "Against Storm and Tide"; hon. mention: Frederick Haven Pratt, Worcester, Mass., "Landscape, Northern Italy."

\$50 Award by the Landmark Publishing Company for Historical Landmark.—Geo. T. Power, Chicago, Ill., "Niagara Falls."

The British exhibitors were Mrs. G. A. Barton, Lionel C. Bennett, Henry W. Bennett, A. H. Blake, Rev. H. C. Campion, William Clayden, Tulloch Cheyne, J. Page Croft, E. D. Taylor, Charles F. Grindrod, W. A. I. Hensler, E. O. Hoppe, S. G. Kimber, C. J. King, W. Harold Lane, G. Edgar Lee, Lewis Lloyd, R. B. Lodge, Ernest Marriage, J. C. S. Mummery, W. H. Nithsdale, and Marian Silverston, not a particularly representative list of pictorial photography in this country.

There were 340 pictures accepted, by 123 exhibitors, 81 American, and 42 from England, Italy, Argentine Republic, Cape Town, India, Holland, Spain, Mexico, Ireland, Germany, and Austria, making quite an international affair. The American workers are credited with 2.65 pictures apiece, and the foreigners with 3.16 apiece. There were some further pictures from abroad, which, however, did not get through the Customs House in time. Guido Rey and Alfredo Ornano, both of Italy, had the largest exhibit, with nine each; Curtis Bell, Louis Fleckenstein, and C. E. Townsend, all three Americans, follow with eight each; Rudolf Eicke-meyer, the Misses Parrish, J. H. Field, Vivian Burnett, Mrs. G. A. Barton, and Marian Silverston, of England, and Giuseppe Castrocio, of Italy, have seven each; and the remainder from one to six apiece.

THE "ZIGO" EXHIBITION.

MESSRS. ILLINGWORTH AND Co. are to be commended on their enterprise in demonstrating to a discerning public the good qualities of "Zigo" paper by an exhibition of the prize prints entered in the recent "Zigo" competition.

At Anderton's Hotel, Fleet Street, where the exhibition was held last week, a collection of prints was shown, remarkable not so much for their pictorial excellence, although in many cases pictorial qualities were conspicuous, but for technical attributes that proved beyond question the extent of the range of colours obtained by the simple manipulations necessary for producing "Zigo" prints. The procedure for the production of these prints is probably known to every one of our readers. Simple fixing in the ordinary "hypo" baths of varying strengths, coupled with printing to various depths, gives all that the most exacting P.O.P. printer can require.

In the present show we were particularly impressed by the fact

that the claims made for "Zigo" were substantially proved by the users of the paper in the competition itself, and the most varied and excellent effects appear to have been obtained with the greatest ease.

In each competition set, three prints were entered, and in nearly every case they demonstrate a range of tones obtained by the specified means, almost startling. No. 1 may be a rich Bartolozzi red, No. 2 a sepia, and No. 3 almost black. In one instance a perfect black has been obtained, by extreme over-printing and prolonged fixation. In any case the results obtained must be very gratifying to Messrs. Illingworth, and there is no doubt that this exhibition of "Zigo" prints will assist in making the paper even more popular than it is at present. During the exhibition practical demonstrations of the process were given, and no doubt the visitors quickly grasped how little there was to learn in order to produce the varied results shown on the walls.

OXFORD CAMERA CLUB.

At the members' exhibition of the Oxford Camera Club, held last week, a system was adopted which may be found of advantage by other societies. Out of the number of prints submitted (253 altogether), 213 were hung. Mr. H. Snowden Ward acted for the society as a one-man selection committee, and by him the pictures were divided into three classes: the first class were marked with a red disc, the second with a small piece of white paper in the shape of a fan, while the third were not marked at all. In the first class 47 pictures were placed, in the second 53, and in the third 113. In carrying out this task Mr. Ward bore in mind, in the first place, the general standard of the exhibition, and, secondly, the individual standard of each exhibitor. Thus prints were rejected from the collection of a strong worker which would have been accepted from a worker whose whole results showed less ability. No rigid lines were drawn, and consequently no strong worker was bound of necessity to have all his pictures accepted, and the rejections not only went towards the strengthening of the exhibition, but also tended towards the strengthening of the individual exhibit. Beside the forty pictures rejected, some eighteen works of a technical character were placed in a class by themselves. These included two colour pictures by Miss Acland, Mrs. Baker's plant studies, Mr. A. H. Hannis' wonderfully fine studies of protective mimicry, Mr. W. L. G. Bennett's panorama, and, to some extent, Mrs. Veley's animal studies.

Mr. Snowden Ward addressed a meeting of the members on the merits and demerits of the pictures, and in the course of what was necessarily somewhat detailed criticism took occasion to remind his hearers that people talked a good deal about the limitations of photography. When they did that he always changed the subject to something totally different. They knew something about the limitations of photographers, but they knew nothing whatever about the limitations of photography. No one had reached them; no one had approached them. He urged his conviction, however, that there were some four to six members represented in that exhibition who, if they would give to photography the same amount of attention that many men gave to golf and many women to fancy needlework, and would give that attention earnestly and seriously for five years, would in that time be among the very first photographers in the world.

A CENTRAL Amateur Photographic Club.—We are informed that a proposal is on foot to establish a club for amateur photographers near Charing Cross, where will be available a studio, dark-rooms, and printing rooms, etc. The premises are those of the Glass Photographic Studios, Limited, and the services of the staff of this firm are to be at the disposal of members. Those interested in the scheme may hear particulars from Mr. A. R. F. Evershed, 15, Great Winchester Street, Old Broad Street, E.C.

FORTHCOMING EXHIBITIONS.

December 12-20.—Southsea Photographic Society. Hon. Secretary, F. J. Lawton, 5, Pembroke Road, Portsmouth.

December-January.—Wishaw Ph. A. Hon. Secretary, Robert Telfer, 138, Glasgow Road, Wishaw.

January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.

January, 1906.—The Dover Institute Photographic Society. Hon. Secretary, H. Plowright, 47, Maison Dieu Road, Dover.

January, 1906.—Brierley Hill Camera Club. Hon. Secretary, J. Thomas, William Street, Brierley Hill.

January 11-13, 1906.—Boston Camera Club. Hon. Secretaries, H. M. Hames and R. W. Halliday, 65, West Street, Boston.

January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.

January 25-27, 1906.—South Essex Camera Club. Hon. Secretary, Thomas Michell, 180, Browning Road, Manor Park, E.

January 31, 1906.—Tring Camera Club. Hon. Secretary, J. Owen Raymond, Frogmore Road, Tring.

February, 1906.—Windsor Camera Club. Hon. Secretary, Thomas J. Cartland, Thames Side, Windsor.

February, 1906.—Cardiff Windsor A.P.S. Hon. Secretary, W. A. Woodward, 187, Mackintosh Place, Cardiff.

February-March, 1906.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

February 3-10.—Cape Town Photographic Society International Exhibition. Entries close January 13, 1906.

February 3-February 25, 1906.—Marseilles Fourth International Salon. M. Astrer, Sec. Gen., 11, Rue de la Grande-Armée, Marseilles.

February 6-9, 1906.—Guisbrough Fine Art and Industrial Society. Hon. Secretary, George Page, 34, Westgate, Guisbrough, Yorks.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

February 20-21, 1906.—Royal Albert Institute, Windsor. J. W. Gooch, Hon. Secretary.

Feb. 22-24, 1906.—Bowes Park and District. Hon. Sec., H. C. Bird, 91, Whittington Road, Bowes Park, N.

February 24—March 10, 1906.—Edinburgh Photographic Society. Hon. Secretary, J. S. McCulloch, 3A, N. St. David Street, Edinburgh.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Sec., W. B. Woodland, 18, Beckingham Road, Leicester.

March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.

March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.

March, 1906.—St. Helens Camera Club. Hon. Secretary, John Glover, 14, Ormskirk Street, St. Helens.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 7-8, 1906.—Doncaster Camera Club. Hon. Secretary, T. Haigh Connor, 39, Market Place, Doncaster.

March 12-15, 1906.—Cripplegate Photographic Society.—Secretary, Fred. Leeks, 8, Barford Street, Islington, N.

March 13-14, 1906.—G.E.R. Mechanics' Institute (Stratford). Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.

March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Yines, Market Chambers, South Parade, Nottingham.

March 19-24, 1906.—Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blanhill, Coatbridge.

April 18 to 20.—Southend-on-Sea exhibition. Hon. Sec., J. Archer, 24, Ashburnham Road.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

FORTHCOMING COMPETITION.

December 30.—Royal Photographic Society "Affiliation" Lecture Competition: (a) Illustrated lecture descriptive of a tour (b) Illustrated technical lecture. Particulars from the Secretary R.P.S., 66, Russell Square, London, W.C.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for Patents were made between November 27 and December 2:—

PRINTING APPARATUS.—No. 24,544. Improvements in photographic printing apparatus. George Smith Bratby, 6, Lord Street, Liverpool.

COLOUR PHOTOGRAPHY.—No. 24,586. A process of printing photographs in colours. John Wagner, 3, Edinburgh Mansions, Howick Place, Victoria Street, London.

CAMERAS.—No. 24,803. Improvements in and relating to photographic cameras. La "Vega" Soc. Anon. de Photographie et d'Optique. 52, Chancery Lane, London.

CAMERAS.—No. 24,813. Improvements in or relating to photographic cameras. Walter Tully, 76, Benedict Street, Glastonbury, Somersetshire.

RETOUCHING.—No. 24,816. An improved appliance for the retouching of photographic negatives. Thomas Stephen Bruce and James William D'Anter, 4, Villars-on-Heath, Hampstead, London.

COLOURED LIGHTING.—No. 24,875. Process for the simplified correction of the chemical effect of the spectrum in reference to photographic purposes by means of coloured illumination of the object to be photographed. Gottlieb Krebs, 27, Chancery Lane, London.

PRINTING APPARATUS.—No. 24,964. Improvements in printing apparatus for photographic purposes. Edmund Schneider, 6, Lord Street, Liverpool.

DISHES.—No. 24,990. Improvements in dishes or trays for photographic purposes. Alfred John Rixom, 108, Park Road, Loughborough, Leicestershire.

COPYING MACHINE.—No. 25,040. An improved method of and machine for copying photographs. Edward Russell Clarke, 18, Southampton Buildings, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

MOUNTING AND FRAMING PHOTOGRAPHS.—No. 27,144. 1904. . . The claim is for an improved method of mounting and framing photographic or other prints or pictures, in the form of a "plaque." The mount is of special construction, being square, circular, or oval in form, and having a concave surface on which the print may be mounted or supported. The mount, with the photograph mounted thereon, is placed in a frame provided with glass, the surface of which is also concave, so that when the mount and glass are in juxtaposition and having the concave surface towards the outside, the framed picture will thus be in the form of a "plaque." The preparation of the concave glass consists in it being rendered opalescent or translucent, preferably on the concave surface and over such an extent of surface as may be required. Under certain conditions this opalescent or translucent portion may be made to represent the marginal portion of a mount, in which case the concave mount may be greatly simplified, or it may at times be dispensed with. Will Watson, 92, North Park Street, Glasgow.

MAGAZINE CAMERAS.—No. 3,583. 1905. The claim is for a daylight-loading plate or film box, containing a series of plate or film holders or sheaths which are hinged together or arranged book-wise; the box having externally-operated mechanical means for opening and closing, for controlling the feed of the plates in succession into the focal plane, for positioning them for exposure, for releasing each plate after exposure so that it may fall or be transferred into a receptacle formed by a part of the open box, and for re-enclosing the exposed plates within the box on the latter being closed. Also for the application of the same principle to photographic cameras, and in the employment of externally-operated means for opening and closing the changing box when in position inside the camera. George Wilkes, The Yews, Stechford, near Birmingham, and Arthur John Leeson, of 59, Temple Row, Birmingham.

News and Notes.

WOMEN in the Photographic Trade.—There is a delightful frankness about a letter in the "Daily Mirror" of last week. A feminine worker, it appears, travels for a wholesale firm of photographic and optical dealers, and she takes more orders than any of the men travellers in her firm. She is in favour of dressing in men's clothes and of receiving men's wages. Advanced ideas to emanate from the Kennington Park Road, whence writes this champion of her sex!

PROPOSALS are on foot to establish a photographic society at Ryde, Isle of Wight.

THE Photographer in Daily Life.—Last week, at Willoughby, near Rugby, a photographer named James Seckington, made a gallant attempt to rescue an old man from a burning building.—In Birmingham last week William Barrett, photographer, of Ridley Street, was cut about the leg during an altercation with several other men. It was alleged that a woman was the cause of the incident.

NATIONAL Photographic Record Association.—A Council meeting was held on Friday, 8th inst., Sir Benjamin Stone, M.P., president, in the chair. One hundred and ninety-eight prints have been received since the last meeting. The president had contributed a series from Uxbridge, including the Treaty House, a set from Hereford, including the chained library in All Saints' Church, and others from Compton Wyngates, Burford Priory, Chipping Campden, etc. An

interesting series of life in the East End of London was sent by H. T. Malby, and the association had received from Mrs. C. W. Ward a series of fonts from Winchester, Kent, Devon, Derby, etc., from Mr. G. Bingley copies of the old charters (thirteenth century) of Allerton and Kirksall Abbeys, Mount Grace Priory, Yorkshire; Thornton Abbey, Lincolnshire; Burnsall Church, Yorkshire, and a series from Monasterboice, Ireland; from Mr. F. Scamell, a set of the motor trials for the Gordon Bennett race in the Isle of Man, and from the Hon. Secretary, Mr. Geo. Scamell a series of churches at Writtle, Margaretting, Ingatestone, Fyfield, Newport, L'Baddow, etc., in Essex; and from Sandwich, Deal, etc., in Kent. All these prints were accepted and ordered to be forwarded to the British Museum. The total number of prints now received for the collection is 3,683. The Hon. Secretary, Mr. Geo. Scamell, will be glad to receive any suitable prints which can be sent to his address, 21, Avenue Road, Highgate, London.

THE microphotoscope, according to the "Engineer," is the invention of a Berlin chemist. Though no larger than a cigar case, it permits of consulting the map of a whole district by night as well as by day. The map is photographed in miniature on a plate of ground glass, which is illuminated by a small incandescent lamp supplied, when required, with current from a battery, while a lens can be adjusted to the observer's sight.

DEATH of Mrs. A. L. Henderson.—We regret to announce the death, on December 8, of the wife of Mr. A. L. Henderson. Mrs. Henderson had been in failing health for some time, and her death takes place within a month or two of the celebration of the fiftieth anniversary of her marriage. We are sure that Mr. Henderson will have the sympathy of many friends in his bereavement.

STOLEN GOODS.—We are asked to draw the attention of any firms in the photographic trade, or any private persons who have lost goods, to the arrest on Thursday last week of two men who appear to have been carrying on systematic frauds for at least two years past. The police have now in their possession a number of articles which they are not able to identify, and any person who can assist them to do so, and so incidentally perhaps recover property stolen from themselves, should inspect the goods at the City Police Station, The Minories, E.C. The goods consist of some six cameras, several dark slides, lenses, printing frames, an enlarger, a number of chemicals, and a banjo marked in pencil "Southampton," but having no other decipherable mark.

THE current number of "Harper's" opens up still another field for the outdoor naturalist-photographer. The trails of animals in the snow have been studied by Ernest Harold Baynes, whose photographic records of his observations are of a kind to make one wish he had said something of his methods. Mr. Baynes shows the refinements of field-craft, which are to be mastered by persistent practice. A few blotches on the snow, which mean nothing to the uneducated eye, are seen by the Sherlock Holmes of the fields to have a story in them, usually the tragic one of the animal pursued by his natural destroyer.

BANKRUPT Aberdeen Photographer.—James Ewing, photographer, Crown Street, Aberdeen, was examined last week in bankruptcy before Sheriff Reid. Bankrupt; who had conducted a very successful business for about 15 years, accounted for his financial difficulties partly through competition and dull trade. He had never spent money extravagantly, nor had he used money on the Stock Exchange. He had never, in fact, speculated a penny. He had lost a few hundred pounds, however, in connection with the Albert Hall Company, of which he was a director. He had also other losses, and these had crippled him so that he was unable to meet his liabilities, which he had estimated at £1,870. When the estate was divided the claims amounted to £1,929. The statutory oath was administered.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
15.	Aberdeen Amat. Photo. Assn.	Photography Prize Slides.
15.	Bromley Camera Club	Lantern Lecture. Messrs. G. W. Smith and W. L. Crossley.
15.	Colne Camera Club	"Candle-light Photography." Mr. J. Paterson.
16.	Aberdeen Photo Art Club	"Foundations of Modern Architecture." Mr. H. David.
16.	Motherwell Y.M.I. Cam. Club	"Velox and New Application." Mr. W. Sadler.
16.	Stafford Photographic Society	Pictures with the Goerz Lens.
16.	Dewsbury Photo. Society	"Naples." Mr. Thos. E. Green.
16.	Halifax Camera Club	"How to Make Lantern Slides." Mr. F. Nicholson.
16.	Scarborough and Dis. Ph. Soc.	Members' Night. Lantern Slides and Prints. Mounts and Framing, &c.
16.	Southampton Camera Club	"St. David's Cathedral." Mr. A. E. Henley.
16.	Oxford Camera Club	Exhibition of Members' Slides.
16.	Cripplegate Photo. Society	"Development and Toning of Bromide Papers." Mr. J. B. Bensley.
16.	Hastings and St. Leonards P.S.	Ten Minutes' Lectures. Members.
16.	Bowes Park and Dis. Ph. Soc.	"The Society's Outings." Mr. F. C. Hornsey.
16.	Wandsworth Camera Club	Jumble Sale.
16.	Heaton & Dis. Camera Club	"How to Make Enlarged Negatives on Bromide Paper." Demonstrated. Mr. J. T. Carnaby.
16.	South London Photo. Society	Excursion Lantern Slides, Novices Print, and "Peace" Competitions.
16.	Manchester Amat. Photo. Soc.	"Toned Lantern Slides." Mr. J. D. Berrick.
16.	Darlington Camera Club	Exhibition of Members' Lantern Slides.
16.	Nelson Photographic Society	Y.P.U. Members' Print Portfolio.
16.	St. Helens Camera Club	"Photographic Notions." Mr. W. Inman.
16.	Gateshead Camera Club	"Cloud and Cloud Printing." Mr. Greaves.
16.	Glasgow Southern Photo. Assn.	"Our Camping Experiences." Illustrated.
16.	Birmingham Photo. Society	Lantern Night.
16.	Gloucestershire Photo. Society	"A Trip up the Rhine." Mr. W. F. Stater, F.R.P.S.
16.	Hackney Photographic Society	"Enlarged Negatives as an Aid to Pictorial Photography." Mr. G. H. Capper.
16.	Thornton Heath Photo. Soc.	Lantern Night.
16.	Osley & Dis. Cam. & Art Soc.	Beginners' Night. "Printing Processes." By Members.
16.	Burton-on-Trent Nat. His. Soc.	"Chemistry of Photography." Mr. A. R. Wheatley, M.P.S.
16.	Brentford Photo. Society	"Stereoscopic Photography." Mr. C. P. Goerz.
16.	Leeds Photographic Society	"Photographic Manipulations." Mr. R. Stockdale, M.A.
16.	Newcastle-on-Tyne Photo. Assn.	"Practical Enlarging." Mr. B. Jackson.
16.	Leicester & Leicestershire P. Soc.	Affiliation Prize Slides (1905).
16.	Catford & Forest Hill Ph. Soc.	"Architectural Photography. What to Take and How to Take it." Mr. H. Creighton Beckett.
16.	Tring Camera Club	Demonstration by Messrs. Burroughs, Wellcome, & Co.
16.	Society of Arts	"The Aerograph Method of Distributing Colour." Mr. Charles L. Burdick.
16.	South Essex Camera Club	"Genre Work." Mr. E. T. Holding.
16.	Huddersfield Nat. and Ph. Soc.	"Gum Bichrome." Preparing and Coating Paper, Printing, Development, and Descriptive Lecture. Demonstrated. Mr. J. Fred Seaman.
16.	Coventry Photo. Club	"Intensification and Reduction."
16.	Croydon Camera Club	"The Photographic Lens." Mr. C. P. Goerz.
16.	Leeds Camera Club	"Photographic Manipulations." A Chat for Novices. Mr. R. Stockdale, M.A.
16.	North Middlesex Photo. Soc.	"Photography by Artificial Light." Mr. S. C. Puddy.
16.	G.E.R. Mechanics' Institution	Rotary Photographic Co., Ltd., on "Bromide and Gaslight Papers." Demonstrated. Mr. W. A. Sims.
16.	Tunbridge Wells Ama. Ph. Assn.	"Control in Lantern Slide Making."
16.	Hull Photographic Society	Mr. H. Wild.
16.	Liverpool Amateur Ph. Assn.	"Flower Photography." Mr. W. H. Atkinson.
16.	Richmond Camera Club	Lantern available for Testing Slides belonging to Members.
16.	London and Prov. Photo. Assn.	Paper by Mr. Cembrano.
16.	Glasgow Eastern A.P.A.	"Photography of Marine Life." Mr. F. Martin Duncan.
16.	Wimbledon and Dist. Cam. Club	"Reduction and Intensification." Mr. David Horn.
16.	Southport Photographic Soc.	Members' Night.
16.	Sheffield Friends' Sch. Ph. Soc.	"General Sections Excursions." Mr. J. Fuller. Slides by Members of General Section.
16.		"Photographic Chemistry." Mr. Gilbert Jackson, M.P.S.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, December 12. The Rev. Henry W. Dick read a paper on "Art in Photography," in which he put forth the view that art was essentially the expression of feeling, and a work of art implied the possession of feeling on the part of the artist. Art might then take the shape of music, sculpture, painting, or photography, and the lecturer would not have photographers take too modest or limited a view of the power of photography as a means of expression. A discussion followed, in which Messrs. J. C. S. Mummery, J. C. Warburg, P. Bale Rider, and others took part.

THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

The monthly meeting of the Committee was held at 51, Baker Street, W., on Friday, December 8. Present:—Messrs. F. A. Bridge, Alfred Ellis, E. C. Elliott, S. H. Fry, H. E. Hull, Wm. Grove, A. Mackie, E. Scamell, Lang Sims, and R. Fellows Willson. In the unavoidable absence of the president Mr. Alfred Ellis, past president, took the chair.

The publication of the second number of the "P. P. A. Circular" was reported.

The Secretary reported that, in accordance with the decision of the Committee, a circular letter had been addressed to all those who had sent for the prospectus of the Certificate Scheme and had not followed the matter up by applying for certificates, asking the reason they had not done so, and for suggestions for modifying the system so as to meet their requirements. The replies already received were read, and the objections principally raised were summarised, as follows:—Fees, too high; the special provision for outdoor operators; the term second grade as at present applied to a thoroughly competent operator in a good middle-class business. A lengthy discussion took place, and it was generally agreed that the objections raised were all well worthy of consideration. A suggestion was made by Mr. Fry that the scheme did not sufficiently provide for that class of assistants who, perhaps, constituted numerically the largest class, which might be described as general assistants, and were expected to be able to carry out successfully any part of the work of a photographer's business they might be called upon to do at the moment. The chairman thought that it would be wise to base their inquiries, when a certificate was applied for, upon a statement by the applicant of what he considered he could do, to be verified or otherwise by inquiry of the employers referred to. Mr. Mackie thought that in their anxiety to be perfectly candid in publishing the questions to be put to employees they had misled some who would have become candidates by suggesting that proficiency was required in all the branches of photography that were referred to. A sub-committee was appointed to consider the whole question and report.

Two cases of infringement of members' copyright by newspapers were reported. In one the Secretary had arranged a satisfactory settlement, and his action in the other was approved.

The receipt of the draft "Copyright Act" of the Artistic Copyright Society was reported, and a subcommittee was appointed to consider it with a view to the members representing the association on the society presenting the association's case at the meeting of the society on the 14th inst.

The next meeting of the Committee was arranged for the third instead of the second Friday in January.

OXFORD CAMERA CLUB.—Meeting held Monday, December 11, Miss Venables in the chair. A lecture was given by Mr. George E. Brown (Editor of the *BRITISH JOURNAL OF PHOTOGRAPHY*) on "The Property Value of Photographs," in the course of which the present state of the law relating to copyright in photographs was explained. A somewhat lengthy discussion followed, in which a number of ladies and gentlemen took part.

PLYMOUTH PHOTOGRAPHIC SOCIETY.—"Landscape Photography," one of the affiliation lectures, by Mr. G. T. Harris, F.R.P.S., engaged the attention of the above society on Dec. 8, the last meeting of the session. Mr. F. Johnson presided, and Fleet Engineer R. A. Shapcott, R.N., read the paper. The point which brought out most discussion was the contention of the writer for great sharpness of definition on the focussing screen, giving instructions for the use of microscopic slide glass for producing clear glass on the screen for the securing of it. All the slides used in illustrating the subject were characterised by keen sharpness and much brilliance, everything in the slide being equally crisp and clean cut. The members were not agreed that this was desirable for artistic effect, there being no breadth of treatment in evidence. The use of colour screens as light filters were illustrated, and the value of some for over-correction—to produce a certain result—were considered by the writer. In an example or two thrown on the screen the members were not in agreement with the writer of the paper, because effects were produced which might have been a true rendering from a scientific point, but were not of a character to enhance the artistic quality of the picture. The advice of the writer to take an assortment of several speeds for a projected day's work was not approved, because it was pointed out that if a subject demanded a very fast plate it was of no, or very little, use to try a slow plate upon it, but a good fast plate would be useful in any connection. It was said that Sir William Abney had pointed out there was a more correct orthochromatic rendering with a rapid ordinary plate than with a slow one, which some agreed with. On the whole, the paper was considered as somewhat out of date or not up to the present ideas on landscape photography.

Commercial & Legal Intelligence

UNAUTHORISED REPRODUCTION.—In the High Court, on December 10, Mr. Mark Romer moved *ex parte* before Mr. Justice Buckley in the case of *Lee v. Lafayette* for an injunction restraining the defendants, photographers, of New Bond Street, from publishing or authorising to be published photographs of Mrs. Lee taken in the ordinary way and on the ordinary terms. Mrs. Lee, said counsel, was taken in two positions, and a reproduction of one of the photographs appeared in an illustrated paper. Mr. Lee went to the defendants and saw the manager of the publication department, who expressed regret and gave an assurance that there should be no repetition of what was complained of. Subsequently the other photograph was reproduced. In granting an *ex parte* order over next week the judge said the motion was made as a protest against the offensive vulgarity of the present day in reproducing people's photographs, even on postcards, without their permission.

OLD BILL-HEADS.—Mr. C. H. Perry, trading as Reed and Co., 28, Paternoster Square, had recovered a judgment for £5 (less 10s. allowed since against Mr. Frank E. S. Perry, trading as the Direct Photo Engraving Company, 38, Farringdon Street, for goods supplied. When execution was levied, the firm of Perry and Wilson claimed the goods. Mr. Frank Perry, the defendant, said that he was sued personally when the firm ought to have been proceeded against. Mr. Hickman, solicitor for the plaintiffs, said that as recently as July the plaintiffs received a bill-head from "The Direct Photo Engraving Company, Frank E. S. Perry proprietor." Wilson was a sleeping partner. Mr. Frank Perry said that the bill-heads referred to were used by mistake. The Judge said he would amend the judgment, and make it against both Wilson and Perry, and then their claim to the goods would be barred. Perry and Wilson must pay the costs of the proceedings.

Correspondence.

* * Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

* * We do not undertake responsibility for the opinions expressed by our correspondents.

THE KEEPING PROPERTIES OF DRY PLATES.

To the Editors.

Gentlemen,—I would esteem it a favour if you would let me know how long a dry plate retains its sensitiveness. My reason for enquiry is that I have exposed an Ilford ordinary plate, which has been in my possession since 1887, a few days ago for curiosity, and, to my astonishment, it came up as vigorous as a fresh plate. I enclose you a print (rough) from the negative for inspection. Thanking you in anticipation, I remain, yours truly, R. GIBSON.

114, George Street, Limerick, December 12, 1905.

[We insert our correspondent's enquiry in this place, as his experience seems to be almost a record among instances of gelatine plates retaining their good properties for a long period. The print sent to us is remarkably clear—evidently from an excellent negative.—Eds. B.J.P.]

COPYRIGHT IN CINEMATOGRAPH FILMS.

To the Editors.

Gentlemen,—Your paragraph in "Ex Cathedra" last week raises a point which no doubt will some day prove a bit of a puzzler for the courts of law, but, as a maker of film, I would draw attention to a matter which calls for redress with much greater urgency. As you know, and as probably a large section of the public knows, producers of cinematograph films incur great expense in preparing subjects of the story and incident class. Models have to be found, costumes made, scenery painted, and an immense amount of thought expended before everything is in readiness for the taking of the negative. Then as soon as the film is on the market it is not at all unusual to find another maker copying the story, incident for incident, and thus robbing the originator of the just fruits of his invention. A really taking film is not an easy thing to produce. Out of a dozen which may be made, only one most likely will be acceptable for exhibition purposes. The film pirate—if I may use the term—steals the cream of one's labours, and there seems no remedy for or preventative of his sharp practices. I should like to hear the views of yourself or of others on this point, which constitutes an open sore at present in the cinematograph trade. Meanwhile I am, Gentlemen, yours very faithfully,

FILM-MAKER.

December 13, 1905.

[We will refer to this matter next week.—Eds. B.J.P.]

THE FREE PORTRAIT SWINDLE IN WEST LONDON.

To the Editors.

Gentlemen,—You do a great service to photographers by your exposures of the frauds which are perpetrated on the public by unscrupulous persons whose presence in the photographic field is a danger as well as a discredit. I read your remarks of late on the various forms of free portrait swindle, and may therefore notify you of the practices of a firm which have just commenced operations in Shepherd's Bush. It is the usual story. The canvasser calls with the threadbare yet plausible story of his firm inviting twelve only of the leading residents to accept an enlargement of their portrait. He takes away the photograph, and the next thing is an application from the firm for 12s. 9d. for a frame. A visit to the office brings the victim into touch with another member of the gang, who repudiates the canvasser's offer of a free portrait. And so the game is played, unless the men are told that unless the photograph is returned at once the matter will be referred to the police.

A CENTRAL LONDONER.

December 12, 1905.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

- W. G. Coote, 10, Holmeffield, Sale, Cheshire. Photograph, Singular Growth of a Potato without Soil.
- J. Fenner, Partridge Green, Sussex. Photograph of Monument erected to Maria Fitzherbert in Church of St. John the Baptist, Brighton.
- Isabella Fielding, 10, Kellins Street, Tooting, London, S.W. Photograph entitled, "The Disabled Bread Winner."
- A. D. Coon, 72, Park Street, Dundalk, County Louth, Ireland. Photograph of the Dundalk Orchestral Society.

PHOTOGRAPHS ON LINEN.—(1) Will you please inform me the best method of producing permanent prints on silk or linen that will stand washing frequently, such as a handkerchief with small photograph in corner? (2) Can you give me formula for making a waxing solution for preparing ferrotype plates to enable squeezed prints to detach easily?—CARBON.

(1) The following is a simple method:—Wash the linen well and dry. Then immerse the handkerchief in a warm solution of gelatine* containing three grains of gelatine and ten grains of chloride of ammonium to the ounce of water. Wring out and allow to dry. Iron with a hot iron to make smooth. Then, at the part where the photograph is to be, sensitise with an eighty grain solution of nitrate of silver, applied with a brush; dry, print, tone, and fix as a paper picture. On page 844 of the Almanac is a method of producing photographs on fabrics by an iron process. (2) Beeswax, five grains; benzole, one ounce.

J. D. EDWARD.—See reply to "Carbon."

BLISTERED PRINTS.—I have been much troubled lately with blisters on bromide paper and postcards, both ordinary and gaslight. I develop with hydroquinone, and the blisters do not come up until the prints are being washed after fixing. I use ordinary hypo, same strength as for plates, for fixing. Can you give me any hint as to cause of trouble, and suggest probable remedy? I enclose a badly blistered postcard for inspection.—H. M. CAMPBELL.

Although the blisters do not come up until the prints are in the washing water, we judge by their appearance that the blisters have their origin in the fixing bath. We should advise you to use hypo weaker, say two ounces to the pint of water, and leave the prints longer in it to compensate for the weakness. Also take care that the solution is no colder than the washing water.

LABY OPERATOR.—1. As the studio will be situated, as regards the surroundings, we would suggest that five feet, or five feet six at either end, side and top, be made opaque. The rest may be glazed. You will then have the convenience of being able to use both ends of the studio. 2. Better, with this aspect, have glass on both sides. 3. Have a good slope to the roof.

If you get Bolas's work, "The Photographic Studio and its Construction," it will give you a deal of information. Its price is two shillings.

ACID BATH.—Can you give me a really good formula for an acid hypo bath that will take all the yellow colour out of a pyrosoda negative? One that is easily made up, and not too many chemicals required. Into an ordinary plain hypo bath I put an ounce of pulv. alum and about 5 drops acid sulphuric. This successfully took all the colour out, but the solution went at once very cloudy and milky, and the negatives were rather dirty; that is, there were dirty marks on the film just as there often is with ordinary hypo, only that the film was so much hardened by the alum that the marks could not be rubbed off with cotton wool. Can you tell me if this bath is bad for the plates, and that if proper washing is given, will they fade or stain in time when dry?—S.E.

Certainly the bath is wrong. You will find the standard formulae on page 954 of the "Almanac." Perhaps the simplest formula is—Hypo, 4 ozs.; potass metabisulphite, $\frac{1}{2}$ ozs.; water, 20 ozs.

BROMIDE.—"Art of Retouching," by Robert Johnson, published by Marion and Co., price 2s.

J. F. SLACK.—See reply to "Bromide." The book there named is the best on working up photographs in oils, etc.

MOUNTING GLAZED PRINTS.—Will you please give a quick and efficient method of mounting P.O.P. prints that have been squeezed on ferrotype plates that only want to be in contact with the mount at the edges?—MOUNTANT.

Apply a thin line of seccotine to the extreme edges of the print by means of a stiff hoghair brush and a piece of flat tin used as a straight edge. The position of the print should be first marked on the mount.

COPPER TONING.—Would you kindly give me Mr. Ferguson's formula for a copper toning for lantern transparencies. The above formula is intended to give red tones, but if you know of any other compound giving a blue tone, I would be indebted to you.—WILLIAM LYALL.

The two following, from the "Almanac" (page 979) should answer your purpose:—

A.—Copper sulphate	60 grs.
Potassium citrate (neutral)	240 grs.
Water	20 ozs.
B.—Potassium ferricyanide.....	50 grs.
Potassium citrate (neutral)	240 grs.
Water	20 ozs.

Use equal parts of each. Warm black to red chalk tones are obtained.

Blue tones—10 per cent. solution ferric ammonium citrate, 2 ozs.; 10 per cent. solution potassium ferricyanide, 2 ozs.; 10 per cent. solution acetic acid, 20 ozs. The well washed prints are immersed in this bath until the desired tone is given. Then wash well until high lights are clear. This bath intensifies the image.

A. L. COON.—The lighting is too flat, by reason of the flash-lamp being almost straight in front of the middle of the group. The light was also much too low for a group this size. It should have been at least 20 feet up, and proportionately brighter. The best results, for a group, are obtained by using two lights, one very strong and high up, and the subsidiary light lower. There is no blow-through lamp in which flash powder can be used. Plain magnesium only should be employed with these lamps.

C. V.—1. A daylight studio, if you can have one, with dark blinds, is what we would suggest. You can then economise artificial light. You will find several artificial lights advertised in our pages. 2. The Sinop process (Penrose and Co., 109, Farringdon Road, London, E.C.).

COPYRIGHT.—I read through your article on "Copyright" in the "Almanac." There is one point you have not touched on, and it is a most interesting one to photographers. Supposing I am paid the full price I demand for photographing a person, a group, or an object, can the person, or one of the group (say a football team), without my permission, and perhaps against my will, hand over one of these photographs to a newspaper for reproduction purposes. Can I demand and make that paper pay me a fee? When taking the photograph there was no stipulation as to reproduction, and I believe the sitter was not aware at the time that the photograph would ever be reproduced. 2. Who can I procure mercury-vapour lamps from?—DEFIED.

1. You will find that the case you instance is referred to several times. Certainly you have no copyright in the photograph. You have been paid your price, and the copyright belongs to the person who gives you the order. 2. Penrose and Co., 109, Farringdon Road, E.C.

BROMIDE PAPER.—1. Is there any value in the residue obtained from the burnt ash of bromide paper after it has been developed and fixed? 2. Should you say that a hypo-alum bromide toning bath would suffer in any way from being continually worked in a galvanised iron dish or tank? I wish to know if it would act on the iron in any way prejudicial to the toning of the prints. 3. Could you tell me if there is published, and if so where I could get a treatise dealing with the hypo-alum method of toning bromides. 4. I enclose you a postcard which has become stained. What theory would you put forward as a probable cause of this bleaching or staining? The card was a contact, printed, developed, fixed, and washed in the usual way. It was then glazed, and when dry came off the glass as you now see it.—ARGENTYPE.

1. Very little. Write to one or other of the refiners whose advertisements you will see in our columns. 2. The bath is liable to become acid, and would then dissolve iron. We should prefer not to use an iron tank. Zinc would be free from objection. 3. "Toning Bromides," by C. W. Somerville, or "Toning Bromide Prints," by Blake-Smith, 1s. each. 4. The stain looks as though the print had been forced in development, otherwise we are at a loss to account for it.

GEO. WOOD.—The best book for your purpose is Abney's "Instruction in Photography," or, if you read German, Eder's "Photographie mit Bromsilber Gelatine."

"VECTIS" and others.—In our next.

FLASHLIGHT.—I understand there is a method of firing off flash powder from portable electric arrangement. Can you advise me how this is done, or where such can be obtained? I should like to apply it to my present lamp, and in other ways, outside as well as indoors.—F. E. G.

You will require a storage battery. To this attach two insulated wires of sufficient length to reach the lamp. Between the ends, attach a piece of fine platinum wire so that the current has to pass through it. The length of this wire should be about a quarter of an inch long between the terminals, which are laid in the flash powder. Then when the current is switched on the platinum wire is rendered incandescent and fires the powder.

SILVER RESIDUES.—I have collected a large amount of waste P.O.P., and also the hypo in which hundreds of roll films have been fixed. Would you kindly inform me, through your paper, how I could dispose of this to good advantage, and also how best to reduce it to a metallic state, if necessary?—SILVER.

Burn the paper to a fine ash, and precipitate the silver of the fixing solutions with sulphide of potassium (liver of sulphur). Dry and mix with the ash, and then send to a refiner. If there is a large quantity of each it is advisable to keep them separate. Unless you have a good quantity of the residues to deal with, they are barely worth the trouble of saving. Have you read the article on the subject on p. 703 of our issue of September 8 last?

INK PRINTING PROCESS.—1. I am anxious to make my own printer's ink for above process. Would you kindly oblige by giving me a formula for same? 2. Do you consider the process a permanent one?—D. LAIDLAW MURDOCH.

We think you would do much better to buy the ink than attempt to make it yourself in small quantities. However, here is a formula, which we cull from Cooley's Encyclopædia: Indigo and Russian blue, each 2½ oz.; mineral lamp black, 4 lb.; vegetable black, 3½ lb. Stir gradually into the warm varnish. The varnish is made as follows: 10 to 20 gallons of linseed oil is boiled and then set fire to, and let to burn for half an hour or so, when the flame is put out by putting a cover on the vessel. This is a dangerous operation, and should be conducted out of doors for fear of accidents. Of course, you can reduce the quantities to suit your requirements. 2. Yes, certainly.

H. H. (Glasgow).—The formula is that given in the original paper.

PACKING Prints.—In reference to our paragraph last week, Messrs L. Canesi and Co., makers of postal wrappers, write us:—"We agree with you in what you explained, with the exception that the use of sealing-wax for parcelling photographs is out of the question, and the use of corrugated cardboard, which appears safe, is not so suitable as a solid cover. A properly made postal wrapper does not require all those unnecessary materials, which only increase the weight, price, and labour, and they will not enhance the contents on account of having a clumsy and patchy appearance." Messrs. Canesi send us a number of postal wrappers of their manufacture which we have found to resist rough usage to a remarkable degree.

A CORRECTION.—On p. 935 of the "Almanac" for 1906 an error occurs in the description of a reflex camera, which should be entitled the "Royal," and credited to Messrs. A. E. Staley and Co. 19, Thavies Inn, London, E.C.

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EX CATHEDRA.

Sensitising Carbon Tissue. As will be seen from our Patent News column, a patent has been taken out in this country by a German firm for improvements in sensitising carbon tissue. The improvements consist in mixing with the aqueous solution of the bichromate salt a certain proportion of a volatile liquid (acetone being specially mentioned), which evaporates quickly, so that the tissue dries rapidly, and thus the insolubility, which a very prolonged drying brings about, is avoided. The solution is to be swabbed over the tissue with a pledget of cotton wool, a method which was by no means unusual in the early days of the process. It was common to sensitise the tissue on its surface only, by floating it on the bichromate solution, as albumen paper was sensitised on the silver bath: or it was sometimes sensitised by applying the solution with a flat camel-hair brush. It was claimed, at the time, for this method of sensitising the surface only that, for certain purposes, it was preferable to entirely immersing the tissue in the solution. Although this method was said to possess some advantages, it was never largely followed, possibly by reason that it was more trouble than the total immersion of the tissue, and that there was the chance of obtaining an unequal sensitising of the pigmented coating. With the second part of the invention one may ask where is the novelty in the addition of a volatile liquid to the sensitising solution? It has long been the custom in England—when it is desired to dry the tissue quickly—to replace part of the water in the solution of bichromate with a volatile liquid—alcohol (methylated spirit) being the one employed. Another method of quick drying of the sensitised tissue is to immerse it in methylated spirit to abstract much of the water; it will then dry very rapidly, and a gentle heat may even be employed to accelerate the drying without fear of the pigmented gelatine coating running off the paper.

Many, possibly, may not be aware of the large extent to which spirit may be made to take the place of water in compounding the bichromate solution if a considerable proportion of liquid ammonia be added to it. The ammonia, however, does no harm, as it all evaporates as the tissue dries, and leaves only the bichromate of potash behind. As the carbon process has hitherto not been so generally worked in Germany as it has been in this country, it is possible that the German patentees are not familiar with what is being and what has been done here.

Photo Buttons.

Everyone will remember the craze of about the time of the Boer War for photo-buttons, and the ready sale they had, especially those with portraits of the different generals then in the field. They were not, however, utilised as buttons for garments, but were provided with pins and used rather as brooches. These have now given way to miniatures, worn as pendants or as lockets by ladies who see fit to adorn themselves with cheap ornaments. We now learn, on the authority of an evening paper, that bonâ-fide picture-buttons are coming into vogue, and we have ourselves seen examples of the craze in the City shop windows. According to the "Evening News": "The latest foible—and tailors say it is very keen amongst the dressed-up-to-date—is to have portraits of women by Gainsborough and other famous artists reproduced in miniature on the buttons of fancy vests." If on vest buttons, one may ask, why not on the buttons of other garments—say coats, sleeve links, and such like things? Again, why should the pictures be confined to reproductions of paintings by portrait painters? Why should they not be portraits from life of present and of departed friends? Furthermore, why should the pictures be of the cheapest kind? they might be by the ceramic process fired into the enamel and thus be lasting. If this style of button becomes the fashion, as the contemporary from which we quote intimates is already the case, photographers may possibly find it to their advantage to make a speciality of miniature portraits to be used as real buttons for garments. But we would not recommend any photographer to take an exuberant view of the possibilities.

Condensed Moisture.

The formation of dew or condensed moisture on cold objects is of considerable inconvenience in many ways to photographers. Negatives being printed from out of doors are so cold when brought into the room again that both back and film are almost immediately covered with a thin film of moisture, which is a powerful factor in the production of silver stains if the negatives are unvarnished, and are being printed in albumen or P.O.P. The moisture itself detrimentally affects platinotype prints, causing a muddiness of the whites. Again, in cold weather, moisture is very likely

to condense on the inside of the glass roof of the studio, and to accumulate and trickle down the sash bars. With rather flat or low pitched roofs it will frequently drop to the floor, and unless the weather happens to be dry, may lead to the suspicion that the roof is leaky. Where the roof is well pitched it is easy to place a small zinc gutter at the bottom of the glazing to catch the condensation. In outdoor photography particular care must be taken to avoid condensation of moisture on the lens. It is not particularly liable to occur so long as the lens is kept in the cold atmosphere; but if the hand is placed against the lens a slight steaming on the cold thick glass may be noticed. We have known the cap, after being in the pocket or held in the hand, give off enough moisture to produce noticeable condensation on the lens. The principal danger, however, lies in carrying apparatus some distance in a cold atmosphere, and then taking it into a warm room for interior work or home portraiture. The safest plan is to place all the lenses from the bag in a warm place and leave them long enough to thoroughly warm through. With the modern cemented type of anastigmat the greater thickness of each element as compared with the R.R. type of lens necessitates a longer time in thoroughly warming. On no account should a lens be placed in a hot place, and the rule that there is danger if the hand cannot be comfortably held beside the lens is a good one to follow.

* * *

Bromide Prints from Varying Negatives.

In working bromide papers from negatives of varying quality, much better results will be obtained by changing the paper and the developer than by employing such methods as Mr. Sterry's bichromate bath for softening contrast. This device is admirable for exceptional cases, but is not sufficiently practical for the rush of commercial orders. The method of over-exposing and stopping development before it has reached the limit is sometimes recommended, but this, again, is open to the objection that the darkness of the print depends on the exercise of judgment in removing it from the developer. It is practically impossible to get a dozen prints even in depth if this course is adopted. The time of exposure to a uniform light can be repeated exactly, and, with complete development, the results must be alike in depth. Practical methods of altering the contrast of the print are the variation of paper, developer, and distance from printing light. A slow paper gives increased contrast, while a rapid paper breaks down contrast. Amidol tends to give greater contrast than rodinal. A strong negative printed near the light gives a softer result than if printed further away. In certain extreme cases it may be necessary to print on rough paper which appears to soften contrast, the roughnesses of the paper catching light and so breaking up heavy shadows. If rather too rough the prints may be rolled well. Prints which are strong in contrast may often be toned—assuming the client will approve the sepia colour—by the bleaching and sodium sulphide method, and when in the brown shade the contrast is not likely to appear so strong as if in black.

* * *

Cinematograph Subjects and their Piracy.

The injury suffered by the producers of cinematograph films who have gone to very considerable cost and trouble in their production and in their inception, a subject we alluded to in "Ex Cathedra" a fortnight ago, is fully confirmed in a letter from a film maker, published in our last issue. Our correspondent points out that not only are the films themselves pirated, but in many instances, after a film has

caught on the market, the story is copied incident for incident, other models and scenery being used, and thus the originator of the picture is robbed of the fruits of his invention. Assuming that the present Copyright Law, by a single registration of a film, covered the hundreds of pictures of which it is composed, it would not prevent anyone from producing similar films by employing other models and other scenery, for, in the words of the Act—"Nothing herein contained shall prejudice the right of any person to copy or use any work in which there shall be no copyright, or to represent any scene or object, notwithstanding that there shall be copyright in some representation of such scene or object." Where is the remedy for cinematograph film piracy? Magistrates have often remarked in the police courts that if there were no receivers there would be fewer thieves. If there were no purchasers of pirated films there would be no piracies. But we fear, as with pirated music, there will always be purchasers for what is to be had perhaps at a lower price; hence a remedy is hardly to be expected in that direction. It has been suggested that the reputable film producers should combine, as the music publishers have done, and take concerted action in the matter. The question then might be submitted to counsel versed in Copyright Law, and perhaps an action raised in the Law Courts as to whether the registration of a film in its entirety covered the copyright in all the pictures in it. If this were decided in favour of the authors of the works it would put an end to the piracy of the films themselves. If not, the authors would be in no worse position than they are at the present time, and the costs would not be great when contributed to by all the leading film producers, especially if counsel's opinion were against action being taken.

* * *

A Filmic Literary Work.

The point raised by our correspondent last week is, however, one of more pressing importance, as it undermines the foundations of the cinematograph film business. Yet we see no remedy for the evil in the Artistic Copyright Act, and the only suggestion we have heard put forward is such an extremely fanciful one that we think its applicability to the problem may almost be scouted offhand. It is the proposition that a film of the "incident" kind is practically a story—told not in words, but in pictures. If it's a story, why not grant it the protection accorded to literary works? The spectacle of the authorities at Stationers' Hall filing 500ft. of film as the "manuscript" of a literary work, alongside the hand or type scripts of Sir Conan Doyle, is one suggesting the extravagance of Gilbertian opera; and yet an evolutionist standing by would see in the action only a curious reversion to the oldest forms of recorded characters, the twentieth-century cinematographer bridging the gulfs of history which separate him from the ancient cave-dwellers and their picture writings. But we fear it would require all the casuistries of eminent counsel to convince a justice that such a course was right in law; and for the present we see no means of palliating the evil.

* * *

A Possible Remedy.

A more hopeful direction in which to turn for remedy is in copyright law as it affects dramatic works. We must confess to a very short acquaintance with this peculiarly intricate branch of Copyright, but we believe that a certain measure of protection is obtainable for a play in dumb-show, to which the exhibition of a cinematograph film of the "story" order very closely approximates. Protection of this kind would presumably be no preventative of production or sale; but if it could be enforced it would restrain exhibition which is good enough for any film

maker. However, any suggestions must be speculative, as no case has ever come into court to our knowledge, and it is obvious that the trade lacks a precedent on which to establish its rights. The Professional Photographers' Association, we learn, are meeting to consider the proposed Copyright Bill, to which we refer on another page, and we suggest that they will not be exceeding their duties if they take cognisance of the uncertainty also of the proposed Bill as regards cinematographic subjects.

Right to use a Customer's Negative.

In the issue for last week it was mentioned that a motion ex parte had been made for an injunction to restrain Messrs. Lafayette, of Bond Street, from reproducing the portrait of one of their customers, taken in the ordinary course of business. The case came on for hearing in the Chancery Court, before Mr. Justice Buckley, on Friday last. It appears that a lady, Mrs. Lee, sat for her portrait in two positions. Some time afterwards, one of the portraits was published in "The King." The husband of the lady complained to the defendants, who expressed regret, and promised that there should be no repetition of the occurrence. Subsequently, however, reproductions of the other portrait appeared in "Black and White" and in "Madame," and hence the action. The counsel for the defendants expressed regret for the mistake which had resulted in the portrait appearing in the last-named papers. He said that they thought that when they saw the plaintiff's portrait in the "King" that permission had been given to them, and therefore sent copies to the other papers. When a protest was made, he said the defendants did their best to recall; at the same time, he added, that 99 per cent. of sitters usually gave permission for publication. Counsel further said the defendants were now willing to pay the costs of the motion for an injunction, and to submit to an injunction. The counsel for the plaintiff asked for an injunction, for delivery up of the negatives, and costs. On this the defendants' counsel said that the negatives were their property. To this the other side replied that the defendants owned only the glass; what was on it belonged to the plaintiff—a statement which evoked some laughter in court. Finally, the defendants undertook to deliver up the negatives. In the course of the case Mr. Justice Buckley made some strong remarks on the publication of portraits. In delivering judgment, he said he was sorry to hear the arguments put forward, that this age was so vulgar that they were entitled to assume that this lady was a party to this vulgarity, and willing to have her photograph published. The defendants were not entitled to do anything of the sort, and therefore an order for an injunction was made, and the defendants ordered to pay the costs.

Ownership of Negatives.

The delivery up of the negatives which arose in the above case was resisted by the defendants, on the ground that they were their property. Ultimately, however, probably with the view to making some amends for the annoyance caused to the sitter, they agreed to give them up, so that the Court was not called upon to give a decision on that point. In the case of infringement of copyright, all negatives, plates, blocks, etc., become forfeited, but there has, up to the present, not been any decision with regard to the forfeiture of negatives when they have been misused. Hence the matter rests as it always has done—namely, that the negative is the property of the photographer, but he has no right to use it for any purpose of his own without the consent of the sitter. If he does, he lays himself open to an action at law and to being mulcted in costs, as in the above case.

BUSINESS WASTE.

As the close of the year draws near photographers will be turning their thoughts to the annual balance-sheet. It is good to occasionally know just how one stands, to be able to see definitely whether business is increasing or declining, and to take steps to ensure a continuance in the one case, or to arrest matters in the other. The question of falling business is a very difficult and vital one to many men, and to more there comes the almost as important question of dwindling profits. How many a man has felt that times now are not so good as the times past; probably the balance in their favour is often more imaginary than real, but, however that may be, the present is the time that causes anxiety. There are, of course, many causes for business stringency, but, without going into the whole wide question, we may safely say that one of the commonest is needless waste. We recall as we write a glaring instance of a good business gone wrong. The proprietor was a man who had just the requisite touch of art instinct needful to give individuality to his work, and he was one of those lucky ones who seem to strike success at the first venture. But he would never make or keep an appointment. Customers took their chance whether they could find him in, or whether they would be told that the light was not good. He had a malicious ingenuity in convincing people that they were not satisfied with their proofs, and granting a re-sitting. As this re-sitting was usually arranged by the formula, "Oh, come round some time," there were many that never took place. With such a business there was naturally a careless leakage in every direction, and many people were sorry, but none surprised, when they heard that a principal creditor had foreclosed, and the erstwhile proprietor was offered the position of manager—with a business head to control matters from the desk.

That was a case of waste all round, and the end came speedily, but there are many businesses where there is waste in a greater or lesser degree, and where it prevents the other—the successful—end from arriving in its due time. There is a happy medium between meanness on the one hand and extravagance on the other, and too often men seem unable to hit it. It is very probable that a photographer's wife knows how many loaves should be used in a week, and just how much her total housekeeping should cost; it is even possible that the photographer himself limits the cost of his tobacco. And yet when he gets into the studio he loses his grip of things. His plates come by the gross, and he has never considered that many of them individually cost the price of a loaf, or of half an ounce of his favourite mixture. "It's a good thing to be generous with proofs," and so eight plates are exposed where, with a little care, four would have been ample. Perhaps four of these are retouched where two would have sufficed; and, what with proofs sent out untuned, and the fourteen or fifteen prints made before a dozen are mounted—even if one or two mounts are not spoilt—there is an unnecessary expenditure of from 5 to 10 per cent. of the gross amount received on the transaction. An addition of 10 per cent. to one's income would be sufficient to make the year a satisfactory one, but the addition would be more than this, for the money wasted—10 per cent. of the gross amount—is much more than 10 per cent. pared from the net profits. In the dark-room it is the same; chemicals are wasted and go down the sink as though they were mustard. To leave generalising for a moment, we can recall actual businesses in which the bills for materials are from 15 to 35 per cent. more than they need be.

One very prolific cause of waste is injudicious buying. There are photographers who are over-persuaded, and buy

more than they need. Paper is put on their shelves and remains there until it is spoilt; packets of mounts collect dust, and boxes of plates get pushed behind the boxes of more recent arrival. Particularly is this the case where the control is in the hands of an irresponsible assistant. There are assistants who are so careful of their employers' interests as though they were their own; but there are also many who use materials as though their employers had bottomless purses.

Where there is a drain of this kind, how should it be stopped? Habit is often called second nature—sometimes it is nature at first hand—and it is not a thing easy to be altered. A man who is carelessly generous will not be able to check himself without an effort; the effort will be greater if the fault is simple carelessness without the generosity. A great step in the right direction is to find out exactly how much the leakage is. To do this a simple balance-sheet is necessary, and the first thing to be done is to make a list of everything in the place, including the

boxes of plates which have been opened and partly used, and those packets of paper which have spoilt. It is foolish to make the common mistake of putting them down as assets. It is known that the things are spoilt, and if you write them down as worth what they cost you, you are cheating yourself, and closing the gate to amendment; their original cost should be put down under the head of "loss by preventable waste." Under this head there may be many items, and each one should be hunted up. There may be an accessory discarded for some inadequate reason, or one obtained for no reason at all. If a list could be made of the exact number of plates used, and divided by the number of orders received for each size, the result would prove an eye-opener in many studios.

The question of preventable waste is a burning one in all businesses, and in few more so than in photography. If we have succeeded in directing the attention of any of our readers on what may be a weak spot in their own studio, our purpose is achieved.

DEPTH SIMPLIFIED.

WHILE most photographers devote some little time to the theoretical and mathematical study of depth, very few put the information gained to any practical use. When at work they generally ignore theory, and if they cannot test the effect of a certain stop by observing the image on the ground glass, they simply trust to luck, tempered with a little uncertain knowledge gained by experience.

This is not to be wondered at, considering the complexity of the subject as it is generally expounded, and the erroneous ideas concerning it that are so prevalent. A man who is wedded to the idea that depth is solely governed by focal length and aperture, will never be able to reconcile theory with practice, unless, by chance, he is the fortunate possessor of a lens that works very nearly in accord with theory; and even in that case he is not likely to worry himself with the usually elaborate rules for calculating depth that are to be found in sundry text-books, while experience will soon teach him that tables of depth are altogether inadequate for practical work. A depth-indicating device used in conjunction with the focussing scale will be of very much greater utility than any tables, if properly adjusted to the lens in use, but even this useful device has, in common with the tables, the disadvantage of being adjusted to one particular standard of definition, which standard is in many cases not the one that the user of the lens cares to adopt, or should adopt. It is highly desirable to employ an elastic standard that can be varied according to the subject and the lens used, but unless we have a simple way of calculating depth, and are therefore independent of ready-made tables or other aids, it is difficult to allow for varying standards. The following method of calculation is, perhaps, the simplest that can be devised, and if any reader will take the trouble to master it, he will find that the estimation of depth available with a given lens, stop, and circle of confusion, is, if anything, rather a simpler matter than the calculation and adjustment of conjugate distances when copying on a given scale.

Calculating Depth.

In order to be able to calculate depth without the aid of any tables or other devices, it is not necessary to remember more than one simple dimension (which may be called the "depth constant" of the lens) and the proper manner of utilising that dimension.

Before describing this simple method of estimating depth, we must for a moment consider the tables and what they include. Two are to be found in the "Almanac," one by Sir D. Salomon and the other by Dr. J. J. Higgins. These two tables only differ

by the inclusion of different series of focal lengths and stops.* Both are calculated for a circle of confusion of 1-100 of an inch, and both give what is called the hyperfocal distance for each stop. This hyperfocal distance is the distance of the nearest object in approximate focus when we focus sharply on an infinite distance; and it also is the distance on which we should focus to obtain a maximum amount of depth, extending from half hyperfocal distance right up to infinity. As these facts are not quite clear in the tables themselves, an example may be given. Nineteen feet is given as the distance for a 5 in. lens with F.11. This means that if we focus on infinity all objects beyond 19 ft. are in focus. Also that if we focus on 19 ft., all objects beyond 9½ ft. are in focus; and that the distance from 9½ ft. up to infinity is then the maximum amount of depth attainable with a 5 in. lens working at F.11. The tables do not in any way indicate the depth available when focussing on objects nearer than the hyperfocal distance; neither do they explain that depth with such near objects can be readily calculated with the aid of the hyperfocal distances.

A glance at the tables will show that the hyperfocal distance for any stop is always exactly proportional to the diameter of the aperture, so that if the aperture is, say, halved, the distance is also halved. Therefore, if we know the distance for F.1, we can find it for any stop by the simple process of dividing it by the ratio number of the stop. For example, the hyperfocal distance for a 5 in. lens at F.1 being 208 ft., it is therefore 208/8, or 26 ft., at F.8. For F.11 it is 208/11 ft., or 19 ft.; and so on. Hence, if we simply remember the distance of 208 ft. in connection with the 5 in. lens, we can, by a moment's calculation, arrive at the hyperfocal distance for any stop, and, therefore, at all the information that the table contains.

We can mark the 208 ft. on the lens itself, or, failing that precaution, we can quickly ascertain the distance if it is forgotten, for it is equal to 100 times the square of the focal length of the lens when the circle of confusion is 1-100 of an inch; or, in other words, it is equal to the square of the focal length divided by the diameter of the circle of confusion.

Thus we have only to remember this depth constant (or the way of arriving at it), and the method of using it, to be quite independent of all ready-printed depth tables. We can construct a table in two or three minutes that will contain just the information required, using any circle of confusion we please.

To find the depth available with any stop when focussing on

* The 1906 "Almanac" contains one table only, including all the information given in the other two.

a near distance of a definite number of feet, we need only to remember the following simple rule. Knowing the hyperfocal distance for the stop in use, and the distance of the object in sharp focus, if we divide the product of these two distances by their sum, we arrive at the distance of the nearest object in focus; while if we divide their product by their difference, we get the distance of the farthest object in approximate focus.

As an example, let us consider the following problem:—Suppose we are focussing with a 6 in. lens at F.6 on an object 10 ft. away. What are the respective distances of the nearest and farthest object in focus? Taking 1-100 in. as the circle of confusion.

The depth constant for the lens is equal to $6^2 \div 1/100 = 300$ ft. The hyperfocal distance for F.6 is therefore $300/6$, or 50 ft.

When focussing on 10 ft. the limit of near depth must then be

$\frac{50 \times 10}{50 + 10}$ } or 8 1-3 ft., and the limit of far depth must be $\frac{50 \times 10}{50 - 10}$ } or 12½ ft.

This is a simple example that comes out in round numbers, but, as in practice, we, in any case, round off all numbers, problems such as this are always simple. At no time is there any advantage in being exact to an inch, for the best of lenses will give errors amounting to several inches.

Variations in Depth.

This brings us to the consideration of the varying behaviour of different lenses as regards depth. All methods of calculating depth have one fault in common. The calculations assume conditions that are not, and cannot be, fulfilled by any other than a theoretically perfect lens of an unattainable type. Hence no lens behaves exactly as the formulæ would appear to indicate, while the performance of any particular lens depends on its degree of imperfection, and in some measure on certain details of its construction. These discrepancies cannot well be allowed for, except by the adoption of a special indicating device adjusted to the peculiarities of the lens, and if this is not available little can be done beyond calculating the theoretical depth, and making a certain amount of allowance for probable errors. The first allowance we have to make is for the varying defining power of different lenses. The depth theoretically available may differ most materially from the depth apparently given by the lens, because in the one case we judge by a fixed circle of confusion, and in the other by an elastic standard which varies with the defining power of the lens. Our ideas of "focus" are very critical if the definition anywhere is very acute, but they are lenient if there is no very acute definition to set a high standard. We can, however, bring theory and practice into better accord by the simple expedient of allowing for a very small circle of confusion, say, 1-250 of an inch, with a lens of great defining power, and a larger circle, say, 1-100 of an inch, with a lens of inferior quality that will not give very critical definition in any circumstances. It is also necessary to consider the subject, for if there is no fine detail to show up the defining power of the lens, we may use a larger circle of confusion than would otherwise be admissible. If we are familiar with the lens, and give careful consideration to the subject, it may be quite possible to select a circle of confusion that will give calculated results agreeing more or less closely with the apparent depth obtained with the lens. The smallest circle usually necessary will be about 1-250 of an inch, and the largest advisable about 1-100.

There is yet another allowance we can make. If a lens has a trace of positive spherical aberration, the distances that fix the limits of depth are generally shortened, while with negative aberration they are lengthened. As aberration cannot well be entirely eliminated, such effects nearly always exist, and sometimes the magnitude of the effects is very great. You may focus one lens on a calculated hyperfocal distance, and find that in

accord with theory very distant objects are fairly sharp; you may try the same thing with another lens, and discover that the far objects are so much out of focus as to be unrecognisable. If such a fact is known, you can allow for it by making a deduction from your calculated distance, of a far depth, or by adding to the calculated hyperfocal distance. You must, however, be very familiar with the lens to make such allowances with any degree of accuracy, and the safest course is to use a much smaller circle of confusion in your calculations, and look upon the results as simply representing the margins beyond which it is not safe to expect good focus. The limits of depth thus ascertain are almost certainly wrong in point of fact, and will not allow you to take the utmost advantage of the depth actually available; but they are safe limits, and there is some advantage in that fact.

Useful Facts and Rules concerning Depth.

When we focus on infinity the nearest object in focus is at the hyperfocal distance, and depth extends from that distance up to infinity.

The hyperfocal distance is always equal to the focal length multiplied by the diameter of the aperture, and divided by that of the circle of confusion.

When we focus on the hyperfocal distance the nearest object in focus is at half the hyperfocal distance, and the farthest at infinity, so that depth extends from half the hyperfocal distance up to infinity.

When we focus on half the hyperfocal distance, the nearest object in focus is at one-third the hyperfocal distance, and the farthest at the hyperfocal distance, so that if we represent the hyperfocal distance by H., depth extends from H/3 up to H. when focussing on H/2.

Similarly, if we focus on H/3, depth extends from H/4, up to H/2; or if we focus on H/4 it extends from H/5 up to H/3.

Generally, if we focus on a distance equal to H/n., depth extends from H/(n+1) up to H/(n-1). Therefore a series of distances equal to infinity, H., H/2, H/3, H/4, H/5, etc., is a series of distances of consecutive depths, such as when we focus on any one, then depth is limited by the two adjoining distances. This is the fundamental principle upon which all depth indicating devices, such as the Cornex index, are devised. The rule for finding a series of consecutive depths is also very often of use in ordinary work, as it frequently happens that the distance on which we focus is as nearly as possible some definite fraction of the hyperfocal distance.

If we focus on any distance equal to U, then, if H. is the hyperfocal distance for the stop in use, depth extends from H.U. (H + U.) to H.U. (H - U.).

If a lens gives a small quantity of positive spherical aberration, the distances limiting depth tend to be nearer the lens than the calculations indicate; but if the aberration be negative, the actual distances tend to be greater than the calculated distances. This is, however, not a universal rule.

Depth is unaffected by aperture so long as the caustic surface bounding a spherically aberrated light pencil intersects the plate. In such a case depth does not increase as the aperture is reduced, until the latter is reduced sufficiently to throw the caustic surface behind or in front of the plate, and when that condition is fulfilled the effect of further reducing the aperture is very much less than the ordinary depth formulæ would indicate. As the caustics must intersect the plate in some portions of the image when spherical aberration exists, and as traces of this aberration commonly do exist when very large apertures are in use, the conditions that render depth independent of aperture frequently secure and cause the appearance of great differences between the calculated and observed effects.

Various causes of variations in depth were more fully discussed in THE BRITISH JOURNAL OF PHOTOGRAPHY for August 21 and 28, 1903, and reference may be made to those articles for fuller information.

C. WELBORNE PIPER.

THE WEEK IN HISTORY.

(CONCLUSION.)

The Real Birthday of the Royal Photographic Society.

TO-DAY, December 22, should be a kind of day of celebration in the calendar of 66, Russell-square, for it was an event on this date fifty-three years ago which led to the formation of the society a few months later in 1853. On December 22, 1852, at the Society of Arts, a paper was read by Mr. Roger Fenton on "The Present Position and Future Prospects of the Art of Photography." It inaugurated an exhibition of recent specimens of photography which remained open to public inspection for a week, and was very extensively reviewed and criticised in the Press. I believe that this was the first record of a public photographic exhibition in Great Britain, though I am open to correction on the point, and, indeed, imagine that during the twelve years following the announcement of Talbot and Daguerre's experiments some public exhibition very likely took place, but I have no knowledge or recollection of its occurrence. However, this exhibition at the Society of Arts was comprehensive in its character and a good deal larger than many of the shows which are now held. It included 774 prints, Talbotypes or calotypes, waxed paper and albumenised, glass, and collodion. French, German, and British photographers contributed to it. One item, as recorded in the "Athenæum" report (1853, page 23), may be of historical interest. A book was exhibited by a certain Captain Ibbetson, prepared entirely by photography, and in it Captain Ibbetson alluded to the experiments of Professor Gerber, of Berne, who, it is said, had for many years been endeavouring in vain to find some mode of rendering permanent the pictures which it was known to chemists the sun was capable of producing. The inference seems to be that Gerber had obtained some sort of results (impermanent) before Talbot's work became known.

It is curious, too, to notice how fashion from the very first days has swung pendulum-like from end to end of her arc.

We have had our periods of cold and warm tones in prints, and here we find the reviewer in the "Athenæum" writing of certain prints:—"There is a peculiarity, however, in these productions which we think might be advantageously avoided. The colour is a beautiful light grey, and the tint is unusually smooth; but they have rather the appearance of lithographs, and are not to the eye so pleasing as the warm sepia tint seen in many excellent specimens around them."

Adieu.

With this week's "History" the writer of the series of notes which have appeared regularly during this year must conclude his tales of the old days. Their recapitulation has been a not unpleasant task, and "Historicus" has been gratified to learn that others—not many, perhaps, but a few—have shared with him his experiences in looking back on much that has long been forgotten. "Look for the future in the past" is the dictum in so many words of one eminent historian. Progress makes strange turns and windings in its course, and perhaps these weekly doses of history have opened the eyes of some readers to the many things in photography which have been discovered over and over again, and will, no doubt, continue to be invented and patented. Thus it is to be hoped that even those whose boast is of the present may have found that we of the old school had something to teach them. They on the eastern side of life's meridian may see fruits of progress which we have never hoped for, but an old writer, who has also worked and watched, may perhaps be allowed to say that they will never see again the old enthusiasm which fired photographers of forty or fifty years ago. The present writer has only gathered a few scattered threads and brought them together. Yet he hopes that should ever a history of photography be written in English his few chapters may aid the author in his task.

HISTORICUS.

A PROPOSED COPYRIGHT BILL.

[Proposals to amend the present law of copyright have been understood to have been in contemplation for some time past by the Artistic Copyright Society, a body composed chiefly of artists and including only one representative of photographic interests on its general committee. The draft of a Bill has now been drawn up, and is at present being discussed by persons interested. We shall refer in detail in an early issue to the provisions as they affect photographers, but we will now content ourselves with quoting the clauses which are specific alterations of the present copyright law.—Eds. B.J.P.]

THE copyright conferred by this Act shall endure for the following terms:—

(a) In the case of an original work of fine art, for the life of the author and until the expiration of thirty years after the end of the year in which he died.

(b) In the case of one work of fine art, made by one person from any work of fine art designed by another, of a cast from nature, and of a photograph, for a term commencing on the completion of such work, cast, or photograph, and continuing until the expiration of thirty years after the end of the year in which the same shall have been completed.

* * * * *

In case any work, the subject of copyright under this Act, shall be a portrait made on the request of any person for pecuniary consideration, the copyright in such portrait shall,

on payment of the consideration and in the absence of agreement in writing to the contrary, belong to such person. But this shall not extend to a work of sculpture intended for a place or a building of a public nature.

* * * * *

Except as in this Act provided, the right of first publication and the copyright in any work, the subject of this Act, shall remain in the author, whether such work be sold or disposed of by such author or not, unless the right to publish the work or the copyright therein be expressly assigned or disposed of in writing by him; or pass by operation, or devolution of law, or testamentary disposition.

* * * * *

In regard to the register of copyrights it is provided that the officer at Stationers' Hall shall make, and keep full indexes of all entries made under this Act, arranged alphabetically, so as to show (a) the title or description of the work; (b) the name of the author, and (c) the name of the proprietor, with reference to the place in the register where the full particulars of registration may be found.

* * * * *

Before delivery on sale, or for hire, or exhibition, of any copies of a work, the subject of copyright under this Act, the persons publishing such copies shall cause every such copy to be marked as follows:—

(a) In the case of a reproduction of an original work of fine

art, which has copyright under this Act, with the author's name and the words "author's copyright."

(b) In the case of the reproduction of any other work, with the name of the proprietor of the copyright and year of the completion of the work, together with a notification that the said work is copyright. And if he fails to do so, no action shall be sustainable nor any penalty be recoverable by the proprietor of the copyright in respect of any copies of such work made in good faith by other persons unless the proprietor shows that he took proper steps to secure the marking of all copies issued by him.

And any person who shall falsely mark or cause to be falsely marked any copy of a work requiring to be marked under the previous sub-section shall be guilty of an indictable misdemeanour and shall in addition be liable at the suit of any

party aggrieved to a penalty not exceeding ten pounds for every such offence.

* * * * *

An agent duly authorised in writing may do for an author or proprietor of copyright any act required or authorised by this Act to be done by him and every act so done shall be as effectual for all purposes of this Act as if done personally by such author or proprietor.

* * * * *

"Copy" shall include a reproduction of any other work of fine art or photograph by a sculpture or of a sculpture by any other work of fine art or photograph.

(c) A representation of any work by a living picture or by any other means whereby the design of the work is reproduced.

ORTHOCHROMATICS AND OTHER MATTERS.

[An abstract of an address to the members of the Croydon Camera Club on December 13.]

A most instructive and interesting address, mainly on some important points arising on orthochromatics, was delivered by Mr. C. E. Kenneth Mees on the 13th inst., Mr. A. J. Newton kindly and most materially assisting towards the subject matter of the evening.

The Blessed Word, "Practical."

Mr. Mees first had a tilt against the ubiquitous individual, who loses no opportunity of referring to practical and theoretical workers, with a decided and invariable expression of opinion in favour of the former. If a man, said Mr. Mees, takes a series of photographs of, say a landscape, of complex shades and colours on plates of approximately unknown speed, in a light which can only be gauged in the roughest manner, and subsequently develops the plates just as long as it pleases him, in a developer of uncertain composition, then the test so applied was called "practical," and the operator "a practical man." Such a test could not hope to show small differences—which might exist, have an important bearing, and yet pass unnoticed. On the other hand, a tester of plates, who worked under fixed and invariable conditions, including a standard light, exact exposure, and with measuring instruments of the utmost precision, which would infallibly detect minute differences, if they existed, was promptly labelled a "theorist," and the tests "mere laboratory experiments." He did not share this conclusion. He did not mean to suggest that all photographic investigations involved expensive and elaborate apparatus; as an instance, there was one piece of work in particular which anyone might profitably take up.

Suggested Experiments—Slow Plates for High-speed Photography.

In some of his earlier investigations he had found that for high-speed focal-plane work, necessitating under-exposure, it by no means followed that a plate of high H and D number necessarily gave a better rendering than one of lesser number. He suggested trial exposures might be made behind a transparency to a standard light, on plates of varying rapidities and development properties. The exposure, which should be the same for all, should be cut down to the lowest possible limit consistent with obtaining a printable negative on the best plate. He thought such an investigation might show that for extreme speed work a plate of medium rapidity would produce better all-round results than one of the ultra-fast brands. This might be partly due to the slower plate standing more prolonged forcing in development. Should any of his fellow-members present be willing to undertake such a series of experiments, he would be pleased to discuss the necessary precautions to be taken.

The New Orthochromatism.

The lecturer then passed on to a consideration of the properties of light, and its carrying media the "ether," and the analogy between

light and sound. Diffraction phenomena were also dealt with and explained. Finally, turning to the main subject of the evening, Mr. Mees said that orthochromatics had, no doubt, advanced considerably of late. The earliest sensitisers, such as eosine and erythrosine, sensitised comparatively feebly, and not at all into the red. Cyanine had increased sensitiveness to red, but lowered the quality of the plate, being not alone in this respect. The introduction by Dr. Miethe of the iso-cyanines was as much an advance on their prototypes as the earlier orthochromatic plates were on ordinary plates. In the iso-cyanine group, pinachrom, pinaverdol, and lastly, but by no means least, pinacyanol, should be mentioned. Pinacyanol gave an enormous extension into the red. Using a bathed pinacyanol plate in conjunction with an adjusted light-filter, or screen, a practically perfect rendering of the spectrum, right into the red, was obtainable. The speed of such a plate with the light-filter in position might correspond to a plate of 80 H and D without a screen. He need hardly point out the advance this represented, particularly in facilitating three-colour work.

The Properties of Commercial and Uncommercial Plates.

Hitherto no commercial panchromatic plates were really sensitive to the red, when behind the red screen in the tri-colour photography they relied mainly on some of the green and yellow, which the commercial screens invariably transmitted. The ratio of sensitiveness of such plates to red and blue might be roughly taken as 1,000 to 1. Even with the latest sensitisers a bathed plate was superior in the proportion of 5:1 to a plate in which the dye was added to the emulsion in course of manufacture.

Tests of Orthochromatic Plates.

When examining a plate for its colour-sensitiveness, the only test of real utility was to photograph the spectrum: a diffraction grating, which gave a normal spectrum in proportion to wave length, being preferred by the speaker. The over-lap which occurred could be neutralised by suitable screens. It was of the utmost importance that the source of light should closely approximate to daylight in composition if the measurements were to be of any use to the practical worker. Such an apparently white light as acetylene in comparison with daylight emitted ten times more yellow than blue, and if used for the purpose the plate might appear ten times more sensitive to the yellow than was actually the case. It followed from this that the majority of curves given in the text-books were, to say the least, misleading. He had overcome the difficulty by employing an acetylene light with a light-blue filter in front. Provided complete correction into the red was not required—as when testing ordinary ortho' plates—a dyed film met the case sufficiently well, but

for absolute accuracy, liquid filters had to be used. With these he had obtained complete correction from B to 3,700. He also measured the total colour sensitiveness of a plate by means of Dr. Eder's blue and yellow screens, and in the case of panchromatic plates measured a three-colour ratio through screens cutting at 6,000 and at 5,000.

A Demonstration of Colour-Sensitiveness.

Mr. A. J. Newton, by means of the lantern and interposed grating, then showed a series of tests of colour-sensitiveness of undyed wet-collodion, process, ordinary, and rapid plates, and the earlier and later English and American orthochromatic plates, also bathed gelatine, and dyed collodion plates. Nothing would have been more conclusive as to the relative value of the various plates and brands, thus brought under critical analysis, and the great advances recently made towards the perfection of orthochromatism. The ingenious

method adopted by Mr. Newton, in conjunction with Mr. A. J. Bull, for the projection of the tests, consisted, in the first place, in photographing the spectrum, the plates being exposed in proportion to their varying ascertained speeds. Transparencies from the resulting negatives were then made. These, when placed in the lantern, and in line with the grating, let through, so to speak, the exact colours the negatives originally saw and retained.

To fulfil the last condition absolutely, Mr. Newton said, the light used for taking the spectrum would have to be screened, but for judging the relative sensitiveness this was not necessary. In answer to a question, he also said that a reduced sensitiveness to blue did not necessarily indicate a corresponding general loss of speed. In some cases the dye might in effect form a screen or light-filter, and reduce sensitiveness, or something might be added to the dye with the same end in view.

FOREIGN NOTES AND NEWS.

Fine-Grained Emulsions.

M. GUILLEMINOT, in speaking before the International Union of French Societies of some emulsions with very fine grain which can now be obtained commercially, ascribes to them some properties which signalise them among the ordinary makes. With these plates it is possible to obtain clear and sharp images of objects of one-thousandth of an inch in length, about 1-250th of an inch being the limit with ordinary grained plates. The new plates also require much longer exposure to produce reversal, the actual increase being six times—that is, 150,000 times normal exposure. The gradation is also much better, and when orthochromatised the rendering of colours is much improved, and the results are such as have only been hitherto attainable with collodion emulsions.

An Improvement in Printing-out Papers.

In the current number of the "Photographisches Wochenblatt" there appears a communication from MM. A. and L. Lumière in regard to a manufacture of theirs which, whilst protected by patent, is of sufficient importance to warrant its being recorded. It is pointed out that the vehicle for the silver salts, whether collodion, albumen, caseine, or gelatine, and even the cellulose of the paper itself, will in a short time reduce the soluble silver salts, such as the citrate, lactate, nitrate, etc. This reduction is favoured by heat and damp, and even the most careful method of packing will not prevent it. The presence of these free silver salts requires an absolutely pure paper—one especially free from metallic particles—and, notwithstanding the great advances in the manufacture of the raw papers, this trouble cannot be entirely obviated. Silver stains on negatives and brown stains on the prints due to the accidental contact of hypo, and the comparative insensitiveness and want of correct gradation are also due to the free silver. The authors have endeavoured to find some substances which would hasten the reduction of silver chloride, and they find that whilst the animes do so to some slight extent, the phenols are much more active, and especially the di- and tri-phenols. It is, of course, well known that certain metallic salts have the same effect, such as the proto-salts of manganese, the nitrates and the arsenites. All these reducing substances can be used in emulsions in which the by-products of the formation of silver chloride are present, or in washed emulsions which only contain pure silver chloride; also in emulsions in which the vehicle is either gelatine, collodion, caseine, albumen, or other colloid. The most useful of all these substances appears to be resorcin, and a special paper has been patented in which there is no free or soluble silver salt which is obviously free from all the defects enumerated at the commencement of this note,

and which is far more sensitive than the ordinary P.O.P., and can be treated with any of the usual baths.

The Improvement of Defective Negatives.

Dr. Hauberisser suggests in "Photographische Korrespondenz" the following method for improving negatives which have been too much reduced in an ammonium persulphate bath. After thorough washing the negative is treated with a physical developer, such as the following, first suggested by Wellington:—

Ammonium sulphocyanide	120 grains.
Silver nitrate.....	20 grains.
Sodium sulphite	120 grains.
Hypo	25 grains
Potassium bromide	3 grains.
Distilled water	1 ounce.

One part of this solution should be diluted with 9 parts of water, and then 2 parts of rodinal or concentrated edinol developer added, and the plate flooded with the mixture, in daylight, and left until sufficiently dense. One may be possibly permitted to point out that as this physical redevelopment takes some three to four hours, it would be more reasonable to exercise a little greater care whilst the ammonium persulphate is in use, and arrest its action with a sodium sulphite bath.

Marginal Fog.

This defect is not often encountered at the present time, but it is occasionally met with in stale plates. It has been chiefly ascribed to unequal drying of the plates after coating or to the insufficient washing of the emulsion. Dr. Homolka, in the "Korrespondenz," details the results of his experiments extending over two years, and whilst possibly they are of more interest to the emulsion maker than the user of plates, they are of sufficient importance to be recorded. An emulsion prepared according to the ammonio-nitrate method with 3 per cent. of iodide was used throughout. When carefully washed with distilled water, so as to free it from all soluble haloids, plates coated with the same showed, after six weeks, strong marginal fog and distinct general fog. If to the perfectly-washed emulsion 0.02 per cent. of potassium bromide was added before coating, the plates showed in about three months strong marginal fog, but otherwise worked absolutely clean for two years. If plates, coated with the thoroughly washed emulsion and dried, were bathed in a 0.01 per cent. solution of potassium bromide, and again dried, they showed, after two years, neither marginal nor general fog. There is nothing new in the observation that a bromide keeps a plate free from fog, but the difference of action of bathing in bromide or addition of bromide to the emulsion is worth noting. These results were con-

firmed by the use of sodium nitrite. It is a well-known fact that a plate bathed for 2-3 minutes in a 1 to 2 per cent. solution of nitrite rapidly darkens on exposure to light (B.J., 1887, p. 423). Homolka finds that if a plate be bathed with nitrite it darkens equally all over, but that if to the thoroughly washed emulsion 0.02 per cent. of nitrite be added, and the plate then coated and dried and exposed to light, it will darken with the exception of a margin of about 10 mm. width. From this he concludes that the margins contain no nitrate, and that as the edges dry first, there is a diffusion of the soluble nitrite from the drying edges towards the centre, which is still moist and gelatinous. His explanation of the non-appearance of this diffusion, when the coated plate is bathed in nitrite, is that the emulsion takes up so little water, that it never becomes gelatinous, that is, it is merely gelatine *plus* water, and not an actual jelly. This experiment is confirmed by bathing a coated plate in a 0.01 per cent. solution of bromide, exposing to light, and then developing: it will blacken all over without showing marginal fog, but if the bromide be added to the emulsion, and the latter then coated, dried and exposed, strong marginal fog is seen, and it develops before the centre, where, according to Homolka's theory, there should be more soluble bromide. Although these experiments were carried out with an ammoniacal emulsion, precisely the same results were obtained with an acid boiled emulsion, though plates prepared with the latter were less prone to marginal fog. As, however, the latter plates were less than half the speed of the ammonia plates, some allowance must be made for this difference.

ILFORD, LIMITED.

A YEAR OF RECORD SALES AND INCREASED DISCOUNTS.

The ninth ordinary general meeting of the shareholders of Ilford, Limited, was held on December 12, at Winchester House, Old Broad Street, E.C., Mr. James Kemp-Welch (chairman of the company) presiding.

The Secretary (Mr. J. D. Robertson) read the notice convening the meeting and the auditors' report.

The Chairman said: In rising to move the adoption of the report and balance-sheet I may at once say that, though the directors much regret having to propose a smaller dividend on the ordinary shares of the company than was paid last year, they do not feel in the least discouraged, and have the greatest confidence that the report will meet with the approval and support of the shareholders. (Hear, hear.) As stated, the sales during the year just ended, notwithstanding the keenest competition, have been the largest ever effected since the company was formed, and tend to show that our position in the leading ranks of the photographic trade is as firmly established as ever, and that it is not unreasonable to expect a steady improvement in the future. With regard to the increase in discounts, which was dealt with at the last meeting, the keen competition and cutting have compelled the directors in some instances to still further increase the high rates already fixed upon, in order to enable them to compete on equal terms with other manufacturers. Now the success of an enterprise such as ours depends on the following considerations: The cost of production, the volume of sales, the ratio between the cost and the prices obtained, and the cost of administration. The cost of production during the past year has been higher than usual, owing to an increase in the price of two important materials—silver and glass; the latter due to a strike among the Belgian operatives, followed by an advance in British manufactured goods. The strike is now at an end, and we may expect easier rates in the near future; but, while the cost of production has increased, the net return of the sales has been diminished by the higher scale of discounts ruling throughout the year. Notwithstanding these adverse circumstances, the net result of our trading for the year is an increase in the profit

of £1,076 as compared with 1904. Had the average discounts been the same in 1905 as in 1904, this amount would have been very considerably increased. Last year, as you may remember, higher discounts were in force for the last seven and a half months only. Should the increase in our sales continue at the same rate, there is no reason to doubt that the improvement in the profit, which has already begun to show itself, will be more marked. The prosperity of a business like ours must ultimately depend on the confidence of the public in the high quality of our productions, and our utmost efforts must be directed to keep the confidence which, I am happy to think, we now possess, thanks to the untiring efforts of our managing director and staff. (Applause.) To obtain the best result from their efforts, no expense should be spared to keep our factories and machinery in the highest state of efficiency, and, with this end in view, we have not hesitated to make additions to our plant, which accounts for the greater part of the increase appearing in the accounts under the head of freehold land, building, and plant. We believe that these additions will eventually result in considerable economy. The Warley factory has been in use throughout the year, and has in all respects justified the expectations expressed by the managing director in 1903. Had it not been for the facilities afforded by the new factory, it would have been impossible for us to have coped with the large increase of trade to which I have alluded. We are now in a position to deal efficiently with the business we possess and to welcome, without any fear of being hampered for room any further increase which the future may bring us.

The cottages at Warley, to which reference was made last year, are all occupied, and, besides providing comfortable dwellings for our men, yield a fair return on the capital expended in their erection, after allowing for repairs. Many of you, no doubt, visited our exhibition of prize photographs at the Modern Gallery, New Bond Street, in July. As you know, we offered prizes amounting to £750 for work done with Ilford plates, paper, etc. The result was we received from all parts of the world many beautiful and artistic photographs. This competition has already had a favourable effect on our trade, and the collection is being exhibited in other parts of the country. Turning to the accounts, on the right hand side, in accordance with the resolution passed at the last annual meeting, £5,000 was written off goodwill, leaving the amount £230,000, and our proposal is now to apply to the reduction of this item £4,000 out of the profits of last year. Freehold land and plant show a net increase of £5,855 5s. 6d., to which I have already referred. Depreciation written off amounts to £1,732 10s. 2d., or £337 more. I may remark that this depreciation is worked out on a fixed principle, without any reference to the profits of the year. Since 1896, when the company was formed, the sum of £17,283 has been written off under this head. Investments and cash, which should be taken together, show a decrease of £6,407 17s. 4d., accounted for by the increased expenditure on capital account. Sundry debtors are within a few pounds the same as last year. This reflects great credit on our commercial manager, considering the much larger business done. Stock, which is taken at prime cost, shows no material alteration. On the other side capital remains the same, and creditors are £2,238 less. In the profit and loss account the profit on trading account is £3,419 more. On the other side salaries, advertising, rates, etc., mark an increase of £2,397. The greater part of this is accounted for by advertising, in which I include the cost of the competition and exhibition. I should say that the trading expenses include the amount of rewards, which formerly, in the shape of bonus, was paid out of the profits of the year. Bad debts, for which £300 was provided, amount to £7 19s. 4d., and legal expenses show a reduction of £280 4s. 9d. Here I may remark that the action against Westendorp and Wehner for imitation of the company's labels—to which I referred last year—has, on appeal, been decided in our favour on all

points, and the damages and costs have been paid. (Applause.) I have now pleasure to announce that, with a view to strengthening the board, the directors have elected Lieutenant-Colonel Ivor Philipps, D.S.O., as a director of the company. I feel that this election will give general satisfaction, and I shall presently ask you to confirm it. In conclusion, I wish to acknowledge our indebtedness to the managing director and his staff. They are keenly alive to every production that makes its appearance in photography, never rest on their oars, but are always on the alert. May success attend their efforts. (Loud applause.)

SIDELIGHTS ON THE FREE PORTRAIT BUSINESS.

A CASE came before the Cambridge Police Court last week which is an interesting commentary on the methods of firms running the "free portrait" business. The prosecutor, who failed to appear, was stated to be Alfred Margand, trading as the Crown Art Co., a firm which our readers may recollect was the subject of some forcible comments from *Truth*, quoted in our issue of July 28 last.

At the Cambridge Borough Police Court James McBirnie, aged 23, described as an agent, of 1A, Hertset Road, Seven Sisters Road, London, was charged with embezzling the sum of 4s. 6d., received by him while in the employ of Alfred Margand.—At the outset of the case the prosecuting solicitor, Mr. A. J. Lyon, asked for a remand for a week on the ground that the prosecutor had not yet been informed of the arrest.—The allegation against the prisoner was that while acting as a traveller for the prosecutor he collected 4s. 6d. from a person named in the indictment and gave a receipt, but did not include the amount in the return he made to the prosecutor. The money, said Mr. Lyon, had not been accounted for, and there were two other cases for hearing.—Evidence as to the arrest having been given, Mr. Morton A. Jones (of Messrs. Crook, Milns, and Jones, Cheapside, London) was heard for the defence. After maintaining that there had been plenty of time to communicate with the prosecutor, Mr. Jones proceeded to make a statement, which, he said, he should be willing to give on oath. He had had a good deal to do with the prosecutor during the last four years. Prosecutor, who was a Polish Jew, was first brought to his knowledge in 1902, in connection with a prosecution of a man named Howard for embezzlement at Basingstoke. Howard, who was a traveller and collector, was arrested at Finchley under circumstances similar to those in this case, and was taken to Basingstoke. Prosecutor did not appear, and a remand was granted, the charge being eventually dismissed. Subsequently he (Mr. Jones), on behalf of Howard, issued a writ for libel against Margand, the latter having circulated leaflets stating that Howard had been dismissed for embezzlement. One hundred and fifty pounds damages were awarded to Howard, but not a penny of that had been received, Margand's wife claiming all the goods when an execution was levied. An interpleader case was begun, and referred to the Master of the Rolls. Coming to the present case, Mr. Jones said McBirnie left the prosecutor's service on November 26, about the time of the levying of the execution. He did so because he was unable to get his wages, and he wrote and told Margand that unless the wages were paid by a certain time information would be given to the opposition solicitor as to who was carrying on the business. Later on, McBirnie and a man of the name of Mitchell volunteered to give evidence in the case against Margand, but Mitchell, who seemed a vacillating sort of person, disappeared. Mr. Jones said his point was that Margand had an object in getting the accused out of the way. On the interpleader coming before the High Court Margand did not appear to support his wife's claim, but the accused, who wanted to get back to Scotland, had his evidence taken, and was cross-examined. The information in the embezzlement charge was laid after the prosecutor knew that McBirnie

was to give evidence.—Mr. Jones having repeated in the witness-box the substance of his statement, the Bench dismissed the case, with costs, it being pointed out to them that the question would be gone into on the further hearing of the interpleader.

Photo-Mechanical Notes.

Sensitive Solution for Line Printing.

BICHROMATED albumen is usually used for this, but eggs are sometimes difficult to get, and it is more or less troublesome to prepare their albumen for the solution. The albumen may, however, be entirely replaced by fish-glue, providing a sufficiently small quantity is taken. A good formula is:—

Ammonium bichromate	...	...	1 ounce.
Le Page's fish-glue	...	...	5 ounces.
Water	...	...	100 ounces.
Ammonia, .88	...	...	5 drops.

The treatment is exactly the same as for albumen solution. The exposure will be found to be at least as short, and the rolling-up with photo transfer ink and development will, if anything, be easier.

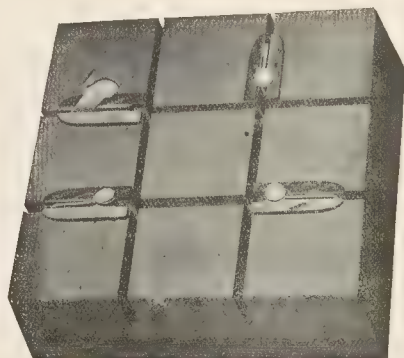
A. J. N.

Pure v. Impure Zinc.

In 1900 ("Phot. Korresp.," July), Herr Novak, of the famous Viennese School of Photography, examined some commercial zincs as to the suitability for etching and burning-in, and has continued his researches, which are now published as a separate reprint from the "Zeitschrift für Anorganische Chemie," with numerous tables and photomicrographs. The final conclusions which he comes to are as follows:—That a small addition of cadmium, up to 0.25 per cent., gives, after rolling and heating, a finer granular structure than zinc free from cadmium, that the hardness and coherence are increased, and liability of the zinc to fracture decreased. An increase in the proportion of cadmium above 0.5 per cent. has, however, the opposite effect. Variation in the amount of lead between 0.5 and 2 per cent. has no influence on its rate of solution in dilute acids, whilst the admixture of cadmium slightly shows the same.

A Photo-Engraver's Copyboard.

A new form of copyboard has been placed on the American market by The Hamilton Manufacturing Company. According to the description in the "Inland Printer," it takes the form of copyboards



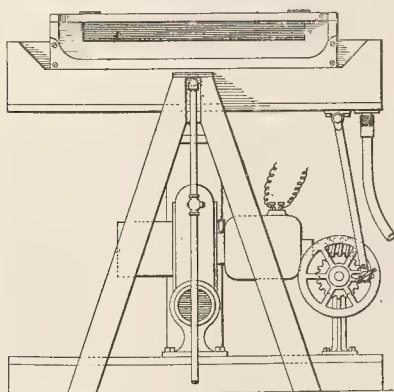
Section of Photo-Engravers' Copyboard.

arranged so that they will hold any size of copy, from a postage stamp to within one-half inch of full size of board. The company claims that groups can be arranged in any desired position and changed at will until the desired effect is secured, without mutilating

the picture or the board. No tacks, nails, or pins are required. The copy is held by means of springs clamping the edges. The springs are wedged into position by means of a lever or clutch. A stiff, warped copy is held perfectly flat in any desired position without more trouble or effort than is required with flat copy. It will hold any thickness of copy, from tissue paper to three-eighths-inch in thickness. Even a book can be held in place by clamping the covers and opening the page to be reproduced. The pages can be held down by means of strings, secured by springs, and run across the margin of the page. If desired, a plate glass can be laid over copy and supported by the springs, if the glass is not over three-eighths-inch in thickness. The grooves in the board are spaced two inches apart from centre to centre in both directions. In enlarging or reducing copy, the reflection of the grooves on the ground glass can be measured, and the desired proportion secured. For instance, if the operator desires to reduce copy one-half, the camera is adjusted until the grooves on the board measure one inch, and if an enlargement twice the size of the original is to be made, the camera is adjusted until the grooves on the board measure on the ground glass four inches. In this way any desired proportion, either larger or smaller than original, can be secured. There is a degree scale drawn in one corner of the board, with perpendicular, horizontal and quartering lines, which are marked by variations of ten degrees. This is an important feature and enables the operator to locate the centre, and he can break the pattern in reproducing the half-tone. This is an important feature also for three-colour work, as any operator will understand.

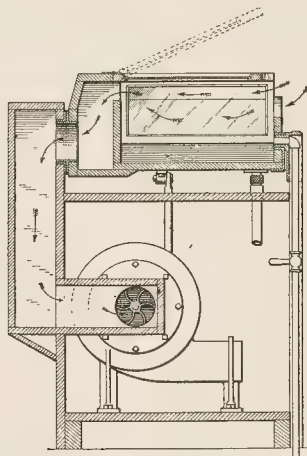
The Kroll Etching Machine.

Robert C. Kroll, St. Louis, is the inventor of a machine, the novel features of which will be seen from the following account by the inventor in the "Inland Printer":—"To begin with, my machine is built on the long-approved principle of an oscillating tub. It has a perfectly adjustable rocking device, enabling the operator to adjust the stroke of the tub to any depth desired; an exhaust to get rid of the acid fumes completely, and a system of perfect lighting of the plate during etching. From the front view of the machine you will notice that my tub has inclined splash-boards, thus blocking out



little or no light when the machine is placed in a position to receive its natural light from either side. Over the tub is a hood having glass windows at the sides and a large glass door on the top, through which the etching procedure can be watched. At the front the hood has a large opening, allowing the operator's arms free access to any part of the tub, the hood being high enough to permit freely brushing any part of the etching surface. The air chamber at rear of tub is part of the tub, and by means of a tubular journal rocks on a stationary air

tube behind it, thus forming the rear pivot. The front pivot is on the same axis, exactly opposite, also hollow, but only large enough to admit a water pipe. These journals are made of a special composition metal which is non-corrosive. The machinery is on a platform under the tub and consists of a suction blower and a rocking device, driven by a one-sixth horsepower motor, using three-quarters of an ampere of current put in operation by a button. The power shaft of the motor has the blower at one end and a worm-wheel at the other.



This worm-wheel runs a speed-reducer attached to a countershaft. At the near end of this shaft is a crank wheel which is connected by a driving rod. The driving rod is connected by a set-screw to the crank wheel. The set-screw moves in a slot by which any speed desired can be given to the rocking of the tub. By turning a lever water is turned into the tub, and by pulling out the glass stopper the used-up etching solution is allowed to flow through a flexible rubber hose to the sewer. Electric lights within the hood at either side light the work perfectly. The machine is 4 ft. high and 39 in. across."

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between December 4 and 9:—

ENVELOPE.—No. 25,197. A combined frame and envelope for holding and displaying photographs. Andrew Meldrum, 41, Reform Street, Dundee.

PRINTING FRAME.—No. 25,215. Improved photographic printing frame for multiple or combination printing. William Graham Brown, Cordiner United Free Church Manse, Lesmahagow, Lanarkshire.

SHUTTERS.—No. 25,237. Improvements in photographic shutters. Conrad Beck and Horace Courthope Beck, 23, Chancery Lane, London.

NEGATIVE BOXES.—No. 25,276. Improvements in negative boxes. William Frederic Butcher, 322, High Holborn, London.

STUDIO LIGHT.—No. 25,392. Improved apparatus for illuminating photographic studios with electric incandescent lamps. Philp

Georg Von der Lippe, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

COPYING APPARATUS.—No. 25,492. Improvements in photo-printing apparatus. Leonard Shaw, Clu: House, Surrey Street, Strand, London.

FOCUSsing.—No. 25,515. Photographic focuser. James Preston Cribb, 127, Chichester Road, North End, Portsmouth.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PIGMENT PAPER.—No. 9,324, 1905. The claim is for a sensitising solution of potass. bichromate containing acetone, the presence of which is to cause rapid drying of the tissue. The sensitising solution is prepared and used in such a way as the two following:—(1) 8 parts of ammonium bichromate are dissolved in 100 parts (by weight) of water, and this solution is mixed with 150 parts (by weight) of acetone. This liquid is applied for the purpose of sensitising a carbon tissue by spreading it over the tissue by means of wadding. After 5–10 minutes, according to the moisture of the atmosphere, the tissue is dry and is exposed to light under the negative, a copy of which is to be taken. The further procedure is that well known, the exposed tissue being washed at ordinary temperature with water, which process is shorter than when the tissue has been sensitised by plunging it into a bichromate solution. The carbon tissue is afterwards transferred, then developed by treating it with warm water (40–50deg. C.) and finished in the usual manner. A carbon print thus obtained shows very clear whites and is well shaded. (2) For sensitising, for instance, a paper covered with a layer of gum incorporated with a pigment, as in the gum-bichromate process, there may be used a mixture of 2 parts of potassium bichromate, dissolved in 40 parts of water, with 60 parts of acetone. The sensitising process is then carried out by applying this solution to the layer either by means of a suitable brush or by plunging the paper into the solution. In the latter case the tissue will dry in $\frac{1}{2}$ –1 hour, whereafter it is exposed and finished as above indicated. The copy thus obtained has also very clear whites and is well shaded. The invention is also applicable to layers of sugar incorporated with a pigment. C. D. Abel (for the Actien Gesellschaft für Actien Fabrikation), Birkbeck Bank Chambers, Southampton Buildings, London.

PRISMS IN LENSES.—No. 322, 1905. The object of the invention is to produce "lens and prism-combinations in which, wedge-shaped prisms are placed between lenses, and by this optical device effect to form: one, two, or three photographic picture-records in an adapted-focussing plane." In the specification it is stated to be intended for two-colour and three-colour photography, and for cinematographic projection. Reference is made to Dr. Jumeauix's patents (wrongly printed "Tumeaux" in the specification), and to those of Captain Davidson. The following extract will show the idea of the inventor:—"If a prism is placed in the front, centre, or back of an image-forming lens, or lens combination, the image is deflected. Now, on account of the combined actions of prisms and lens, resulting in deflection, inversion, reversion, and spectral aberration, it is only a matter of natural consequence, that the formed picture will show signs of unsharpness and of distortion. The defects of the combination show least when the prisms are placed at or near the crossing-point of the light rays, that is, near the optical centre of the lens combination, giving then the smallest angle of deviation, reversion, dispersion, etc., and therefore the defects of distortion and unsharpness will be

smallest and scarcely noticeable. I may also point out, that the longer the focus of the lens, the narrower is the angle of the prism required; that is, if the lens combination, including the prisms, is giving a half inch dispersion, separation of pictures, in four inch focus, then the defect will be 2 by 2 if the distance is only two inches, and the same half-inch dispersion and separation is required at the focussing point. If prisms are used at the back or front of a photographic lens, and it is desirable to transform the same into the lens and prism combination, then a single lens, or a combination of lenses, can precede or follow the prisms, so as to bring the prisms between lenses. This addition is also a help to correct miscalculations in the lens and prism combination. The adding of an extra lens will naturally shorten or lengthen the focus, and enlarge or reduce the size of picture. Several drawings of possible between-lens arrangements of prisms are given, of which those reproduced show (1) position of prisms for "pictures in two-plane;" (2) position of prisms to give three pictures in one plane. R. Y. B. stand for the light rays, red, yellow, and blue (coming from one optical view) which are afterwards sorted out by the colour-filters (screens) R-e, or Y-e, and B-e, and give then the necessary colour-

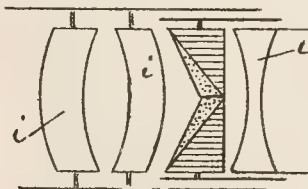


Fig. 1.

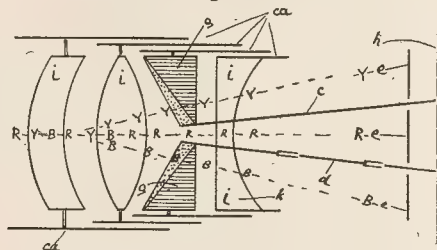


Fig. 2.

records for photography in colours by the subtractive (printing), or additive (transparency) methods. By this device of lens and prism-combination, all the pictures are rendered, with the aid of one frontal-lens combination, from one point of view only, and by the aid of the same device, in reversing the order of passing the light rays, the two or three photographic records, are naturally reconstructing one picture." Otto Pfenniger, 105, Hythe Road, Brighton.

INCREASING BRILLIANCY OF IMAGES.—No. 29,561. The invention consists of (1) the use of intentional artificial means of tarnishing polished glass lenses as nearly as possible to the darkest brownish slate colour, either by immersion in suitable chemical solution or in gaseous reagent or by intimate contact with more solid substances of suitable nature, whereby the light transmitting power of such lenses is enhanced and their light-scattering power correspondingly reduced, thus leading to the greater brilliancy of the final images formed by such lenses; and (2) the use, for tarnishing freshly polished lenses of densest baryta crown glasses, or the densest baryta flint glass of the dilute solution of ammonium hydrosulphide and nitric acid. Let it be supposed that a photographic lens is composed of six separated lenses, four

having a refractive index for the blue rays of 1.62, and two having a refractive index of 1.54. Then it can be shown by a formula that the intensity of the light after passing through the 12 polished surfaces will be reduced to 52 per cent. of its original intensity, the other forty eight per cent. being partly reflected back and lost and partly re-reflected back in more or less complex ways on to the photographic plate, and there causing a general milkiness of the image. This cumulative loss of light by numerous surfaces, together with the milkiness of the image owing to re-reflections, constitutes a very serious drawback to the use of more than three or four separated lenses in any optical combination. The amount of light lost in this way generally far exceeds the loss of light due to the absorption consequent upon the thickness of the lenses. At the same time it can be shown that the very finest and angularly extensive images to be yielded by photographic and other lenses, cannot be obtained without the use of more than 4 lenses, while combinations of 6 or even 8 hold out prospects of yielding images of great perfection, provided that the very serious drawback of the large proportion of light lost or scattered by reflections and inter-reflections from the surfaces can be got rid of, or at least very much reduced, and thus the brilliancy of the final image as it is termed, formed by such lens system, be substantially increased. The essence of my invention is to bring about this very desirable result by the artificial and intentional tarnishing of the polished surfaces of the lenses. I find that if the freshly polished surfaces of dense barium crown glass are tarnished in an aqueous solution of sulphuretted hydrogen, until by reflection they assume a brownish slate colour, then I estimate that the amount of light reflected is reduced to about 40 per cent., or perhaps to only one-third. That is in place of the 5.5 per cent. reflected off a newly polished surface, I then get only about 2 to 2½ per cent., while the transparency of each surface is increased from 94.5 per cent. to 97.5 per cent. Supposing this great diminution in reflective power by tarnishing to 40 per cent. is carried out for all 12 surfaces of the above-mentioned six lens combination, then instead of only 52 per cent. of light transmitted we shall have 77½ per cent. transmitted, and instead of 48 per cent. wasted we shall have 22½ per cent. In fact a rather more brilliant image will be yielded by such a combination of six or even eight lenses tarnished than by a combination of only three lenses normally polished. It can be shown that the optical effects of polished spherical surfaces or their durability are in no ways interfered with by this tarnishing process, so long as it is not carried much beyond the stage when the brownish slate tint first appears. I find that dense barium crown glasses which are used so largely for the positive lenses in modern combinations, can be tarnished by immersion in nitric acid diluted with at least four parts of water, or by immersion in an aqueous solution of sulphuretted hydrogen, or sometimes by sulphurous acid. My invention, while rendering the use of a larger number of lenses in combination possible, can equally well be applied to rendering more transparent already existing combinations whether of only two lenses or of a larger number, and thus the brilliancy of their images be increased. As a result of a large number of experiments, I have found that the various types of densest *baryta* crown glasses with refractive indices for the D ray varying between 1.57 and 1.62, such as are so largely used for the positive lenses of modern anastigmatic lenses for photography, etc., may be best tarnished by a few minutes immersion in the following solution:—Dissolve four fluid drachms of ammonium hydrosulphide in twenty ounces of water, and gradually add while stirring, two drachms of pure nitric acid, already diluted with four drachms of water. The amm. hydrosulphide consists of strongest liquid ammonia diluted

with twice its volume of water, and then saturated with sulphuretted hydrogen gas, after which a little extra ammonia is added for keeping purposes. The solution will, after the greater part of the acid has been added, change from alkaline to acid, upon which a precipitation of sulphur will take place. This should be allowed to settle, and the clear liquid be poured off for use. As variations may occur in the strength of different samples of ammonium hydrosulphide, it is as well to point out that unless the solution is distinctly acid in its reactions, the desired tarnishing effect will not take place. Any lenses to be tarnished should preferably be freshly polished and scrupulously clean, and may be held suspended in the solution, held in a closed vessel, in any desired number, at a time by means of a piece of wood or porcelain in which are fixed pairs of slender slips of lance-wood or other dense and springy wood, each pair of which will hold a lens nipped between two opposite points of its margin, thus leaving the polished surfaces perfectly open to the action of the liquid. During the immersion a little movement is desirable to prevent stagnation. Four minutes will be enough time for some glasses, but much longer for others. But it is always desirable to watch the progress of the operation, by taking out the lenses and wiping one of them dry on one surface, when the stage of development of the tarnishing will show itself. It should never be allowed to proceed beyond the dark brownish slate tint, and should be arrested by rinsing off with clean water. The progress is generally, first, from the bright polish to a dull grey slate colour, after which the desired dark brownish slate colour appears, the next stage is a dull blue shade, after which a brighter greenish sheen appears. Either of these colours, however, indicates that the process has gone too far, and it is better to stop short of the brownish slate colour rather than go too far towards the bluish tint. If the solution acts with inconvenient rapidity, then dilution with water should be resorted to, or if it proceeds too slowly, then often a less proportion of water in the mixing will be found to accelerate matters. I had hoped to be in a position to give directions for tarnishing ordinary dense flint glasses, but so far have not found any solution or process that can be depended upon to act within a reasonable time. It is certain that some sorts of yellow soap if allowed to dry upon a polished flint glass surface in the course of months' tarnish the surface to the desired tint, and I have got the same result by prolonged immersion in a thick solution of either yellow or soft soap, but not as yet with constant enough results for me to give a definite recipe. There are certain glasses, such as the lighter flints and silicate glasses, and the lighter and *baryta* light flints, which have not so far shown the slightest tendency to tarnish with any solutions or chemicals that I have yet tried, and it may be that it is quite impossible to tarnish them. But in modern photographic lens combinations densest *baryta* crown glasses with a refractive index as high as 1.61 are generally the most used, and it is therefore of the greatest importance to increase their light transmitting powers, whereby about 11 per cent. of light may be gained in the case of four surfaces. There is also a dense *baryta* flint now on the market with a refractive index of 1.657 for the D ray, which will take the requisite tarnish in the above solution as well as the glasses before named. Harold Dennis Taylor, Stancliffe Mount Villas, York.

A FILM SLIDE.—No. 28,863, 1904 This invention consists in the employment of a grooved sheath of aluminium or other material into which the photographic plate or film is inserted at the one end; the plate being protected by a cover consisting of a single sheet of light-proof cloth; the sheath with its protecting cover being inserted in the camera in the usual manner with this class of plate carrier. The sheath has the edges of the two

long sides, and the one end turned over, to receive the plate; but the two long sides have their turned over edges made double, the one or under groove being to receive the plate, and the other or upper groove being to receive the edge of the covering cloth. This simple arrangement dispenses with the necessity of an envelope such as is used in other plate-carrying devices of this class. The edge of the forward end of this single piece of covering cloth is stiffened so that this end of the cloth may be inserted within the upper groove of the sheath from the open end thereof, so that the cloth may be drawn along evenly over the face of the plate. The edge of the stiffened bar is brought under the turned-over edge at the end of the sheath. The other end of the piece of cloth has its edge turned over so as to form a narrow pocket to receive a projecting end of the plate of the sheath, and thus ensure no light having access between the piece of cloth and the photographic plate. The back of the stiffened bar of the piece of cloth is provided with two brass or other pins by means of which the covering cloth is drawn back from over the face of the photographic plate when it is desired to expose the plate in the camera. The inner side of this roller slide is provided near the end thereof with two small holes, so that when the slide is in its closed position, and the sheath is placed within the frame, the pins on the end of the covering cloth engage with the holes in the end of the rotating slide, so that when the slide is opened it carries along the covering cloth with it, the cloth doubling itself over the end of the frame similar to the doubling over of the slide itself. Robert and Matthew Ballantine, 101 and 107, Buchanan Street, Glasgow.

New Books.

"Geschichte der Photographie." By Dr. Josef Maria Eder. Halle: W. Knapp. M. 12.

Dr. Eder has at length brought forth his "History of Photography," and the copy before us, which apparently was completed in March last, is still another piece of proof of the ceaseless labour and untiring research by which he has enriched students of photography with a series of volumes, which, as technical literature, are not surpassed, so far as our reading goes, in any other science or branch of technology. The scheme of the history resembles that which other writers have found the best in recording the evolution of a science—Dr. Ernst von Meyer, for example, whose excellent "History of Chemistry" has been translated into English. Dr. Eder approaches his subject in no half-hearted way. He begins with Aristotle in the fourth century before Christ, and reviews the chemical and physical sciences which eventually gave birth to photography—in 1839, we may say. This review includes the history of the camera-obscura, of stereoscopic vision, and of the magic lantern. Dr. Eder still declares for Schulze (1727) as the first photographer, and repudiates the views of those such as the late Mr. Litchfield, who regard—and rightly, we think—Schulze's work as purely photo-chemical. But it is when we come to the year 1839 and the much-discussed work of Niepce, Talbot, Herschel, and Daguerre, that Dr. Eder, vulgarly speaking, "spreads" himself. He dwells closely on every part of the story of the two Frenchmen down to a quite superfluous congratulatory letter which the Austrian Government addressed to Daguerre. Yet Talbot and Herschel he treats in a very summary way. We should have thought that with eighty-four pages devoted to reproducing in full nearly all the documents relating to Daguerreotype, he might have spared more than eleven pages to photography on paper. In consistency, the not very lengthy papers of Talbot might have received equal prominence;

and actually we cannot find a report of the perfectly independent paper of Sir John Herschel on March 14, 1839. Dr. Eder does not appear to recognise the fact of Herschel's independent invention or discovery of a photographic process. His footnote on page 240 implies that Herschel added fixing with hyposulphite to Talbot's first process. Nor can we find that he credits Herschel with the preparation of the first negative on glass: he should reproduce the original now in the possession of Sir William Herschel. But, after all, these are not serious omissions from a volume which records the history of photography with a thoroughness never before attempted. Dr. Eder has our warmest congratulations. He has undertaken a duty involving peculiar difficulties, and the labour of his authorship is not to be measured by the 460 pages of the volume. The "History," we ought to make clear, is not confined to the early days of photography. The later chapters trace the development of the various branches of photography, such as orthochromatism, artificial light, printing processes, colour photography, etc., to the present time, though we notice the chapter on animated photographs stops short at the point—the introduction of the modern film cinematograph—where it becomes important.

To improve still further the "Wellcome Exposure Record and Diary" is admittedly the most difficult of tasks, and the 1906 edition of the Diary is a tacit admission on Messrs. Burroughs Wellcome's part that the many features of their pocket-book have reached a point of finality. For there is no distinct departure from last year's arrangement. The list of plate speeds has been revised to date, and now includes every important English, Continental, and American plate, and a number that are not important. As hitherto this list is used in conjunction with the exposure calculator. Each diary contains a circular of a prize competition for photographs suitable for reproduction as supplements in succeeding issues, in regard to which Messrs. Burroughs Wellcome punctiliously point out that the prize purchases only the right to reproduce in the "Diary," not the sole copyright. The Ex Libris of the Diary is a thing to be seen, not described, and we would also reassure those who may hastily judge from the illustration on p. 54 that their supply of "Tabloid" chemicals may be cut off by a City fire, that the artist's aim is merely to typify the light and learning which directs the manufacture of these highly pure photographic materials. Although there are two editions, as usual, one for the northern hemisphere and one for the tropics and southern hemisphere, the Diary for 1906 is issued in one style of binding only, art green canvas, and the price is 1s.

ART IN PHOTOGRAPHY.—A de luxe volume is announced for April 1st, from the press of the Photo-Club de Paris. MM. Demachy and Puyo are its joint authors, and the volume will treat of printing and other processes specially consecrated to artistic photography. Gum, ozotype, and carbon figure in the prospectus with platinotype and other processes. The work is to include 40 plate illustrations, characteristic of modern pictorial photography, and its price is fixed at 10 francs, or 12 francs on publication.

THE wall almanac sent out each year by Mr. S. H. Fry, the well-known trade printer and enlarger, this year bears a beautiful bit of printing in the shape of a child's portrait by Mr. Reveley, of Wantage, chic in itself, and interesting as showing the fine commercial work of Mr. Fry's staff. A copy of the calendar can no doubt be obtained on addressing a trade card to 12, South-villas, Camden-square, London, N.W. We learn, however, that Mr. Fry's business is shortly to be transferred to larger premises at Highbury, which will permit of the most expeditious handling of every class of work.

THE death is announced of Mr. W. J. Sandry, of the Triangle Photographic Studio, Paul, Cornwall. The deceased gentleman was ill for only two days.

New Material.

Sanzol. Sold by H. Edmund and Co., Ezra St., Columbia Rd., E.

Sanzol is a cobaltamine salt which has been introduced as a selective reducer—that is to say, one which reduces the density of the high-lights in preference to the shadows. The particular directions advise the solution of two grains of the salt in an ounce of water, and acidification with 14 minims of nitric acid; immersion of the negative in this solution, and rocking the dish for from five to eight minutes, and then arresting the action in an extremely dilute solution of ammonia, 14 minims to one ounce, and then a 15 minutes' wash.

Our trials on these lines have proved most satisfactory. There is a distinct selective action on the high-lights, with comparatively no action on the shadows, and it is possible to produce harmonious prints from even the hardest negatives.

We have also found that an organic acid, such as acetic, gives a much slower action, and it is therefore more under control than when nitric acid is used.

Compared with ammonium persulphate, there seems less tendency to produce flatness, but this requires a long series of comparative tests to confirm, and we hope to give later the results of our experiments in this direction. This new salt promises to be a welcome and valuable addition to our somewhat restricted list of reducers. As it has been stated that there is some frilling action with it, we are bound to say that, so far, we have not observed the slightest trace of this inconvenience. This may or may not be due to the low temperature of the solutions at the present time.

Applied to prints, such as bromide or gaslight, it is obvious that as the greatest action takes place where there is the greatest deposit of silver, the shadows are reduced more than the high lights, and therefore Sanzol will be valuable for reducing bromide and gaslight prints in which the shadows are blocked up. The reducer is issued in cartridges of three sizes—1s., 2s. 6d., and 5s.

CATALOGUES AND TRADE NOTICES.

A SET of the well-known Kohinor retouching pencil, sent to us by Messrs. Hardtmuth is a reminder which perhaps others may need as much as ourselves. Of the numerous varieties in which it is made there are seventeen degrees in the 6B—9H series, and the pencils are also put up in various styles.

ELECTION Photography in America.—A new and very practical use for the camera has come into being. We learn from an American contemporary that it has been employed in Louisville at the registration booths to photograph election repeaters. It is given credit for cutting down their number, for when the repeaters saw the camera turned on them they began to have business elsewhere.

SEIZURE of Obscene Photographs.—Probably the largest plant in the United States for the production of obscene photographs has been discovered in Chicago, and its business has been broken up by the police. Secret service officers of the Post Office Department have for several years been seeking the place where thousands of obscene pictures came from, and recently, with the assistance of the police, they found it at 173, Milwaukee Avenue, Chicago. The alleged proprietor, Thomas Collins, was arrested and sent to jail in default of 3,000 dols. bail, while 120,000 obscene negatives were seized.

The new Under Secretary for the Home Department, Mr. Herbert Samuel, is probably the only member of Parliament who ever contributed to the illustration of a Government publication. When Mr. Samuel was in Central Africa he took a number of excellent photographs, which were afterwards embodied in a Foreign Office Blue-book.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
22	Watford Photographic Society	{ "Chess" Gaslight and Bromide Papers." Mr. Percy B. Williams.
22	Colne Camera Club	{ Yorkshire Photographic Union Members Portfolio.
22	Aberdeen Amat. Photo. Assn.	Demonstration. Mr. G. Ford.
26	Worthing Camera Club	Camera Outing.
26	Gateshead Camera Club	Conversations and Dance.
26	St. Helens Camera Club	Chat on Photographic Chemicals.
26	Thornton Heath Photo. Soc. ...	Conversational Evening.
26 to 30 ...	Scarborough and Dis. Ph. Soc.	{ Exhibition at School of Art. (Members only.)
27	Edinburgh Photo. Society	{ "Printing Processes—P.O.P. and Bromide." Mr. James S. Gilbert.
27	Croydon Camera Club	Conversational Evening.
27	North Middlesex Photo. Soc. ...	Technical Meeting. Nomination of Officers and Council for 1906.
28	Rodley, Farsley, & Calverley Dis.	Yorkshire Photographic Union Slides.

ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held December 19, Mr. H. Snowden Ward in the chair. Mr. Max Ferrars gave a lantern lecture on "Photography as a Means of Picture-making," in which he set forth at considerable length the limitations of photography. One chief defect of the photographic process was its incapacity of simultaneity, a defect which removed many subjects from its scope. Mr. Ferrars made the very strongest claims on behalf of straightforward photography. The numerous expedients to be classed as "fake" or "control" were described by him as often failing in the very purpose they set out to achieve. As an example, he showed a photograph of a lake, with "breadth" imparted to the distant mountain range by artifices of lighting alone. A comparison print, in which greater "breadth" was given to the mountains by the use of a coarse paper, was less effective, as the delicacy of the foreground, which in the first print heightened the masses of the distance, was altogether destroyed. The whole tenour of the discourse was to decry "fake" as a species of fraud equivalent, as one speaker remarked, to putting marks of the file or hammer on cast iron to create the impression that it was a piece of wrought metal. The congruous character of a photograph was lost in almost every instance where control was resorted to. Mr. Ferrars exhibited a number of slides, in which he had sought to carry out the principles inculcated in the lecture.

THE rooms of the Royal Photographic Society will be closed on Saturday to Tuesday inclusive during the Christmas holidays.

SOUTHAMPTON CAMERA CLUB.—On Monday evening, the 18th inst., at the Philharmonic Hall, Mr. A. E. Henley lectured to the members on "St. David's Cathedral." He dealt historically and by means of very excellent slides with this mediæval Mecca of the Pilgrims, pointing out how in olden days two journeys to St. David's were accounted equal to one to Rome. The architectural beauties of the building were fully depicted—miserere, capital, canopy, and stall carving being illustrated, both by slide and legend in their turn. Mr. Henley also illustrated the outdoor beauty spots of the immediate district.

SOUTHPORT PHOTOGRAPHIC SOCIETY.—Mr. J. T. Rigby having resigned his position as hon. secretary to this Society, the Council has elected Mr. A. E. Sharples, of King's Chambers, 8, Tulketh Street, as hon. secretary, with Mr. C. Woodall, of Portland Street, as hon. assistant secretary.

PHOTO ART CLUB, ABERDEEN.—A lecture entitled "Foundations of Modern Architecture" was delivered by Mr. David, of Gray's School of Art, last week. The lecturer had a number of excellent slides, and his plan of lecture was to put on the screen examples of ancient architecture, followed by views of local buildings, in

which the ancient ideas had been carried out. He showed views of such places as the Egyptian Hall of Columns, Greek Parthenon and Erectheum, the Church of St. Peter's in Rome, and the Italian Riccardi Library of Florence, with their modern British prototypes. Mr. David's plan of lecture made the subject specially interesting and easily understood.

PLYMOUTH PHOTOGRAPHIC SOCIETY.—At the closing meeting of the winter session on Friday, December 15, the President, Mr. T. J. Johnson in the chair, a very happy arrangement was made, the evening being devoted to three holiday trips by three members, illustrated, of course, with lantern slides. The first was "The Rhone Glacier and Valley" by Mr. H. S. Hill, who, while disclaiming the idea of a lecture, was able to describe the district which his slides illustrated. They were an exceedingly fine lot, dealing with the marked contrasts of Alpine scenery in a very capable way. Mr. Hill explained that they were all hand-camera shots, the instrument used being one of the earliest of Beck's "Frenas," which he had used continually from its first issue in 1892 or 1893. It was still capable of doing good work, as was evident. Mr. W. Grist showed some splendid landscapes in the vicinity of and near the banks of the Tamar. Following these came a series of views illustrating a tour among the English lakes, characterised by good technique and a wonderfully fine average of striking skies. These were the work of Mr. F. Johnson. His views of Furness Abbey were exceedingly fine. The evening proved to be one of the most enjoyable of an excellent series.

RICHMOND CAMERA CLUB.—On Thursday evening in last week a large collection of exceedingly fine lantern slides from photographs of flowers was shown by Dr. Rodman. The negatives were made upon colour-corrected plates, with a yellow screen, and as a result the light values were well represented. The pictures comprised orchids, narcissi, roses, pansies, fruit blossoms, lilies, chrysanthemums, and other flowers in a great variety of colours. Dr. Rodman stated that the majority of the negatives were taken in a room with a north light. A self-coloured background was best, as, if it is of suitable colour and placed at a good distance from the plant, it affords nothing to attract the eye from the main object. It was necessary to work with a large aperture, to obtain as short an exposure as possible, on account of the natural tendency of flowers to droop and to turn to the light. In many of the pictures shown an exposure of two minutes had been given with a Zeiss lens working at $f/8$. The great advantage to be obtained by using orthochromatic plates in combination with a yellow screen was very clearly proved, as it would have been impossible to produce equal effects with any ordinary plate.

ULSTER AMATEUR PHOTOGRAPHIC SOCIETY.—Meeting held December 12. The president, Mr. D. Elliott, in the chair. The programme for the evening included "Photographic Queries and Replies," by members, as well as a short lecturette by the president on "Stereoscopic Photography." Among the questions asked and answered were the following:—A beginner wants to know what the terms anastigmat, aplanat, and symmetrical mean used in reference to photographic lenses? Answer—An anastigmat is a lens which, as well as being corrected for spherical and chromatic aberration, is corrected for astigmatism. An aplanat is a lens corrected for spherical and chromatic aberration, but not for astigmatism. A symmetrical is a double combination lens, where the front and back halves are of equal force. Another beginner wanted to know why gaslight papers stain brown so readily. Answer—Gaslight papers are generally developed with metol, a substance which oxidises very freely. A print exposed to air for a minute or two after development and before fixing will discolour, because the metol absorbs oxygen, and hence stains the paper. Yellow high-lights are caused

by (1) too weak or exhausted developer, (2) under-exposure, or (3) too long development. Notice was given by the honorary secretary (Mr. Thomas N. Murray) that the Armagh Show for 1906 would be held on the 27th and 28th of June, and the Newry show on the 3rd and 4th of July, both of these agricultural societies having a photographic section. The Lord Mayor's (Right Hon. Sir Daniel Dixon, Bart., M.P.) 1905 gold medal was won by Mr. W. D. Elliott. T. Bryans was a good second. Prints were judged by Mr. Charles F. Inston, of Liverpool. The entries were much better all round than last year, showing thought and care, and each competitor got his print returned with critique.

Commercial & Legal Intelligence

A MOUNT Dispute.—Arthur Wm. Holmes, photo-mount maker, trading as "The Leicester Showcard Works," sued H. B. Cooper, photographer, Abbey Park Road, for £1 17s. 6d. for goods sold and delivered. Mr. Flavell (Messrs. Harding and Barnett) appeared for plaintiff. The dispute in this case was as to the printing of the photographer's name and address on 250 large-size photograph mounts, the defendant contending that he gave an order for the mounts to be the same as previously supplied, and when they arrived he found that there was not room on the mounts between the name and the address for printing in the titles of the groups for which the mounts were intended. Plaintiff admitted that it was understood the mounts were to be as similarly supplied, but said no sample was given him to go by, and nothing was said to him about leaving sufficient room for the title. His Honour gave judgment for the defendant.

BARRAUDS, LTD. (Photographers, Liverpool).—Issue on November 15 of a debenture for £300, part of a series created same date, to secure £500, charged on the company's property, present and future, including uncalled capital. No trustees.

BERNARD COOPER, LTD., Photographers, London.—A debenture, dated December 2, 1905, to secure £50, charged on the company's undertaking and property, present and future, except uncalled capital, has been registered. Holder—Mrs. M. M. Hadfield, 28, Victoria Mansions, Willesden Green.

UNIVERSAL OVERLAY SYNDICATE, LTD.—Registered, December 4. To carry on the business, among others, of photographic printers, engravers, etc. No initial public issue. Registered office, Trevelyan Buildings, Corporation Street, Manchester.

ENGRAVED ROLLER SYNDICATE, LTD.—Registered December 1, by Jordan and Sons, Ltd., 120, Chancery Lane, W.C. Capital, £250 in £1 shares. Object, to take over a process discovered by J. Ackerly and the business of a photographic engraver, as applied to the surface of rollers and other cylindrical bodies now carried on by him at Manchester, and to carry on the business, and that of photographers, designers, etc. No initial public issue. Registered without articles of association. Registered office: 54, Arcade Chambers, St. Mary's Gate, Manchester.

FAILURE of a Burton Photographer.—At the Burton Bankruptcy Court last week, before Mr. Registrar Hubbersty, George Renwick appeared for his adjourned examination, the liabilities being £99 2s. and the assets £19 7s. 7d. The bankrupt said he commenced business in 1875 as a photographer, having £20 capital. He did not realise that he was insolvent until the present year, and attributed his failure to keen competition, bad trade, and illness. For some time his gross income had been £3 or £4 per week, and he lived at the rate of £1, the remainder going in expenses and business losses. The examination was closed.

An Order for Photographs.—Messrs. Duyshart and Co., photographers, of Chelmsford, sued Mr. F. W. Rogers, head master of Chelmsford Grammar School, for 30s. for photographs supplied. Mr. Jackson, for the plaintiff, said that an under-master at the Grammar school called with Mr. Moosajee, a pupil, dressed in the uniform of the School Cadet Corps, at the plaintiffs' studio, and said a photograph of Mr. Moosajee in uniform was required for the school magazine, and that some photographs in private clothes would also be wanted. Mr. Moosajee was photographed, and the photograph duly appeared in the school magazine. Plaintiffs executed twelve photographs, and sent them to the school, but they were returned by Mr. Rogers, who wrote: "Mr. Moosajee did not order them, neither did I. We wanted his photograph for the magazine, and he intended to have some more. If you can show a written order, of course it must be settled." Mr. P. J. Duyshart, in his evidence, said he wrote to Mr. Moosajee and sent him the bill, asking him to get a cheque from Mr. Rogers. His Honour: Why didn't you send direct to Mr. Rogers? Witness: I was informed that the order was from a boy, covered by Mr. Rogers. Mr. Suthery, for the defendant, said that Mr. Rogers never gave any order for the photographs. His Honour said there was no evidence of Mr. Rogers giving an order except for the negative for the magazine. Mr. Suthery: Mr. Rogers is willing to pay the 7s. 6d. for that at once, and Mr. Moosajee will also pay for the six photographs he ordered. His Honour gave judgment for the plaintiffs for 7s. 6d. and 3s. court costs.

LIBELLING A Photographer's Wife.—A singular story was told at the Leeds Assizes on Monday last before Mr. Justice Darling, when Mrs. E. Sagar, wife of a photographer residing at Shipley, brought an action against the Keighley Herald Printing and Publishing Company, Limited, with whom were associated the editor and publisher of the paper, for libel. It was alleged by the plaintiff that on August 12 an article appeared in defendant's paper, headed "Keighley Elopement Frustrated," "Scene at Ingrow Station," in which an amusing account was given of a scene at the railway station. Reference was made to Mrs. Sagar's search for her husband, who was said to have eloped. She was described as the wife of a local artist, a brunette in blue, and a female detective who had been in search of her recalcitrant husband. Counsel submitted that there had been no elopement, and that the story unduly reflected on the plaintiff. The article began as follows:—"Ingrow Railway Station has just been the scene of one of the many melodramatic incidents which go to make up the life-stories of certain of our fellow beings. Seated in the waiting-room, pending the arrival of the 5.46 p.m. train, were an apparently devoted couple. The lady was fair to look upon, and wore a becoming costume of pale blue. The gentleman, though not particularly handsome, devoted much attention to the twirling of his fair and flowing moustache. What the root of this curbed emotion was was presently manifest, for a few minutes before the arrival of the 5.46 train a dashing young brunette, smartly attired in a semi-sailor blue costume and large picture hat, appeared on the platform. After casting round a few angry and questioning glances, she evidently spied the loving couple in the waiting-room, whom she bore down upon like an eagle." The Judge: An eagle in a picture hat and a sailor costume? (Laughter.) Other quotations from the vivid writers on the "Keighley Herald" followed, and the jury gave a verdict for plaintiff for £75.

At the recent exhibition of the Hove Camera Club the committee purchased for the club's permanent collection "Shoeing," by Mr. Harold W. Lane.

The latest list of the Charles Urban Trading Company, 48, Rupert-street, London, W., is a 36-page pamphlet, descriptive of this firm's well-known educational films for the bioscope.

News and Notes.

EDITORIAL Changes.—With the New Year the editorship of our contemporary, the "Photographic News," passes into the hands of Mr. F. J. Mortimer, F.R.P.S., who thus severs the connection with the "British Journal of Photography" established on his joining its staff in 1904. Mr. P. R. Salmon, F.R.P.S., the retiring editor, is identifying himself, we are informed, with the editorial control of the "Photographic Dealer," and both gentlemen, we are sure, will have the hearty good wishes of a host of friends.

The marriage of Mr. F. J. Mortimer, F.R.P.S., to Miss Lavinia Romer took place at the Church of Holy Trinity, Clapham, S.W., on Tuesday last, December 19. The bride and bridegroom left town the same afternoon for a short holiday in the Scillies.

"ACETYLENE," the organ of lighting with acetylene gas, reproduces in its December issue a couple of photographs of banquet rooms lighted by acetylene installations.

DAYLIGHT Loading.—A writer in the "American Inventor" can surely have not kept himself *au courant* with British manufactures, or he would not raise the cry for a piece of apparatus such as that which he describes as follows.—"What is needed in inventions of this character is an improved form of plate holder which will carry a greater number of plates, or else be so arranged that additional plates may be inserted in the holder while in the camera and without exposure to the light. There would be considerable value to a plate holder which would allow of a number of plates being carried and changed without removing any plate from the camera. There is no question as to the commercial possibility of this invention, provided the construction designed is thoroughly and entirely practical."

The fifth annual dinner of the employees of the Rotary Photographic Works at West Drayton was held at the Swan Hotel last week.

Our recent notice of the "Kokka," a kind of Japanese "Studio" in magazines devoted to the fine arts, has apparently brought to our table a copy of the "Nippon Bijutsu," also a monthly magazine of the fine arts, published at Miyana-ga-cho, Nezu, Tokio, price 3 yen, 40 sen a year, post free throughout the world. The "Nippon Bijutsu" aims to reproduce contemporary art, and the number before us contains a few pages devoted to this purpose, but the major portion is literary matter, any criticism of which we have our own reasons for withholding.

ACTION of Wood on a Photographic Plate.—Dr. W. J. Russell writes to "Nature" of last week:—"I have recently seen some photographic plates used at the last eclipse which have on them not only pictures of the sun, but also pictures of the wood forming the dark-slides in which they had been placed. At a former eclipse I understand a similar disaster occurred. It may, therefore, be well for me again to state that wood in contact with, or in near proximity to, a photographic plate, even in the dark, can impress upon the plate a clear picture of itself. This action is much stimulated by high temperature and brilliant sunshine. It can, however, be stopped in several ways. Probably the simplest one would be to make the slides of copper in place of wood."

WARWICKSHIRE Photographic Survey.—A selection of the photographs taken by the members of this society during the past season is now on exhibition in the Birmingham Art Gallery, amongst the contributors being Sir Benjamin Stone, M.P. The collection includes a number of Birmingham street scenes, views in Warley Woods,

meets, sports, plough trials, churches, and old buildings at Stratford, Henley, Berkswell, Lapworth, Compton Wynates, and many other Warwickshire villages, and a series taken at Solihull in 1853 on old paper negatives.

OTHERS—and Ourselves.—Unconscious humour in the "Daily Mirror" of Friday last, wherein we read at the head of some reproductions of Dr. Schilling's flashlight photographs of wild beasts:—"These flashlight photographs are taken during a flash lasting a fiftieth part of a second, caused in exploding magnesium powder by gun-cotton. The 'Daily Mirror' has a large flashlight staff." It appears to be by the merest chance that our contemporary's staff has not photographed lions and leopards on the Thames Embankment.

LEEDS Technical Schools Photographic Section.—On Saturday, December 9, the students of the above classes held their annual reunion and dinner at the Griffin Hotel, Leeds. Thirty-five students, past and present, attended. The chair was taken by Mr. J. Ingham Learoyd, Halifax, supported by Mr. H. Snowden Ward, F.R.P.S., London, and Mr. S. E. Bottomley, F.R.P.S., lecturer to the classes. Mr. H. Snowden Ward gave the toast of the "Classes in Photography at the Leeds Technical Schools." Mr. S. E. Bottomley, replying on behalf of the students, thanked Mr. Ward for his excellent address and for the words of encouragement he had given the students.

THE Whitechapel Exhibition.—In reference to the exhibition of photographs now being held at the Whitechapel Art Gallery, we have received the following letter from Canon Barnett, chairman of the committee, asking for contributions towards the expenses of the enterprise. We publish the letter, but we cannot see that the organisers of the exhibition can expect support from the photographic community. A committee which sets itself the task of introducing photographic art to the East-end should surely count the cost beforehand and be prepared to discharge its financial obligations. Canon Barnett writes:—"The Photographic Exhibition in this gallery is now drawing many thousands of visitors. The trustees are encouraged to believe that the interest awakened may make many East Londoners take up photography as an occupation for their leisure. They know that your readers will welcome such an extension of interest, both for the sake of the art and for the raising of popular taste. The cost of the exhibition is necessarily greater than can be met by the offerings of East London visitors. The trustees desire to ask your readers if they will help by sending a contribution to the treasurer at the gallery."

THE American Photographic Copyright League is just at present undertaking a tremendous work in the interest of all photographers. A new copyright law is before the coming congress, and the League has undertaken to see that photographers get their just rights, which seem in danger of being overlooked and left, if possible, in a worse position than before. As pointed out by "The Photographer," the law as it now stands prescribes certain rules which are being broken daily by men who have applied for and obtained protection for their products. Time and again the courts have ruled that a copyrighted picture must be labelled according to the formula laid down, and that any deviation, however slight, invalidates the protection. Yet every day we find in books, magazines, newspapers, and on original photographs sent out by the photographers themselves an incorrect labelling and a consequent loss of all protection in case of wilful reproduction. The photographers are to blame if the newspapers and magazines care nothing for the rights of the author of the pictures they use or if they invalidate the protection by incorrectly labelling them, and it is to teach the photographer his rights and how to protect them, and also to see that redress is obtained when his rights are violated, that the league was founded.

Correspondence.

* * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * *We do not undertake responsibility for the opinions expressed by our correspondents.*

THE INVENTOR OF THE ENAMEL PROCESS.

To the Editors.

Gentlemen,—In your issue of October 27 there is a letter by Mr. Gamble on "Process Work in America," and I wish to refer to one sentence, in which he says "The man (an Englishman) who discovered the enamel process admitted that he got the idea from an old "British Journal Almanac."

Apparently the name of the inventor of the enamel process is unknown because about once a year I see references to both this and the fish-glue process on your pages generally accompanied by an expression of surprise that the inventors' names are unknown. I am of opinion that some effort should be made to find their name so that due honour may be paid to them, as in all likelihood this is the only reward they will ever receive, and I enclose a communication which may help towards this desirable end.

About the time of the World's Fair in Chicago I made the acquaintance of Wm. H. Hyslop, a brother Scotsman, who was at that time keenly interested in ordinary process and three-colour work. He claimed to be the inventor of the popular fish-glue process, and his claim I have never yet seen denied. About twenty years ago, I think, Mr. Hyslop was well known in your city among advanced workers, because I have noticed in the "Almanacs" of that period that he is advertised by Dallmeyer as being one of the users of his lenses.

For many years Mr. Hyslop has been the victim of a very incurable disease which has made him a physical wreck, and his end cannot be far off, so I wrote to him on the subject, believing that he could give some authoritative information, and his reply I enclose, hoping that it may help in the solution of the enamel process mystery.—Yours truly,

F. DUNDAS TODD.

The Photo-Beacon, 808, Security Building, Chicago.

December 4, 1905.

The following is the letter referred to by our correspondent. It is addressed to him by Mr. Wm. Henry Hyslop:—

"Your letter finds me in great pain, but as it has lasted five weeks, and may last to the end, I will try to answer your letter as shortly and plainly as possible.

"I am not the originator of the enamel process, but I understand it was an Englishman working in Philadelphia that was so. I forget his name. The original process is simply a modification of the dusting-on process, and it is quite likely he got most of his details from the BRITISH JOURNAL OF PHOTOGRAPHY, but there are some things in it which certainly must be credited to him, as I am quite certain they never appeared in the BRITISH JOURNAL OF PHOTOGRAPHY or anywhere else.

"Many years ago I was in Philadelphia, and the process was given to me *minus* the necessary details, and when I got back and found it would not work I immediately set about finding a medium which would work, and this I found in fish glue. Now, it is very probable that as far as the fish glue enamel process is concerned, I am the originator. One thing I know to a certainty, is that I am the first person who gave the process to the public, and who wrote a practical article giving full directions. This

article was published in a Chicago paper, "The Printer Journalist," a man of the name of White being the then editor. It was at that time published on Adams Street, but it is either dead or gone somewhere else.

"My name should have been printed to that article, but by some mistake it was overlooked, and although it was published and republished in all quarters of the globe, I got no credit therefrom. There have been many aspirants to the honour, but the foregoing are the facts.

"Some six years ago I was told that the details of the original process had been practically public property, and that it was ousting the fish-glue process, but this I can quite understand, as in many ways it is surer and better. However, the fish-glue process can be used in exactly the same way, and I am not sure that used in that way it is not best of them all.

"If you don't hear from me again, I wish you good-bye and good luck."

STREAKS ON GASLIGHT PAPERS.

To the Editors.

Gentlemen,—Referring to your article on "Gaslight Papers" in last issue of "The Journal," I may be allowed to point out that the writer is a little behind in the treatment of streaks or pencil-like scratches. A better way to get rid of these is to prevent them appearing at all, and that can easily be done by adding a few drops of methylated spirits to a metol-hydroquinone developer. (I have not tried it in any other developer.) This may be new to your readers, as it only occurred to me a week or two ago to try it, and I found it successful. I use four to six drops per ounce of developer.—Yours truly,

NORMAN HUNTER.

The Studio, Port-Glasgow, December 18, 1905.

COPYRIGHT AND ELECTION PHOTOGRAPHY.

To the Editors.

Gentlemen,—I have read your interesting "Almanac" from the first with ever-increasing interest and profit, but this year I consider you have placed the whole of the profession under a deep obligation by the very lucid and clear article on the laws of copyright. You have managed to place technical terms in such simple language that all can understand, and one would have thought it embraced the whole subject. Yet there is one point on which I feel uncertain, and shall be glad if you will kindly enlighten me. The question is, Is it necessary to register each position taken of a sitter to ensure the copyright? For instance, I have just taken both candidates for the new Parliament, and have taken vignettes and $\frac{3}{4}$ figure, the vignettes being exactly like the $\frac{3}{4}$, only taken nearer, and, of course, head only. Must I register both? Again, I take the negatives in duplicate, hoping to have a run on them, and on developing them find my sitter, while I was shifting the plate of the $\frac{3}{4}$, has extended the finger of the right hand, which in the first exposure was closed, and in the case of the other sitter, while I was shifting plate, he has pulled down white cuffs, which do not appear in the first.

I am glad to note that copies ordered by the sitter after receiving a few complimentary copies does not interfere with the copyright.

In conclusion, may I add that the form of licence for use of photographs on p. 664 will doubtless be of much service to many besides.—Yours truly,

J. P. S.

December 18, 1905.

[As the Copyright Act very clearly correlates "a photograph and the negative thereof," it is inadmissible for the registration of one print to serve for several negatives, even though the differences are so slight, as in our correspondent's case. The fact that such differences exist would be sufficient, in an action, to prove that one

or other of the particular photographs had not been registered, and that, therefore, the proprietor of the copyright could make no claims in respect of infringement of the unregistered prints.—Eds. B.J.P.]

SOME HOLIDAY PROBLEMS.

To the Editors.

Gentlemen,—I see your last issue reports a meeting at which the question one speaker raised was that of an examination for the "general assistant." I entirely agree that such an examination should be conducted, in no narrow spirit, and as the holiday season may perhaps afford an opportunity for some of your readers to consider any suggestion at leisure, and with the mind mellowed by Christmas cheer, I may perhaps put down one or two questions from which some indication of the kind of examination desirable may be—or may not be—found. Probably not.

State what you know of: (1) Sandow's views on stand development; (2) The use of magazine changers in lending libraries; (3) The nutritive value of Velox.

Distinguish between a "free sitting" and a "free portrait swindle." Fractions may be used.

Discuss the law of C. Olney Hatch, that "the copyright value of a photograph decreases with the focal length of the lens." Show that as the focus becomes shorter the product is a perfect "sphere."

Assuming the capacity of a hansom cab to be one perfectly groomed man, calculate the traffic area in Pall Mall East. Express the result in long acres.

What is whisky? Give any reasons you may have against its use for the rapid drying of negatives.

A goldfish in the ponds of Sans Souci is reported to have used the word "photography" every 9th of May for the past hundred years. Discuss the probability of the truth of this assertion in reference to recent research.—I am, Sirs, yours very truly,

YORICK.

[We must ask our correspondents not to attempt competition with "Yorick," whose communication is admitted in appropriateness to the season.—Eds. B.J.P.]

ENTRIES for the third Scottish salon will close with Mr. V. C. Baird, Broughty Ferry, N.B., on Saturday, December 30.

MR. WM. A. FRAME informs us that, owing to his departure abroad, he has resigned the post of the secretary of the Glasgow Southern Photographic Association, and that the secretary now is Mr. Charles Young, 217, Crow Road, Partick, Glasgow, to whom all future communications should be addressed.

FORTHCOMING Public Exhibition at Derby.—Dr. Collier Green, the president of the Derby Society, made the interesting announcement at the fourth indoor meeting of the winter session that arrangements had been made for the holding of a photographic exhibition in the Art Gallery under the auspices of the corporation early in February. The corporation had been approached in the matter, and had readily acquiesced, and a sub-committee of the society had the matter actively in hand. There would be open classes and local classes, and medals would be offered by the corporation, whose only condition was that the work of the members of the Derby Photographic Society should be adequately represented.

M. LEON VIDAL, who for many years has conducted our French contemporary, "Le Moniteur de la Photographie," is withdrawing himself from these duties, which, he tells us, encroach too much upon his many other interests. M. Vidal will be succeeded by M. Charles Gravier, but he will not thereby dissociate himself altogether from photographic journalism. It is his intention to bring out an annual review of the industrial applications of photography—a task in which he has our most cordial good wishes.

Answers to Correspondents.

- *• All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- *• Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- *• Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- *• For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPH REGISTERED:—

Annie Bourke, 213, South Street, Perth, Scotland. Photograph of the New Altar St. John's R.C. Church, Perth.

FERRICYANIDE INTENSIFIER.—

Having read in some "Photographic Notes" that potassium ferricyanide might be used in place of bichloride of mercury for the purpose of intensification, I bleached a negative in a solution of ferricyanide, to which, however, I found it necessary to add a little hyposulphite of soda before it would act. The negative was then thoroughly washed, and I applied to it a pyro-soda developer to bring back the image, but with no result; the plate remained perfectly clear glass. Will you kindly tell me if the negative can in any way be restored?—E. H. ALLEN.

It cannot. The image has been removed by the Farmer's reducer which you have prepared. You must use a plain solution of ferricyanide, or with a little ammonia if it works too slowly.

INVISIBLE INK.—I think you recently gave an article in the JOURNAL on "Invisible Writing," but although I have looked through two or three numbers, have not been able to find it. I should be greatly obliged if you could give me a formula, or number in which it was published, for invisible writing to be produced by an after process, or heat for preference.—W. W. HAZELBY, Jun.

You will find the formula on p. 987 of the "Almanac." It is: Chloride of cobalt 25 grs., distilled water 1 oz. (fl.) Writing executed with this ink is first pink on paper, becoming invisible on drying. On warming, the writing turns blue.

COPYRIGHT.—I should be glad to have your advice on a copyright question. A photograph appeared in a local paper last Friday which I took, and I have now copyrighted same to-day, December 18. As I have published a postcard of the print which the paper has used without consulting me, it has probably done harm to my reproduction. I may say it was a public affair, and I presented copies to the parties interested and was not paid for doing it. Haven't I a clear case against them from December 18? As it is a weekly paper the sale will probably go on for some days after this date. What is the most advisable thing to do to recover anything from the newspaper people?—PRESSMAN.

You can stop the sale of further copies and obtain penalties for publication after registration. But we should advise you to write a fair letter to the paper, asking them to make you an offer. (See par. 22 in the "Almanac" article on "Copyright.") If you are a member of the Professional Photographers' Association you should put the matter in their hands.

VECTIS.—A bald statement that A. and G. Foucault had prepared a print-out bromide paper appeared in the "Bull. Soc. Franç." 1905, p. 107; a further statement was made, and specimens shown, loc. cit., 1904, p. 255. Both were noted in our columns at the time, but this is all that has appeared.

Absolutely no information is given as to the method of preparation, beyond the statement that "an entirely new modification of silver bromide had been discovered." We might add that we have very carefully watched for any further information, and that in the above statement you have the gist of all that has appeared, and that it is a mere waste of time to turn up the above references if you hope to learn anything.

HYPHO-ELIMINATOR, ETC.—(1) On p. 791 of the "Almanac," ammonium persulphate is regarded as the best hypo eliminator; on p. 955 is a formula. I know this substance as a good reducer, and should be glad to know if there are any working instructions. (2) I have difficulty in firing flash powder with a white-hot platinum wire. Could you help me?—Q. S.

(1) Better follow the instructions given with the commercial persulphate eliminator issued as "anthion," and obtainable from your dealer. (2) Try spreading the flash powder on a little guncotton.

A DEVELOPING FORMULA.—Would you be so kind as to print a formula suitable for developing midget negatives, taken with incandescent gas light? I have looked in the "Almanac," but do not see any specially recommended for this purpose. Would I be right, in mixing up developer, to use the grain weights as used with apothecaries' scales?—SUBSCRIBER.

Imogen sulphite is a good developer for the purpose. A. Imogen sulphite 1 gr., water 12 oz. B. Sodium carbonate 1 oz., water 2 oz. Use 1 oz. of A, 3 oz. of B, and 4 oz. of water.

STUDIO LIGHT.—I have just had a Westminster Engineering Co.'s arc lamp fitted in studio (which is commodious). Arc light is movable, and there is also room for moving backgrounds. But I cannot get results in portraiture owing to shadow of sitter reflecting on background. Tissue screen doesn't alter it. Can you help me with suggestion, or name of book on subject, if any?—NOVICE.

We can only suggest that the sitter is too near to the background, and that the lamp is too low. Try alterations in these two respects, and write us again if you fail. There is no book of any account on artificial light portraiture.

P. HENDERSON.—Hetley and Sons, Soho Square, London, W.

GEO. WOOD.—Henry Lindenmeyr and Sons, Upper Thames Street London, E.C.

GERALD CARTER.—Probably the postcard publishers would select a number. Your friend might offer them in a small advertisement in our columns.

F. P.—Theoretically there is scarcely any advantage in using the smaller stop, but with almost any lens you will obtain better definition at $f/45$, and with any of the cheaper lenses a notable improvement.

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EX CATHEDRA.

The Bleaching Out Process of Colour Photography. Professor Kümmell, in the current number of the "Photographische Rundschau," comments upon this process of colour photography as described by

Neuhauss, and suggests the following modifications, which are based on his own experiments:—The first experiments certainly gave reproductions of the colours, but there was always a very distinct red fog, which is ascribed by Professor Kümmell to the poor sensitiveness of the erythrosine used. In justice to Dr. Neuhauss we ought to point out that it was he who laid great stress upon the very accurate adjustment of the ratio of the quantity of erythrosine, and that the slightest excess of this dye causes the red fog of which the author speaks. Satisfied, however, that the fault was in the dye, Professor Kümmell has tried three different erythrosines, namely, tetrachlorotetra bromofluoresceine, tetraiodofluoresceine, and diiodofluoresceine in the form of the sodium salts. These dyes were obtained commercially, and also home prepared, each mixed with gelatine solution, coated on paper, sensitised with hydrogen peroxide, and exposed under a photometer. The tetrachlorobromo-fluoresceine proved to be the least sensitive, the most sensitive, the diiodofluoresceine, and midway the tetraiodofluoresceine. The last appears to be the dye used by Neuhauss, as its bluish-red colour seems the best fitted to give black with auramine and methylene blue, whilst the most sensitive diiodofluoresceine shows an orange tinge. The sensitiveness of the red dye can be increased by using the ammonium instead of the sodium salt. It has been noted that very pure dyes are less sensitive than those which contain small quantities of impurities especially traces of iodine. Tetraiodofluoresceine mixed in gelatine with auramine and methylene blue gives red fog, whilst with diiodofluoresceine the red parts of the picture

bleach out. Professor Kümmell has therefore tried to use both dyes simultaneously, and has replaced one fourth of the tetraiodofluoresceine with diiodofluoresceine.

Catalytic Aids to Sensitiveness.

Catalytic agents, as Neuhauss states, produce in many cases increase of the sensitiveness. Iodine appears to act with erythrosine, as already mentioned, as a catalytic agent. The strong catalytic action of colloidal solutions of the noble metals with hydrogen peroxide is well known, and it has been tried whether they would have the same action in the gelatine and dye mixtures; the gelatine was mixed not with pure water, but with colloidal solution of gold; the mixture was used in the same way as the others. The sensitiveness was in many cases considerably increased; the experiments are not yet concluded, but this action was distinctly noted when the gelatine was a little damp. The coloured gelatine can be transferred to paper as follows: Plate glass should be well cleaned, then rubbed with a solution of wax and resin in benzole, and polished. The gelatine mixture is then coated on this. After drying the gelatine should be superficially damped with a wet brush, then a damp sheet of paper squeezed into contact and the whole dried. As soon as thoroughly dry the paper and gelatine will spring away from the glass.

Getting Business.

Some little time ago we referred to the use of the price list in a very simplified form as a circular. It is possible to distribute a large number of such circulars without any great amount of business resulting from the effort, and we should be inclined to say that spasmodic efforts in advertising are as futile in this as they are in any other direction. The world is increasingly made up of business-like people, men, and women too, who are generally as much in touch with the restless and relentless activities of commercial life as the average photographer. They are exceedingly quick to see when a man is in earnest about his business, when he is adopting keen, alert, business-like methods, and we believe that just as we are a nation of shop-keepers rather than a nation with artistic perception so will the buying public prefer to go where business methods are adopted. Instead then of sending one circular and then another twelve months later, why should not the first circular be sent, and in perhaps a month a second communication, type-written, on a duplicating machine for preference, calling attention to the previous circular. The objection may be raised that the cost of postage is heavy. This is so, but largely because a great number of circulars are posted to people who are quite unlikely to become profitable clients. A good deal more time should be spent in preparing a list of probable customers, and then

these should be gently reminded of your active presence in their midst at frequent intervals. We would lay it down as a rule that the same circular should never be posted twice, something different in size, style, and matter being much more likely to be perused.

* * *

The Right to One's Face.

There appears to have been a little unpleasantness, last week, at a Baker Street bazaar. Miss Marie Corelli, on entering the building, was photographed, and the portrait has been reproduced in the illustrated press. It is now clear to a writer in the press (who refers to "our bazaar") that this is a species of gross libel upon defenceless women. The particular instance, which is so shocking, appears to be the representation of Miss Corelli attaining the "kindly object" of benefitting a fund established for charitable purposes. The public, we are sure, will protest against this denial of their right to see, in print, the earth's greatest and best going about on their errands of benevolence. If this be libel, it might be left to even greater philanthropists than Miss Corelli to object. However much one may approve, the suppression of the portrait, in this instance, the right of the photographer to photograph any object in which there is no copyright must remain unchallenged, and we may be sure that if any act of his institutes a libel the law will not withhold its remedy from the victim.

* * *

Photo-Buttons.

The announcement of the General Election has confirmed our suggestions of a week or two ago, that photographers would find the occasion one for business in the portrait brooches sold under the designation of "photo-buttons." A very popular variety of button is made with a mirror back, a form which it is suggested is most saleable among the feminine sex. As the smaller buttons of this, or any other, description are those which sell most readily, it may be well to point out that the mirror back should not be of flat glass, but should have a slightly convex surface, with the desirable object of exhibiting more of the possessor's face—albeit on a reduced scale—when he or she employs it for this purpose. The better class of buttons are put up with mirrors of this description, and the point is one worth bearing in mind when purchasing.

* * *

Medals—At a Price.

We were surprised the other day by the receipt of an official-looking document emanating from the "Exposition Internationale des Arts et Métiers," of Brussels, informing us that a gold medal had been awarded to the THE BRITISH JOURNAL OF PHOTOGRAPHY. Our surprise sprang from the fact that we had never heard of this particular body, and had taken no steps towards obtaining its award. The unsolicited tribute, however, of the "Exposition" is not entirely ingenuous. The document proceeds to inform us that a certificate of the award will be forwarded on receipt of five francs; that the medal itself will cost twenty francs, or may be had in bronze or silver at correspondingly lower prices, which are plainly printed in the tariff on page 2 of the circular. Our contemporary, "Truth," in commenting on the circular, invites any information as to the alleged "Exposition des Arts et Métiers," and associates it with a Parisian named Boettcher, and other parties, English and foreign, who have been prepared to grant diplomas to anybody who would pay for them.

TESTING THE STABILITY OF SILVER PRINTS.

It is an undeniable fact that more photographs, which will prove fugitive in the near future, are being produced at the present time than was ever the case before. That an amateur's pictures may fade is of very little moment to anyone but himself. He does not sell his work, he merely keeps it or gives it away to friends. With the professional, however, the case is quite different. His customers pay for their pictures, and therefore have a right to expect that they should not deteriorate within a few years of their being supplied to them. It is not at all unusual to hear the remark, when fading pictures are seen, that "all photographs fade you know." The reproach to photography is one that it does not of necessity deserve. There are silver prints by the thousand in existence that were made fifty or sixty years ago which are still as good, to all intents and purposes, as they were when first produced. These pictures stand as a proof that the phenomenon of fading is not inherent in silver pictures.

If such photographs were produced so long ago, and at a time when a knowledge of the chemistry of the subject was so scant, one may well ask why do many of the modern prints pass into the sere and yellow leaf so quickly? One thing is certainly noteworthy, namely, that the past generation of photographers were evidently more concerned about the stability of their productions than seems to be the case with their successors. Some fifty years ago the Photographic Society of London, now the Royal Photographic Society, appointed a committee of experts to inquire into the subject of fading photographs, and a report on the subject was presented. Since that time very little has been done with regard to authoritative investigation of the best means of producing reasonably permanent silver pictures. This is to be regretted, particularly as there are now so many more different processes in vogue and so many more different methods of toning. It may well be asked, what should be the test of permanency. It goes without saying that the best and most reliable test of all is that of time, necessarily a long and tedious one. Hence it is requisite to anticipate time by other methods, and the question is—What is the most reliable one? This question, one must confess, is more easily asked than answered.

We often read, when a new process of printing is brought forward, or when some modification in toning is advocated, that the author quotes as a proof of the permanency of the results produced by it, that prints have been subjected to strong light in a window for some months and yet show no signs of fading. Now, as a matter of fact, this is no test at all, for, as a rule, the pictures are exposed under conditions that are actually conducive to stability rather than fading. Light has little, if any, destructive action on a fixed print, and when the exposure is made in an ordinary room the conditions are those of dryness and a tolerably pure atmosphere. It is moisture and impure air that usually bring about the destruction of silver photographs. A pure and dry air is just what is conducive to the life of a silver photograph, by whatever process it is produced. The only circumstances under which it is likely for exposure to light to cause change is when the paper has been tinted with a fugitive coal-tar colour. An exposure in an outside show-case is a somewhat more trying test, inasmuch as, unless it is an airtight one, moisture is usually present.

It was said, a few years ago, that the most severe test a silver print could be put to was to expose it in a tunnel of the District Railway, and, steam traction being in vogue at that time, there was no question that if a print

withstood this test for a few months, or even weeks, it might be considered to all intents and purposes permanent. Those who exhibited specimens at the underground stations were fully aware of the destructive action of the fumes from the engines, unless the cases were made perfectly airtight in the first instance.

With reference to the light test alluded to above, Hardwich, in his sixth edition (1861), says:—"Bottles containing photographs suspended in damp air were placed outside a window with a southern aspect for nearly three months, but no difference whatever could be detected between them and others kept in total darkness." In another portion of the work he gives the following as a good test of permanency. He says:—"The most available and simple plan of testing permanence is to enclose the pictures in a stoppered glass bottle with a small quantity of water. If they retain the half-tones after a course of three months' treatment, the mode of printing followed is satisfactory." Although this simple method of anticipating the test of time was suggested so long ago,

it is questionable if any all-round better one is available now. Supposing, for example, one wants to test the relative stability of prints made by different processes, or toned by different means, we suspend them together in, say, a gallon glass pickle jar, with a little water at the bottom, and perhaps also with a small piece of sulphide of potassium, and secure the opening with a closely-fitting bung. The whole is kept preferably in a tolerably warm place for two or three months. Under these conditions most silver prints will succumb in quite a short time, and it will be obvious that those which withstand the deleterious action the longest are the most stable.

It may be agreed that photographs are never intended to be kept under such conditions. Yet the object here is to anticipate the action of time by subjecting the prints to their most destructive agents—damp and deleterious vapours—under enhanced conditions. There are other tests that may be applied, but the above is a simple one, and one that anyone without chemical knowledge may employ.

MATT SURFACE CARBON PRINTS.

HAVING experienced some difficulties with respect to obtaining matt surface carbon prints from ground opal as a temporary support, and having successfully overcome them, the following account of the means I adopted may prove acceptable to other photographers who find any trouble with this process.

In my first experiments I took the usual course of waxing the opal with one of the ordinary waxing solutions as applied in the double transfer-process to the temporary support, the result being that on development the film left the opal wherever the shadows were in contact with the whites, causing a frilling along the whole outline. With very careful development one or two prints were obtained only slightly frilled; but, on proceeding with these, the final support could not be removed from the opals with complete transference of the lighter tones. On consulting various books, and the instructions issued by makers of carbon tissue, the majority of which were annoyingly silent on the matter, I at length found some brief instructions for coating the opals with collodion, when matt surface prints were required, in place of the usual resinous waxing solutions.

As a matter of fact, the greasy waxing solutions are of no use in application to this particular process. Owing to the roughness of the ground opal the carbon print is separated into minute detached particles in the lighter parts which sink deeply into the grain, and, in the shadows, is held to the support mainly by the extreme projections of the roughened surface. To give a grip to the tissue in the shadows, and to ensure easy transference of the lighter tones, it requires on the opal a substratum or thin continuous film such as is given by collodion, albumen, or gelatine.

Collodion as a Substratum.

Opals for this process should be carefully selected. The grain must not be too coarse, but quite as fine as that on the ground glass of a focussing screen. Pumice powder applied with a wet cloth will remove all dirt from the surface of the opals, and if used regularly will keep them with a most suitable grain. It is necessary to take every precaution against scratching the surface, for each scratch will show as a glossy mark on the finished print. After cleaning and washing, and when quite dry, the opals are polished with French chalk, all particles of which must be dusted off before coating. The collodion solution consists of the following:—

Enamel collodion	...	...	...	1 part.
Ether	...	...	...	1 "
Alcohol	...	...	...	1 "

The opals are coated immediately before use, the solution being applied in the same manner as varnish to the negative, except that no heating is needed. In a few moments the coating will become set or jellified, but not dry, and when in this state the opal is plunged into a dish of cold water. For a time the collodion will repel water, having a greasy appearance, but in a few minutes this greasiness will disappear; when it occurs the exposed tissue may be placed in the water, squeezed down, being subsequently developed, and finished in the ordinary way.

By this process excellent matt surface carbon prints can be pulled from ground opal. There will be no signs of frilling or blisters; the detail in the half-tones will not "bleed" or wash away; the film will transfer easily, the prints being every bit as good as those from temporary support or by the single transfer process. The great drawback to the use of a collodion substratum is that of its cost, otherwise it answers the purpose admirably.

An Albumen Substratum.

A cheaper, and in many ways more convenient, substratum can be made by employing albumen. It is not, in some respects, equal to the collodion, for it has a tendency to release the whites, more especially when using new tissue, or when the negative is at all "contrasty." For all ordinary work from average negatives it is, however, quite reliable. The coating solution is made as follows:—

Albumen	...	...	Whites of three eggs.
Bichromate of potash	...	10 to 15 grains.	
Ammonia, .880	...	½ ounce.	
Water	...	20 ounces.	

The whites of the eggs are first thoroughly beaten with a whisk until quite frothy. The bichromate and ammonia are dissolved in a portion of the water, the beaten albumen added, and the solution made up to twenty ounces of water. The opals are prepared as previously in regard to cleaning with pumice powder and French chalk. A portion of the solution is then poured on the centre of the plate, and next spread over the whole surface by means of a glass rod.

When coated the opals are set up in a rack to dry, it being essential that the drying takes place in a strong actinic light. The light acting on the bichromate in combination with the albumen renders it insoluble in hot water, thus forming the necessary hard substratum upon which the tissue can be developed. Once hardened by the action of light, the coated opals

can be stored away, being at any time ready for use. Subsequent operations, squeegeeing, development, and transfer to the final support are conducted according to regular practice.

The final drying in this process must be very thorough. Unless the transfer paper is bone dry it will not leave the opal; ordinary drying in the atmosphere, except in the height of

summer, is not sufficient, and artificial heat must be applied to drive out every trace of moisture. My own practice is to leave the opals after transfer for twelve hours to allow the bulk of the moisture to dry out, and then to place them in a drying cupboard or before a fire until the paper strips from the support with little, if any, applied force.

JOHN A. RANDALL.

THREE-COLOUR NEGATIVES.*

PHOTOGRAPHY in natural colours requires, like monochrome photography, before all things (if first class results are to be obtained), good negatives; in fact, one might almost say that in three-colour photography direct perfect negatives are absolutely essential, for whilst in ordinary work a negative which is not quite correct can be made usable by reduction or intensification, these processes are almost excluded in three-colour, as they are at all times risky. In order to obtain a good negative, it is well-known that correct exposure and correct development are essential. The question now is: When is a three-colour negative correctly exposed and developed?

The "White" Test Object.

Most authors give as the test for correct exposure, that a pure white object must appear equally dense in all three negatives; equal times of development for all three negatives being assumed. From my own practical experience I cannot accept this axiom; indeed, I contend, that this rule is only exceptionally correct, and under absolute determined conditions. One of these conditions is that one has actually a "white" object, and this is not often the case. Thus, for instance, an object, which in itself may be white, can appear strongly coloured through reflection; a fact which only an expert eye naturally can detect. On the other hand, it is very easy for an object which is not actually in itself white to appear so, as in the presence of very brilliant colours, and in photographing the same, it will not show as such, and therefore in the two cases false conclusions as to the correctness of negatives may ensue.

Examples in Practice.

The two following cases, which actually occurred in practice, may be cited as illustrations:—To determine the exposure, a plaster bust was used in the ordinary way. It was proved later that the ratio of exposures was not correct, really because the plaster bust was a yellowish white. When looked at by itself, it appeared to be white, but as soon as another white object, for instance, a pocket handkerchief, was placed beside it, then at once the distinct yellowish tinge of the bust was seen. The negatives of this plaster bust ought not to be equally dense when correct.

An example of the second fault occurred in the case of a hall lined with blinding white and highly polished marble. It might be assumed that the three negatives should appear equally dense with correct exposure. This, however, was by no means the case. Why? Because the marble was not actually white, but appeared as though coloured. In consequence of its high polish, it reflected all coloured objects; for instance, the gold covered furniture, the bright brown parquet floor, and the result was that these colours could not and did not appear of equal density in all three negatives.

The Plate and Exposure Ratios.

But even when one has an absolutely white object, is this method of controlling the negatives only free from error under given conditions, namely, when a plate is used, on which the developer produces the same density as on an unstained plate?

If the colour-sensitised silver bromide is quite fresh or keeps

well, then it will develop dense. If, however, a plate has been kept for a long time, or does not keep well, such as bathed plates, then it is inferior to the undyed plates, it has altered chemically, with the result that the dyed bromide does not develop so dense as the undyed.

As now the negative through the red filter is made on the dyed silver bromide and the negative through the blue filter on the undyed bromide, it is clear that, in spite of correct exposures, the negatives cannot show equal densities in the lights, and thus conclusions drawn from this as to the correctness of the exposures would be directly false. I am in possession of negatives which, although made with the same filters and under the same conditions, still show decreasing density in the red-filter negative, the longer the plates are kept. The blue-filter negative, on the other hand, keeps its vigorous appearance so long as the change in the colour-sensitive film has not proceeded into decomposition. With bathed plates, especially, this observation can be made very well.

My observation, that the blue-filter negative is almost always denser, is confirmed by an article by Husnik in Eder's *Jahrbuch*, 1905.

On further grounds, too, can the advice as to equal density in the "whites" be shown to be erroneous. When the densest parts of the negatives are compared, it will be found a difficult matter, for the differences must be tolerably great to be visible with such great density. Therefore, I prefer to estimate the correctness of the exposure ratios from the shadows of the negatives.

Panchromatic Plates.

Intimately connected with the above phenomenon is the increase of the red sensitiveness of panchromatic plates. This increase is, as already said, only apparent.

Through this chemical change—which obviously must not have gone so far that it takes the form of fog—the plate behind the red filter works softer, and it is natural that the operator, in order to obtain the usual plucky looking negative exposes for a shorter time. As a matter of fact, he introduces more or less strong under-exposure, so that the negative looks pluckier and has more of the original appearance. Any practical use of this *only apparent* increased sensitiveness, can obviously not be made, since no one can say beforehand how far this change will proceed in a given time, or whether it has reached that point at which it will be apparent as fog.

A Black-Test Object.

As regards the determination of the exposure ratios, I actually use not a white but a black object; for instance, a matt black cloth in folds. Instead of the black cloth one may use a yellow, a red, or a blue cloth, the colours of which must be so chosen that the yellow cloth looks black under the blue filter, the red under the green, and the blue under the red filter.

In ordinary monochrome photography, as is well known, we decide whether the negative is correct when a black object appears clear in the negative, but still allows detail to be seen there. Three-colour negatives will be then correctly exposed, when the black cloth or the cloths, which appear black through the filters, are clear in the negatives, but are reproduced with

* A paper by Hans Schmidt in "Photographische Mitteilungen."

good detail. If the negatives in the said places are clear, but do not show details, then they are under-exposed. If, on the other hand, the negatives are fully exposed for these parts, then the exposure has been too long.

A white test object may, of course, be photographed at the same time as the black one. The former then becomes a good means of determining whether the development is correct. The negatives are then correctly developed, neither too thin nor too dense, when the densest parts of the same are still translucent.

A good three-colour negative has usually the character of a so-called soft harmonious negative, such as is desired for albumen printing; this, however, is not invariably the case. By the differentiation of the colours it may frequently happen that one of the three negatives presents a totally different appearance from the other two. This experience will be met with, for instance, in autumn landscape work, where generally the blue filter negative will appear glassy, whilst the other two negatives will appear normal.

Exposure Ratios under Different Conditions.

Another important question for practice is whether the ratio of exposures remains constant. This question I may answer with "No," for the ratio of exposures, with the same set of filters and the same emulsion, alters; it is dependent on the intensity and composition of the light that illuminates the object. The explanation of this is as follows: When a filter is examined with a spectroscope against a diffused sky, with the red filter, for instance, all may be cut out up to the D line, if, however, the same filter be examined against the direct sun, it will be found that under these conditions there is quite another absorption, for instance, perhaps the whole of the yellow will be transmitted. The filter in question will therefore be "more open." On these grounds, I am of opinion that filters which have been adjusted for studio work in diffused daylight cannot be satisfactorily used for outdoor work in summer sunshine. No attention has hitherto been called to these practical necessities, but in the course of my experience, I have found them absolutely necessary.

Landscapes especially, can only be well reproduced with narrow filters, although this gives a less favourable ratio of exposure. But in colour photography we must choose one of two methods, either the best colour reproduction, and somewhat unfavourable ratio of exposures (Professor Aarland's method) or a ratio of exposures as satisfactory as possible with a colour reproduction that is free from errors (Professor Miethe's method).

The Composition of Daylight as a Factor.

A further factor which influences the ratio of exposures is, as already pointed out, the composition of the light. It is a well-known fact in colour photography that in a yellowish light, sunlight, for instance, the orthochromatic action is much greater than in a diffused light. This also applies to exposures through filters. The composition of light is never constant. Days occur on which the light is very rich in red, but poor in blue rays, and so on. Very interesting studies may be made on this subject in the autumn. I have repeatedly observed that on a day when there was a strong mist the light was very poor in blue and green rays, whilst the red rays in proportion to the others were only slightly reduced. This is a fact that is generally recognised in photometry, and on account of this yellowish red light, such as petroleum, is preferred for light-houses.

That the ratio of exposures is also dependent on the position of the studio, must also be mentioned. It is a well-known phenomenon, that in many studios the light alters considerably in the course of the day. It frequently happens, for instance, that in the morning, a very warm, light, rich in yellow, is met with, whilst in the afternoon it is very "cold." Since the chemical action of light is not strictly proportional to these changes, the ratio of exposures must alter. If, for instance, the ratio for blue to red is found to be for the morning as 1:4, in the afternoon it may be as 1:4½. It is as well to take notes of these facts in making exposures for those processes in which the positive process allows no play. When the latter does occur, then these variations have not so much weight.

CLOUDING PORTRAIT NEGATIVES.

To photographers on the look-out for novelties as incentives to business, I would suggest that the clouding of portrait backgrounds of head and shoulder photographs, if neatly and artistically done, might be an excellent line. For whilst an extra charge can (if desired) be made for photographs so finished, the process practically costs no more than any other style, and the extra time occupied is fractional. Personally, I could cloud numbers of cabinet backgrounds at an average speed of from two to five minutes per negative. And another point to be considered is that the semi-fanciful finish obtained harmonises well with mounts suitable for photographs for presentation.

The Modus Operandi.

Varnish the retouched (or otherwise) negative with what is known as matting varnish, of which the following is a good formula, viz. :—

Seed lac	...	...	...	...	2 ounces.
Sandarac	...	...	...	...	2 ounces.
Oil of lavender	...	...	...	...	½ ounce.
Castor oil	...	...	...	½ to 1	ounce.
Methylated alcohol	...	...	...	...	40 ounces.

The addition of some powdered glass will facilitate the solution of the gums, and gentle heat usually has to be used also. When dissolved allow to stand for several hours, then decant, and filter once or twice (an advantage). Great care must be used to ensure both negative and varnish being absolutely free from dust, as it is fatal to success in this class of work. After the

negative is cold rub the varnish gently down with the fingers, which have been previously dipped in powdered resin. When a uniform matt surface has been obtained wipe off with cotton-wool and keep the latter for further use, as dusting the negative with this impregnated wool is infinitely superior as a preliminary to dipping the fingers in powdered resin.

Handling the Negative.

The negative is now ready for clouding, which is done with the aid of a stump (a tint-stump for broader surfaces) and some electrotypers' plumbago.

For the stump choose a very firm-pointed paper, about half an inch or more in diameter, and rotate the pointed ends on a piece of fine glass-paper until they present a perfectly smooth and silky appearance with fine points. A tint-stump can be made by screwing a small flat button on to the end of a pen-holder, and covering the knob thus formed with two or three thicknesses of ordinary surgeon's lint.

Place some of the plumbago upon a washleather pad, and work it well into the leather with the ordinary stump. When the latter is evenly charged (not too heavily) apply it over the background of the negative so as to form clouds "in negative," the best kinds for the purpose being those known to meteorologists as cumulus, cumulo-stratus, and "scud." It is important to make the highest lights in the clouds less intense than those of the features, otherwise the artistic quality of the production will be lost, and the picture look "made up." Let the work, therefore, be of a subdued tone, the highest lights equalling in

depth the middle tones of the face, and placed on the shadow side of the latter. By doing so the portrait will be thrown out, and if the clouds on the lighter side of the face are only faintly portrayed it will give the effect of light striking them after it has passed the sitter, and will cause the background to build up and harmonise with the rest of the photograph instead of detracting from it. Again, it sometimes happens (if the clothing is of a similar tone to the background) that the shoulders seem to merge into it, and when this may be undesirable it is easy to bring them into relief by clouding the latter over their immediate vicinity, any overlapping of the work being afterwards erased

with a retouching knife, used so as to glide over the varnish without scraping it.

Vignette "Clouded" Negative.

Of course negatives finished in this method should (usually) be printed solid, although it is possible to obtain some very nice results if they are vignetted, provided the retoucher has had the latter method in view when retouching. The work should have a soft, fluffy, but not woolly appearance, the higher lights being of very narrow or small and the shadows (formed by leaving the part alone) of greater and broader proportions.

ARTHUR WHITING.

A FIFTH AVENUE ESTABLISHMENT.

THE new partnership into which, as we reported a few weeks ago, Mr. Rudolf Eickemeyer, jun., is entering in New York is with Mr. Charles H. Davis's, whose firm thus changes its original title of Davis and Sanford. Mr. Davis has long been the moving spirit in

At the most fashionable part of Fifth Avenue, where more than fifty thousand people are said to pass every day, on the top floor of a stylish office building, you will find the famous studio of Davis and Eickemeyer, successors to Davis and Sanford.

A huge reception hall, with a skylight decorated with evergreens, greets the visitor. There are pictures everywhere—on the richly carved tables of Flemish style, on the walls, in showcases—photographs, portraits, pictorial bits and gum prints, pastels, miniatures, and oil paintings in frames of every size and period imaginable.

I send in my card, and while waiting turn over the pages of an edition de luxe of Sir Henry Raeburn's paintings that lies on the table. Mr. Charles H. Davis enters—a striking personality, genial, unassuming, matter-of-fact—with that peculiar twist and slight stoop in his figure which men of will power and restless energy invariably have.

"May I look over your prints?" I ask. He is only too willing. The portraits present a remarkable average of excellence. They are all made in the academic style, clear and distinct, and have that peculiar sympathetic quality which tells even the stranger that they are good likenesses.

"You do not have much sympathy with the tonalists?"

"No, they are not to be taken seriously. They are a joke." His remarks are always pert, to the point, and he utters them with peculiar emphasis, but uses gestures rather sparingly.

"I believe in clear lighting," he continues. "I want the entire figure, and try to give it as much variety as possible. I have no patience with these men who only restrict themselves to bust portraits. There is no chance for composition in them. I work on the same principles as the painters do. I strive for line, a natural attitude. You will find that all my subjects are correctly poised. Never make a mistake in that. You will see that I pay quite as much attention to the position of the feet as I do to the arms and the face."

The standing figures that he shows me are of astonishing variety. They show decorative simplicity and exquisite precision of line, and they are posed in a way to show repose without loss of active suggestion.

"Look at the cast of Diana's head over there. Do you see how the oval of the face, slightly turned sideways, is set upon the neck. The lines of the neck and face flow together in a curve. I pose all my heads this way. It is the classic standard. You will not find a single head that does not carry out this idea. You will also notice that I give particular attention to the hands. I do not know of any other photographer who carries out these ideas, at least not in the same way as I do."

I perfectly agree with him. He is a master of hand posing. He

his establishment in Fifth Avenue, and it may, therefore, be of interest to make some few extracts from the record of an interview with him which we find in the American "Amateur Photographer." —Eds. B.J.P.]

always manages to get the hands into the same plane as the face, and they never look out of place or disproportioned.

"Do you believe in retouching?" I next inquire.

"As little as possible. But I keep in mind that my class of clients insist on the removal of skin blemishes. I do not believe in too many corrections on the negative. I strive to overcome all shortcomings by a system of lighting that flatters my sitters. I seize directly on their best points, and pose them in such a way that all their natural defects are hidden or subdued in contradiction to the usual method of over-retouching."

"Then you indorse my opinion that the principal thing in photography is the arrangement of the subject before the picture is taken. You do not believe in taking haphazard shots and correcting them afterward?"

"There are no accidents in my work," he answers with peculiar emphasis. "I know exactly what will be on the plate, and I always work toward the ideal as closely as the nature of subjects and gowns permit. You may also state that I am a skilled hairdresser, and I make use of the knowledge right along during the sittings. There is hardly a day that I am not called upon to arrange the hair of some lady, to build up some elaborate structure or to produce a picturesque effect. I also advocate the use of simple gowns, that do not go out of fashion as quickly as tailor-made costumes. It is of advantage to the photographer to portray a lady in a gown that belongs to no special period, as it will enable her to order prints from the same negative even after a lapse of ten or twelve years. I am sometimes asked to select the dress for a lady, and visit her home for that purpose, or let her bring along five or six dresses to choose from. Drapery, of course, would be more picturesque than anything else, and I sometimes succeed in persuading them to make use of it."

Mr. Davis is remarkably free from all idiosyncrasies of contemporary camera work. He has ransacked art, but only to become more efficient in his profession. His ideals are accurate facial expression, clear lighting, simplicity of pose, naturalness and unconscious grace.

The best or most ideal results in photography can be achieved only when the photographer and his subject are thoroughly in sympathy. As it is extremely difficult for any photographer to be thus in sympathy with many subjects, differing as they do greatly in character, it follows that perfect photographic work must be very limited in quantity, unless the photographer can by cultivation and some degree of self-abrogation, establish such a bond. Charles H. Davis, as well as his new associate, Rudolf Eickemeyer, has this appreciation for the sitter. They see something of interest in every person; and this real sympathy, which so many photographers lack, should assure the studio now, as in the last two decades, success with the large masses of the intelligent public.

SAVING PHOTOGRAPHIC WASTE.

[The current issue of "Wilson's Photographic Magazine," in quoting a recent article from our columns on the question of the recovery of silver residues, publishes in connection with it some notes on the practical methods of residue saving as discovered in the course of a lengthy studio experience. As we have often pointed out, a great deal depends on the scale on which operations are carried out, but as the question is one on which queries are often addressed to us by our readers, we may quote from the article, which is by the well-known writer, Mr. A. J. Jarman.—Eds. B.J.P.]

The subject of saving the waste material that contains the precious metals has been written and rewritten many times. It might be considered unnecessary to treat upon the matter because it is thought that the subject is well known and understood. Such, however, is not the case. There are many photographic establishments to-day in New York City, and doubtless in scores of other places, where the waste is not taken into account. Then there are establishments where the silver waste is saved and the old toning baths and platinum solutions are thrown away.

The editor of one of the photographic journals asked the writer a short time since whether it was not possible to precipitate the silver from waste solutions without the use of that very objectionable chemical, sulphide of potassium, or liver of sulphur, as it is sometimes called. The latter name was given by the alchemists who discovered it. Yes, it is possible to precipitate the whole of the silver by means that will not be objectionable in a photographic establishment. They will be here described.

To Save or Not to Save Apparatus and Materials.

In the first place, procure a kerosene oil barrel, or a wine barrel, remove one end, then wash the barrel out with hot water and drain, then bore a hole about one foot high from the bottom, and insert a wooden tap or faucet such as is used in a vinegar cask or a cider barrel. Mount the barrel upon a strong wooden stand or trestle, and provide a wooden cover. The object of the cover in this case is not for the prevention of any injurious fumes escaping, but to prevent the dropping into the barrel of anything of use and value. Pour into the barrel any kind of silver solution, such as the fixing solution that has been used for negatives (this solution is always rich in silver); also the first making of the silver prints and the hypo solution that the prints have been fixed in. Place in the barrel about eight or ten pounds of clean scrap zinc, cut into strips about three inches wide and a foot or eighteen inches long. As soon as the barrel is about half-full of these solutions pour into the mixture about a pint of common muriatic acid (spirits of salt). Stir the mixture with a long strip of wood, replace the lid and allow the mixture to stand. Continue to add the waste solutions until the barrel is full, or nearly so, when a few ounces more of acid may be added. If allowed to stand undisturbed for two or three days the whole of the silver will have been precipitated in the form of metallic silver and sulphide, due to the liberation of sulphur from the hypo upon the addition of the muriatic acid. The clear liquid may now be drawn from the barrel by the wooden faucet, and thrown away. Continue to save the waste in this manner until the precipitated material has nearly reached the faucet. Then make up two or three bags of calico, about eighteen inches long and eight inches wide. Arrange a piece of string in the top so that they can be suspended from a rod placed across the barrel. Scrape up the precipitate with a small enamel saucepan, pour it into the bag until the bag is full. Proceed in like manner with the second bag. Allow them to drain thoroughly, say for the night, now tie the mouths of the bags up and all is ready to send to the refiner.

Small quantities of nitrate of silver solutions may be thrown into the barrel, but if the quantity of nitrate of silver solution is large, it will be advisable to precipitate the silver as chloride, in a large

stoneware crock, by the addition of muriatic acid (common), and not by means of common salt, because if the salt is added in excess, a portion of the chloride of silver which is formed will be dissolved, forming a clear solution of the double chloride of sodium and silver. A solution of common salt is all right, providing you know the exact strength of the silver solution, and figure out the right quantity of common salt to use. If not, the chances are that much of the silver will be lost for the reason given. When emptied the barrel should be replenished with pieces of zinc if found necessary. Always add the muriatic acid a few ounces at a time, because the liquid in the barrel is apt to effervesce and foam up, owing to the presence of gelatinous matter from some of the papers. If the barrel can be kept out of doors the sulphide of potassium can be used, but for indoor use the above method cannot be surpassed.

Gold Residues.

In saving gold waste from the old toning solutions the usual plan is to employ a five or six gallon stoneware crock with lid. Place in it a handful of protosulphate of iron. Pour into this the discarded solutions and stir up occasionally; but to get the full effect of this, the crock should be kept in a warm place, or the old solutions made hot occasionally when thrown in. If a few strips of zinc are placed in the crock in addition to the protosulphate of iron, and a few ounces of muriatic acid added occasionally, there will be no need to heat the liquid, nor to stand it in a warm place. Every trace of gold will become precipitated. The liquid will froth up sometimes upon the addition of the acid for the same reason given for the silver solution. When the crock is full, decant the clear liquid carefully, so that no precipitate is lost. Continue operation for about one year then wash out the crock with its precipitate, pouring this into a filter paper that has been fitted into a large funnel. Be sure and place a small piece of absorbent cotton across the apex of the filter paper. This will form a strengthened support for preventing the filter paper from breaking. As soon as the precipitate is well drained it may be dried and sent to the refiner. Any other waste gold solution, such as the washings from bottles containing deposited gold upon their sides and spoiled gold solutions should all be thrown into the crock.

All these little points should be attended to in a photographic establishment, for it costs no more labour to cast these old baths into the saving vessel, than it does to throw them down the sink. All kinds of silver paper, whether toned or not, should be saved, and packed in a sack or in a sugar barrel when sent to the refiner.

Platinum Wastes.

Platinum waste of every description should be saved by the photographer; all the scraps of unused paper, as well as discarded prints and the print trimmings, old or disused developing solutions, and the first acid clearing liquids in particular. The value of platinum to-day is twenty-two dollars per ounce, gold being twenty dollars and eighty cents, and silver about forty-five cents. The refiners of platinum allow eighteen dollars per ounce for the metal obtained from photographers' waste, so it will be seen from this what is to be gained by the exercise of a little care.

The best way to save the wastes of platinum in addition to the paper scrap is to employ a large stoneware crock, anything from five to ten gallons. Those of an upright form are best for metal; fitted with a stoneware lid. Place in the crock three or four pounds of scrap zinc as previously described. When any number of platinum prints have been developed and cleared in the usual muriatic acid solution, pour all of the first clearing solution into the crock. If the number of prints has been considerable, throw in the second acid bath as well. Chemical action at once takes place, the acid attacking the zinc as well as the small quantity of chloride of the platinum salts. The

zinc strips become blackened, by the deposit of metal platinum in a finely divided state. Eventually this falls to the bottom of the crock, together with iron and other bodies. By the next day all the platinum has been thrown down. Continue the adding of these acid solutions, as well as any discarded platinum toning baths used for toning paper prints, until the crock is full. Stir the contents well with a strip of wood and allow to subside. This usually occurs in a night. The clear liquid may now be bowled out with a small saucupan and thrown away, of course taking care not to disturb the precipitate, which looks like grey mud. All old or discarded developing solutions may be thrown in with the rest. It does not matter whether the developers and clearing solutions have been employed for black or sepia.

It may be found necessary occasionally to add a few ounces of muriatic acid to the contents of the crock, to aid precipitation when the acid baths have become almost neutral by the admixture of much of the developer, and through the addition of old developers. Stir the mixture up every night. This will insure the deposit of all the platinum.

Collecting the Platinum.

If there is much work done in the production of platinum prints, it is advisable to employ two crocks; it will well pay the photographer to do this. After a month's or six weeks' saving the precipitate may be removed. To accomplish this employ a large glass funnel, about one gallon; place at the bottom a drawn-out piece of absorbent cotton about the size of the palm of the hand; fold up a piece of stout blotting paper to act as a filter; place a fine strip of the same paper, folded, against the sides of the funnel, then fit in

the folded blotter; bowl out the precipitate; fill up the funnel which should be placed in a six-inch hole in a piece of board across the top of one of the crocks; continue the filling of the funnel until it is full, or as soon as the filtering is complete. The whole mass may be stood aside to dry, or placed in a box that has several thicknesses of old blotting pads upon the bottom.

Continue to save the precipitates in this way until there is about twelve pounds of this precipitate which in a large establishment will take about three months to accumulate. It may now, together with the paper cuttings and waste, be sent to the refiner, where it will be found that the returns made will form an agreeable surprise. If the number of prints have been about three hundred per day, of varying sizes, and the directions here given have been carried out correctly, especially if the prints made have been in black, and not many in sepia, it will be found that about fifty dollars will represent the sum returned for the platinum waste alone. If saved for a year in varying quantities, together with the gold and silver, where some five or six hands are required to turn out the printing, the returns for waste may be expected to realise from one hundred and twenty dollars to one hundred and fifty. This statement is based upon actual experience in the saving of waste upon the lines here described.

The value of precious metals that is allowed to waste will amount to thousands of dollars in many large cities, where it is deemed today in many establishments that the returns are not worth the trouble to save. Platinum paper contains a large percentage of the metal, and when it is considered that every ounce of platinum will return the photographer eighteen dollars, it will be seen that here is a source of income that is well worth giving attention to.

RECENT INTRODUCTIONS IN COLOUR PHOTOGRAPHY.

In colour photography more than in any other photographic process methods are in a transition state, and no one will maintain that there are signs of any process or processes fixing themselves permanently in practice. Yet it is desirable to record what is claimed for new processes as they arise, and we may therefore conveniently do so in several instances by quoting, in whole or in part, from several articles in "Penrose's Pictorial Annual," reviewed on another page. In these contributions the inventors of processes or

modifications of processes state their own cases, making claims which cannot be accepted in every case without qualification. However, as our duty is to give our readers the opportunity of considering what is being done, we may allow the contributions of Mr. C. G. Zander, Mr. John H. Powrie, Captain Lascelles Davidson, and Dr. E. F. Grün to create their own impressions. The handsome new volume of "Penrose's Annual" may be consulted for the articles *in extenso*, and for the supplemental illustrations which there accompany them.—Eds. B.J.P.

THE COMPLEMENTARY COLOUR REPRODUCTION PROCESS.*

GREAT as was the future unanimously predicted for three-colour printing when it made its public appearance and caused a sensation in the printing world, some prophesying the early extinction of chromo-lithography by the process of photo-mechanical colour printing, the early results were far from perfect. It was contended, however, that the process was then in its experimental stage, and that there were technical difficulties and defects in its practice which had to be overcome. Amongst these difficulties were photographic plates comparatively insensible to various colours (particularly red), incorrect colour filters, unsuitable printing inks, inexperienced printers, and the unsatisfactory method of printing from half-tone blocks.

Fifteen years or more have passed, and when looking back upon the early productions of three-colour printing one cannot help being disappointed at the comparatively small progress which has been made.

Most of the above-mentioned technical defects and difficulties have been overcome. We now have panchromatic dry plates, and also emulsions, with a practical perfect sensibility to the whole range of spectrum colours. The action of colour filters has been studied by many patient observers, the inks have had their share of attention, and can be made practically perfect in hue and proportionate density. The half-tone blocks, especially those of fine grain, have been very much improved in the matter of sharpness of detail and gradation of tones. The printers have also learned and fairly

mastered their lesson. We must mention the fine-etcher, the skilful artist whose hand work overcomes many of the mechanical defects of three-colour work. It is his business to remedy the incongruity of the filters and printing inks, to correct photographic errors, and to make the best of the limited colour-range available in three-colour work, in order to approach as near a facsimile of the original by hand work, as is possible in the process; his importance in the production of three-colour half-tone blocks is now fully recognised, and quite a generation of highly-trained and skilled fine-etchers has grown up. As a matter of fact if it had not been for the fine-etcher, the three-colour half-tone printing process could never have attained to the commercial importance which it has done.

Considering the progress made in the perfection of the materials, the overcoming of technical defects, the improved skill of the block maker and printer, we repeat that the results obtained, even with the best three-colour blocks under the most favourable conditions, are disappointing, and no judge of art would class the three-colour print amongst artistic productions—they find no place in our best print and picture shops. To enumerate a few of the defects, we would mention:—

The limited range of colours—there are no pure greens obtainable, but instead an offensive juxtaposition of blue and yellow dots, no pure blues in skies, no brilliant crimsons, violets, no pure blacks or homogeneous greys. There is always one predominant hue obtrud-

* British and foreign patents pending.

ing, mostly a dirty purple or hideous green. Most of the brilliant colours can, of course, be dispensed with in the reproduction of paintings, but in commercial work, such as, for instance, the reproduction of drapers' pattern cards, carpets and the like, three-colour work has proved itself an utter failure.

In his studies to find ways and means of overcoming the defects and shortcomings of the three-colour printing process, the writer of this article reasoned that if the materials were perfect or nearly so and yet the results were imperfect, the cause of the failure must lie in the philosophy of the process. It was with great reluctance that, failing everything else, he at last set himself to find out whether the Young-Helmholtz theory of colour vision on which the three-colour process is based was really the best basis for photo-mechanical colour reproduction, or whether some other colour scheme worked out would produce better results. The writer asserts that he has found another colour scheme which in actual practice yields far superior results to the famous Young-Helmholtz colour theory, as far as the range of colours and other effects are concerned. The Young-Helmholtz theory of colour vision assumes three fundamental colours, by mixture of which in various proportions all colours in Nature are to be matched. The theory, on which the writer bases his process of photo-mechanical colour reproduction assumes and uses not three but four fundamental colours, *viz.* :—red, yellow, green, and blue, by mixtures of which in suitable proportions any colours in Nature can be matched or reproduced. The hues of these four fundamental (or monochromatic) colours, red, yellow, green and blue may in popular terms be approximately be described as follows:—

Magenta Red, Emerald Green, and
Lemon Yellow, Ultramarine Blue.

It will be found that magenta-red (we use this name for the lack of a more scientific one) is one of the constituent colours of spectrum red (magenta-red + Yellow) and also of Spectrum Violet (Magenta-Red + Blue).

The four fundamental colours can be grouped into two pairs of complementary colours, *viz.* :—

Red and Green,
Yellow and Blue,

so that when the elements of either pair are mechanically mixed as pigments, by printing or staining, they produce black, while the effect of their optical combination produces the sensation of white light.

It will at once be seen that the complementary colour reproduction process does not consist of a mere addition of green to the yellow, red and blue of the three-colour process, but is based on a scientific adjustment of the above-mentioned four fundamental colours, so that they form two pairs of complementary colours as indicated.

The complimentary colour scheme described above is applied to photo-mechanical colour reproduction. The two pairs of complementary colours (red and green) and (yellow and blue) are used as printing or reproduction colours. The complementary colour reproduction process undoubtedly offers many important advantages over the non-complementary colour schemes (yellow, red and blue), or (yellow, red, blue and black or grey) at present in use in photo-mechanical colour reproduction.

Amongst such advantages are the following:—

1.—The range of mixed colours which can be produced by the Zander Complementary Colour Reproduction Scheme is very largely extended, and comprises the whole range of spectrum colours, extra-spectral purples, dense pure black and homogeneous greys. Among the pure colours obtainable by this process may be enumerated in

particular pure brilliant magenta and purples, emerald green, ultramarine blue, violet, colours which cannot be produced in three-colour work.

2.—The reproduction of dense pure black or homogeneous neutral or tinted greys can be accomplished with ease, owing to the fact that either of the proposed two pairs of complementary reproduction colours are already sufficient to produce black (or grey) which is impossible to do with any two non-complementary colours, or even the three colours used in photo-mechanical colour-printing at present.

No pure black can be reproduced at all in three-colour printing.

3.—In printing, the reproduction of any given subject by two pairs of complementary colours (instead of three non-complementary colours alone or with the addition of black or grey) will prevent great variations in the several impressions, particularly in long runs, owing to the fact that slight variations in the impressions will not obtrude themselves as much in an *ensemble* of four colours as in three. It is well known to every chromo-lithographer that the greater the number of plates requisite to reproduce a given object, the fewer will be the variations between the finished prints.

4.—A more accurate reproduction of the original is unquestionably possible than by the non-complementary colour processes at present in use, owing to the greatly extended range of the single reproduction and mixed colours.

5.—The hand work or fine-etching, by far the costliest part of the present processes of photo-mechanical colour reproduction, will be reduced to a minimum, as not only the reproduction colours among themselves, but also the photographic colour records and the reproduction colours, stand in more rational and scientific relationship. As mentioned before, the reproduction colours consist of two pairs of scientifically grouped complementary colours, while the relative colour negatives, broadly speaking, represent photographic monochromatic records of all the spectrum colours, complementary to the respective reproduction colour. Practical workers know that this is not the case in three-colour work, and has (with the limited colour range) to be compensated for as far as possible by the skill of the fine-etcher.

The standardising of colour-filters and reproduction colours, so long hoped for aid aimed at in three-colour work, becomes an accomplished fact in the complementary colour reproduction process, in which filters and reproduction colours are carefully and scientifically selected and adjusted, and are of standard hues which may be used with equal success on any subject by any blockmaker or printer respectively.

The working of the Zander Complementary Colour Reproduction Process requires no special plant beside that which is necessary for working the three-colour process, or which is found in the establishment of every three-colour blockmaker or photographer, the only addition being a set of four special colour filters. These colour filters materially differ in hue from those used in three-colour work, and their correct chromatic construction has been a matter of great care and patient study in order to compensate for the defect of the panchromatic photographic plates. The actual practice of the process offers no technical difficulties whatever to the expert skilled in three-colour work. The invention distinguishes itself by its great simplicity and its wonderful results.

The Complementary Colour Reproduction Process explained above is applicable to every process of photo-mechanical colour reproduction, such as typographic block-printing in half-tone, line and the like, photo-lithography (both from stone and plates), collotype, photogravure, Woodbury-type and the like, also for reproduction by superposition of transparencies in colours. C. G. ZANDER.

PRACTICAL HELIOCHROMY FOR PROFESSIONAL AND AMATEUR.

To those who are familiar with the various processes of natural colour photography, the recent developments that have been made towards securing a practical method of making transparent photographs in natural colours will be read with considerable interest. The process I am about to describe is a modification evolved from the colour line screen which was first suggested by Louis Ducos du Hauron in 1868, in which the colour was applied to the plate in fine parallel juxtaposed bands of the so-called primary colours. The process was subsequently developed by Dr. Joly, known as the Joly process, and also by James W. McDonough, of Chicago, known as

the McDonough process; and the results of considerable artistic merit were attained in both processes.

The lined appearance of the plates was rather objectionable, being from 250 to 300 to the inch, and the difficulties of being able to make the plates and screens coincide were very great. Further, the cost of ruling the sheet of glass, with the colours having proper light absorptive values to obtain satisfactory results, was prohibitive.

The plates produced by the Powrie-Warner process are structurally different, and the manner of using them is greatly simplified.

Sheets of ordinary negative glass are coated with bichromated gelatine, and exposed to the light through a negative plate of transparent and opaque parallel lines. The light passing through the transparent lines of the negative renders the gelatine insoluble in warm water, the unexposed portions washing away, thus securing upon the glass colourless gelatine lines, which with the plates now in use are from 1-600 to 1-1000 of an inch in width.

The plate is then immersed in a colour bath of a suitable green dye, and then in subsequent baths to render the colours stable, washed, and dried. The appearance of the glass is a delicate green tint. It is then recoated over its entire surface a second time with the bichromated gelatine, and again exposed to the light through the opaque lined negative, taking the precaution to have the green lines protected by the opaque lines in the negative, and also one-half of the remaining unexposed surface.

The plate is treated in a similar manner after this exposure as for the green lines, except that a red dye is now used, and the plate is rinsed and dried as before. The appearance of the plate is yellowish in tone. It is then recoated a third time, again exposed, and passed into a bath of violet blue dye. This gives the plate a neutral tint from the recombination of the three elementary colours. The surface being completely covered without overlapping of the edges.

It is possible by this photographic printing operation, with special machinery for aligning the plates and printing them automatically, to obtain remarkable uniformity. The increased fineness of the colour lines renders them invisible to the eye, and registration of the lines with a transparency would be impractical.

The next operation is that of coating the plates with a panchromatic

emulsion, when they are ready to be exposed in an ordinary camera, developing and fixing in the usual manner, and obtaining a negative in colours. It is obvious that the exposure in this case must be made through the glass. These negatives show the red rose as green, the green grass appears purple, yellow flowers appear violet, and violet appears yellow, the colours, as well as the lights and shades, being reversed.

In order to understand this, I should explain that light reflected from a red object passes through the red lines in the Florence chromatic plates, the red rays of light being absorbed by both the green and violet-blue lines, and on development and fixation it is found the silver is deposited only upon the red lines, leaving the green and blue lines transparent over the particular area representing the red object, giving it a greenish blue colour.

By the use of Florence chromatic transparency plates and films, lantern slides and window transparencies may be made in the ordinary way, either by contact printing, reduction, or enlargement with the camera, no regard to registration being necessary, as the lines are practically disregarded in this process, being merely a convenience for the manufacture of the plates only. The transparency plates differ from the negatives only in the use of a transparency emulsion upon the lined plates, which is also panchromatic.

A thin sheet of suitably tinted transparent material accompanies each package of plates and films to equalise the light values of the different colours. No additional apparatus or special skill is required other than is necessary in making the ordinary black and white negatives and slides, to secure them in colours.

JOHN H. POWRIE.

THE LATEST ONE-PLATE COLOUR PROCESS.

THE system I have devised, the experimental part of which has been so admirably carried out by my respected friend, Mr. Friese-Greene, is essentially a one-plate process, that is to say, only one negative (of good gradation and density) is required to make a beautiful print in colour. This feature alone makes the process unique and of a far-reaching character, and when it is further considered that no special apparatus, colour screens, or difficult colour process are required, and that a bromide print in colours can be produced and finished within ten minutes, the simplicity of the process can be gauged. In order to attain first-class results, and as true as possible to nature, the negative must be fully exposed and developed to a good density.

The densities (representing colour in monochrome) should be as nearly as possible as follows:—

White in the original scene should be opaque in the negative.

Blue should be semi-opaque.

Green should be of middle density.

Yellow should be of middle density.

Red should be of faint density.

Black should be of clear glass.

It will be seen by the above remarks that the densities of the negative play an important part in the process, but the process offers such scope and latitude in correcting errors during the redevelopment (which is accomplished in daylight) in colour that practically any clear good negative can be printed from. Further, the result seen from such a negative would be far more artistic and pleasing

than a print made in what I may term now the somewhat uncommercial three-colour process prevalent at the present time. The next important feature in the process is that the colours are developed, or redeveloped up in the print, which makes the finished result in colours very permanent, besides giving the operator, if artistically inclined, enormous control over the colour during redevelopment. To make myself clear on this point, I will give a short description of the *modus operandi* of the process.

First of all, a bromide print is printed, developed, washed, and fixed in the usual manner from a negative. The print is now thoroughly washed in water for five minutes and then bleached in a special bleaching compound, and when bleached the print is rinsed in water and the redeveloping colour compounds applied all over the print.

If the red developing compound is applied first only the red and yellow deposits in the print will be affected, and will develop up to a red. The blues and greens will not develop up until a developing compound for such colour is applied to the print, when the colour will be gradually redeveloped and built up in the deposit of the print. The highest lights (whites) do not take any colours and wash quite clean, unless the redevelopment has been carried on too far. It is only during the period of redevelopment that a bromide print shows power to select or repel a colour or colours, after which it becomes stained and untrue; but the latitude allowable in procedure before this stage is arrived at is very great.

CAPTAIN LASCELLES DAVIDSON.

THREE-COLOUR PRINTS.

During the current year, in conjunction with Mr. Albert Smith, of Southwick, I have been directing my efforts towards producing a simplified method of translating the three-colour negative record with a positive colour record, and I am happy to say that it is now possible to produce a result in a far more simple manner than has been hitherto available. The principle of this method lies in the fact that the gelatine surface of the ordinary lantern slide, bromide opal or bromide paper is capable of receiving three printings in successive colours. Briefly, the method is as follows: To those who have made a study of the Sanger-Shepherd process, the details will be quite easy to follow. In the first place, a blue-toned base is made which may be lantern slide, opal plate, or paper. This blue-toned base is then sensitised with bichromate solutions, dried and printed under the

green screen negative in the ordinary way. The excess of colour is removed by washing in cold water after the Jumeaux-Davidson method, leaving the gelatine intact upon the plate. This plate is now resensitized with bichromate, and a third printing under the minus-yellow screen negative gives the complete result in perfect colour value, this doing away entirely with the necessity of superimposing successive layers of films. For lantern-slide production this method gives absolutely perfect results. For portraiture upon opal plates the method gives results occasionally uncertain, but in about 25 per cent. perfect; by adopting a ferricyanide sensitized opal plate the proportion of successful results is much greater, and probably a little further experimenting will result in quite certain results. The difficulty at present is to get a reliable blue. The red and yellow printing present no obstacles. Any photographer trying

this method will find that, provided the exposure of the bichromatised print is not carried too far, and with a recently sensitised print the exposure in good sunlight is not much more than five minutes, the result with red staining is most accurate. The subsequent print-

ing for the yellow staining must be very brief, as the effect of the bichromate and the exposure to the same is inclined to degrade the red, but if sufficient care is used this can be avoided.

EDWARD F. GRÜN, L.R.C.P. (Lond.).

A NOTE ON DIFFRACTION GRATING REPLICAS.

(A Communication to the Royal Photographic Society.)

About the year 1898 I became possessed of a "Rowland" diffraction grating of 14,438 lines to the inch, which I fitted up for solar prominence observation and other work. During some experiments with the grating it occurred to me that possibly transparent copies might be made if only a suitable medium could be found, and with this object in view I made a number of experiments with collodion, etc., and a variety of mounting media, after first ascertaining that no harm would come to the grating. I eventually adopted a clarified solution of celluloid in amyl acetate and nothing but pure water as a mounting medium, and with the exception of certain minor details have seen no reason to alter my method, which is briefly as follows:—

Ten grammes of the clearest celluloid, shredded, are added to 700 per cent. of amyl acetate, and when quite dissolved the whole is slowly filtered through cotton tow, when a very clear solution is obtained. About 2 per cent. of this solution is poured on the surface of the grating, which is some 2.5 in. in diameter (after the same has been very carefully levelled) and then allowed to dry. Special precautions must of course be taken to prevent access of dust, as far as possible, and to secure uniform drying, as upon this latter depends the optical perfection of the film; its thickness is about 1-6000 of an inch. The surface of the glass upon which the film is to be mounted is now cleaned and left standing with water upon it. The film, which by the way takes about a day to dry, is now moistened, and, in a very short time, being found to be easily detachable, is stripped and placed face downward upon the wet surface of the glass. After getting rid of the bulk of the water by tilting, the film is generally allowed to dry spontaneously, but I often hasten the process by using blotting paper of a particularly smooth kind, and in this way the drying is only a question of a few minutes. The edges of the grating are now pared round and fastened down by means of the same solution, a camel-hair brush being used for this purpose. Before this latter operation, however, the gratings are tested in the spectroscope, and if found optically good are placed face down upon the original grating or on a similar grating. Now, as celluloid shrinks in drying and not always to the same extent, due to slight differences in temperatures and quantities of solution, the lines are somewhat closer on the replica than on the original, and a little consideration will show that the interference bands produced by contact of the two surfaces are a measure of the shrinkage, and all one has to do is to add to the original number of lines to the inch to that of the interference lines to get the correct spacing in the replica. The shrinkage varies from about 50 to 100 to the inch.

Whilst the film is still on the grating it is my usual custom to place it behind a sodium flame, when the condition of the surface shows at once whether the drying has been uniform or not. Several rings appear at times approaching the centre, and the replica is then known to be worthless as the shrinkage will not be uniform when mounted.

It may appear at first sight that this method of mounting is only a very temporary one; and so it is in a sense, as the films can be taken up and remounted with ease, but really after a time the films become adherent indeed, and great difficulty is experienced in removing old films except by dissolving.

In my original experiments the method of mounting the film with the grating side to the glass was tried in the way now used, I believe, by Mr. Ives (without, however, any backing), but the results were not satisfactory, as interference due to the film took place, and the definition was not improved in any way.

I may here say that I have brought the particulars above described before the Manchester Literary and Philosophical Society from time to time as may be seen by looking up the memoirs and proceedings.

In the year 1900 I applied these grating replicas to colour photography and read a paper on the subject before the above society, and in a patent I took out for the combination a claim is also made for a method of producing grating replicas by first giving the grating a coating of oil, and in Mr. Wallace's article in the "Astrophysical Journal" for September he takes it that this is the method I have all along adopted for ordinary replicas. Such, however, is not the case, the method being as given in the foregoing particulars. Of course, considerable attention has to be paid to every part of the process, and it is only by large experience that one can produce grating replicas which are optically useful.

As stated in my letter in the current number of "Nature," I have also succeeded in making replicas of a concave grating kindly lent to me by Professor Schuster and in mounting the same on a concave surface, but as all wet methods of silvering I have tried have the effect of producing a large amount of scattered light their further production has been left over for the present.

I have mounted many of the plane films on concave surfaces, and it is found that fair definition can be obtained by them, although it is well known that the distortion prevents high-class work being attempted.

Curiously enough, although these unsilvered replicas reflect visible light very slightly, ultra-violet light to at least λ 1852 can easily be made out. This discovery was made by Mr. Morris-Airey, of the Victoria University.

The two grating replicas and two prism-gratings I send herewith are from originals of 14,438 and 15,028 lines to the inch respectively, and may be taken as good examples of my method of reproduction, the few small specks on the surface being due to dust particles and not to the method of mounting. A very cursory examination will show a considerable difference between the gratings, the one concentrating the greatest amount of light into the first spectrum on one side being taken from an original at one time the property of the late Dr. Common, whilst the other is from a particularly fine specimen of recent work on the Rowland engine. The same may be said of the prism-gratings.

In the latter case, however, it will be seen that by suitably tilting the prism the d.v. spectrum increases largely in brightness as well as dispersion, and owing to the absence of scattered light this form will probably be found the best for photographic purposes, as it certainly has been for solar prominence work, one of these prism-gratings giving a dispersion equal to five flint glass prisms in the middle of the spectrum and of course more at the red end.

I may just mention here that Sir William Abney also possesses a much larger grating than I use which has almost the same charac-

teristics as that I purchased from the late Dr. Common, and that he has been kind enough to allow me to make replicas from it on two separate occasions.

Finally, whilst admiring and welcoming the methods adopted by Mr. Wallace and others in the production of grating replicas, I have written the above with a view to substantiate my own claim to the first method of producing optically useful replicas of gratings and one which after all has not in my opinion been superseded.

THOS. THORP.

Patent News.

Process patents—applications and specifications—are treated in Photo-Mechanical Notes."

The following applications for patents were made between December 11 and 16:—

CINEMATOGRAPHS.—No. 25,735. Improvements in cinematographs. August Musger, 32, Lamb's Conduit Street, London.

FLASHLIGHT.—No. 25,750. A device for catching the smoke of flashlight lamps. Julius Fiedler and Ferdinand Hrdliczka-Csiszar, Birkbeck Bank Chambers, Southampton Buildings, Chancery Lane, London.

SHUTTERS.—No. 25,763. Improvements in photographic shutters and photographic cameras. Charles Howell and George Lloyd, 65, Chancery Lane, London.

DEVELOPING ROLL-FILMS.—No. 25,857. An improved method of and apparatus for developing photographic roll-films. William Fraser Claughton Kelly and Thomas Bolas, 7, Southampton Buildings, Chancery Lane, London.

PRINTING PAPER.—No. 25,922. An improvement applicable to photographic printing paper or films. Warwick Brooks, 4, St. Ann's Square, Manchester.

CAMERAS.—No. 25,948. Improvements in photographic cameras. Harold William Hood, 7, Southampton Buildings, Chancery Lane, London.

EXPOSING.—No. 26,191. An improved method and apparatus for the exposure of light-sensitive films, plates, and the like. Optische Anstalt, C. P. Goerz, Actien-Gesellschaft, 31, Bedford Street, Strand, London.

COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W. C.

CAMERAS.—No. 26,372. The invention consists of a miniature camera for roll-films, the lens, shutter, magazine, and adjusting device being all enclosed in a long straight metal tube, the sectional area of which does not materially exceed the size of the image. The adjustment for various distances is effected by shifting the film holder or magazine along the interior of the metal-tube. In Fig. 1, B is the lens, C the shutter, actuated and released by the push-buttons E and D, F is the spool-holder or magazine, and is moved to and fro for focussing the picture by means of a set-screw G or similar device inserted into a plug, cap, or disc which closes the rear end of the tube. The head H of this screw, which is situated outside the disc or plug, has a graduated circumference, showing the distance of the object in metres or yards, which corresponds to any given position of the adjusting screw. Consequently in setting the camera; the operator sees at the same time the object to be

photographed and the graduated scale. In order that the viewfinder S will not increase the height of the apparatus, it is hinged above the front end of the metal tube in such a manner that it can be turned into the front opening of the tube, and

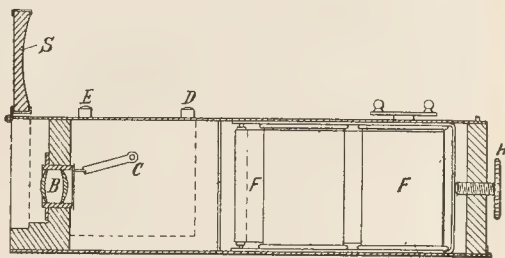


Fig. 1.

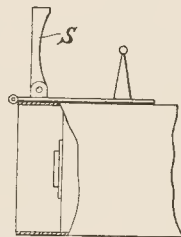


Fig. 2.

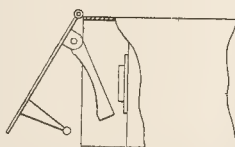
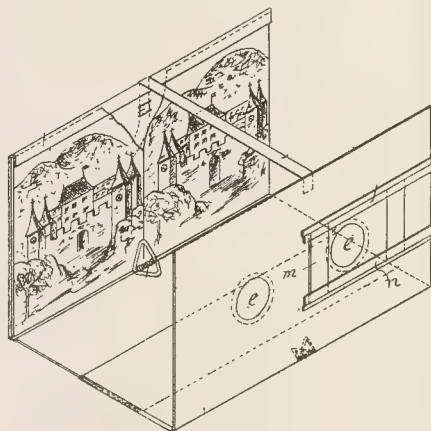


Fig. 3.

then serves as a protective cover for the lens. Figs. 2 and 3 show another arrangement of the finder, it being hinged and attached to a folding plate. Friedrich Kalkner, Nürnberg-Mögdorf, Germany.

STEREOSCOPES.—No. 26,689, 1904. The invention is a folding stereoscope of the form seen in Fig. 1 when erected, *e e* being the lenses, one of which is mounted in a slide *m* to adjust the space between



them, or is mounted on a plate rotating from a fixed point, for the same purpose. The stereoscope folds flat, and in this shape is held together by an elastic band. Carl Pietzner, 3, Mariahieferstrasse, Vienna, II.

MACHINE PRINTING.—No. 8,816, 1905. A machine for exposing sensitive paper in the roll, the features of which are:—1. The rolls travel in light-tight conduits, so that work can be done in day-

light. 2. The entire surface of the negative is simultaneously and uniformly exposed to the light. The construction of the machine requires the numerous drawings for its explanation. Friedrich Heinrich Lange, 52b, Steinmetzstrasse, Berlin.

MACHINE DEVELOPMENT.—No. 8,616A, 1905. The inventor employs, for the support of the band of paper during development, fixing, etc., drums of adjustable diameter. On these the rolls are wound in helical windings, and developed, washed, fixed, and dried in this state. The object of such drums is to compensate for the roll stretching on becoming wet and shrinking on drying. The diameter of the drums may be adjusted by hand or automatically. Below the drums shallow dishes or trays are arranged as ordinarily, to contain the various solutions, which may be changed as often as necessary. Friedrich Heinrich Lange, 52b, Steinmetzstrasse, Berlin.

FOLDING CAMERAS.—No. 16,857, 1905. The claims are for certain features of a folding camera without projecting parts, and of a form resembling and as easily carried in the pocket as a book. *a* is the camera front carrying the lens, shutter, timing and other devices; *b* is the bellows; *f* forms the front lid of the camera when in the closed position, but when in the open posi-

sight and folding finder. (3) In a pocket camera of the kind forming the subject of the first claiming clause the combination of the camera front *a* and bellows *b* carried and guided by lazy-tongs *g g¹* running in guides *l l¹*, a sliding focussing plate

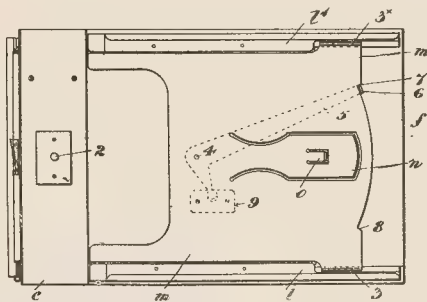


Fig. 2.

m having a spring tongue *n*, a stop *o*, hook projections *3 3x*, and operating lever *5* engaging with a fixed recessed plate *9* (Figs. 1 and 2). (4) In a pocket camera of the kind forming the subject of the first claiming clause the employment of a disap-

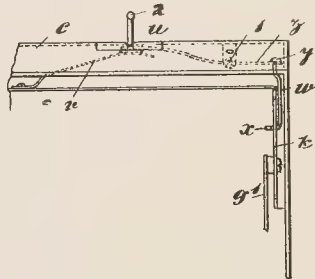


Fig. 3.

pearing sight *u*, spring *v*, lever *z*, and bar *w* operated by the act of closing and opening the camera (Fig. 3). A. S. Newman and Newman and Guardia, Ltd., 92, Shaftesbury Avenue, London, W.

The following specification is open to public inspection before acceptance under the Patent Act, 1901:—

PRINTING.—No. 24,964, 1905. Printing apparatus for photographic purposes. Schneider.

THE BIRMINGHAM EXHIBITION.—The twenty-first annual exhibition of the Birmingham Photographic Society will be held from February 24th to March 3rd, 1906, in the galleries of the Royal Society of Artists, New-street. The judges in the pictorial section will be Messrs. W. R. Bland, Alex. Keighley, and W. J. Wainwright. There are three open classes: 1, Framed picture, any subject; 2, lantern slides (judged singly), any subject; and 3, scientific prints or slides. Silver and bronze medals and certificates are awarded in each class, and a silver challenge cup, at present held by Mrs. G. A. Barton, is also offered for competition in accordance with a scheme explained in the entry form. This latter is obtainable from the secretary, Mr. Lewis Lloyd, Norwich Union Chambers, Congreve-street, Birmingham. The last day for entries is February 12th, 1906.

tion it forms the base or support and guiding device for the front *a* and bellows *b*, and also carries the focussing device; *g g¹* are lazy-tongs on either side of the bellows *b*, pivotally connected to the bottom of the front *a* at *h*, and to the bottom of the back *c* of the camera at *i*. They are also guided in slotted plates on the upper part of the front and back of the camera as shown at *j* and *k* respectively in the figure. The base or support *f* is furnished on either side with channel guides *l l¹* which receive and guide the pins *h h¹* of the lazy-tongs *g g¹* as the latter are being extended or closed. The channel guides *l l¹* are also furnished with other guide-ways to receive the focussing plate *m* which is adapted to slide therein longitudinally of the camera as hereinafter described; *n* is a spring tongue, and *o* is a stop, both of which are cut and raised from the plate *m*, which is also furnished with a hook-like part *3 3x* on each side thereof. The claims are: (1) A pocket camera in which the front of the camera is carried by lazy-tongs running in guides on the inside of the turned-down front lid and is locked in the open position to a focussing plate adjustable on the said front lid. (2) In a pocket camera of the kind forming the subject of the first claiming clause hereof a disappearing

Photo-Mechanical Notes.

The Bolt Court Supper.

TEACHERS, students, and friends of the L.C.C. School of Photo-engraving met on Friday evening on the occasion of the annual supper and smoking concert, which took place in one of the large rooms of Bolt Court. The gathering was of a cheerful, semi-Bohemian character. In the chair, as usual, was Mr. George Frampton, R.A., who is exceedingly popular with the students of the school, and the vice-chairmen were the principal (Mr. A. J. Newton) and the art master (Mr. Cecil Rea). After the supper the Nelson Dawson, and Frampton badge and sketch-club prizes were presented, and the chairman and most of the other speakers spoke cordially on the progress of the educational work of the school. Mr. Frampton had a few authoritative words to say on the importance of high ideals in the matter of design. Drawing from nature and life, however good it might be in itself, was not enough to make a really great artist. A picture should be a beautiful composition, and have fine sentiment and fine feeling behind it. He looked forward to the time when the school would be known and respected in all parts of the world. Much satisfaction was expressed at the fact that Mr. Frampton has undertaken to give a replica of the badge annually for ten years. Mr. H. Snowden Ward gave the toast of "The Principal and Staff," and declared that the work of the school was known and appreciated in many foreign lands. Mr. Newton received a tremendous ovation. He said the results were much better than before. He mentioned that the reputation of the school had extended to distant parts of the world. Last session they had several students from Australia and New Zealand, and recently he had received an application from India. There had been a satisfactory advance in the number of students—namely, from 373 to over 420. After thanking Mr. Dawson and Mr. Frampton for their kindness and generosity, Mr. Newton said he believed the County Council would consider the granting of a scholarship to accompany the badge. He hoped, too, that something similar would be obtained for the process side of the school.

In the entertainment which followed a dramatic performance was one notable item. It was a melo-dramatic burlesque of a very full-blooded Surrey-side piece, presented under the title "Thicker than Water, or a Murder a Minute." "R. C. Armour," said the programme, "presents F. E. Butler and his highly-trained troupe of performing students in a new and original drama in two acts," and the piece and the method of its presentation provided half an hour of concentrated and uproarious excitement. Shakespeare, Sweeney Todd, and Victor Hugo appeared to have been the founts from which the author drew most of his inspiration. Later in the evening there was an interesting exhibition of three-colour photographs, and a special exposition of lightning modelling by "Auguste Rodin." The gathering finished with the singing of "Auld Lang Syne."

Rollers for Inking Up.

A CORRESPONDENT of the "Inland Printer" in trouble with rollers used for zinc work writes as follows:—"One of them I use to ink up the bichromatised albumen print on zinc and the other for inking with good half-tone ink the etched zinc to get a proof. For a time the rollers worked well, but I notice that during the rainy season they refuse to take ink, particularly the proving ink. I keep the rollers in a box when not in use and clean them only with turpentine. Could I use rubber rollers or some composition that would not be affected by climate, which, I think, is what knocks out rollers here?" To which the reply of Mr. S. H. Horgan is:—"In my own practice, I have always used a smooth-skin, leather lithographic roller for

inking the albumen print on the zinc plate, and this is what you should use. A stiffer etching ink can be used and a thinner and even coat can be had. Even for proving, a smooth skin lithographic roller would be better in your climate. To keep the leather roller in condition it should not be cleaned with turpentine or anything that will remove the oil from it. The old or "dead" ink can be scraped from it with a palette or dull-edged knife and the roller rolled occasionally in medium linseed-oil varnish and left overnight in it. This treatment will keep the leather soft. In England they have a pneumatic roller which consists of a hollow steel cylinder, with handles like an ordinary lithographic roller. The cylinder is covered with an airtight rubber cover which can be inflated like an ordinary bicycle pump attached to an air valve in one of the handles. An outer covering of seamless red rubber, or of smooth or rough leather of any quality, can be drawn over the air cushion before inflation, and when it is pumped up the outer skin of rubber or leather will not slip and has the proper degree of hardness to work properly. The pneumatic roller with its interchangeable skins might be worth trying in this country having strong climatic changes, varying from very high temperature to extreme humidity.

Collodion Emulsion.

In the current number of "Le Procédé," a somewhat lengthy article on the above appears, from which we extract the following notes:—"Collodion emulsion has about the same speed as process dry plates. Its manipulation presents no particular difficulties. Extreme cleanliness and attention to minutiae of details are necessary, but it must not be forgotten that for half-tone work the screen distance must be altered. Another great advantage is that for three-colour work three images alone are required as against nine with wet collodion. The dark-room should be, of course, free from improper light, and also, as far as possible, from draughts, which may give rise to dust. It is advisable that the walls and benches should be varnished, so that they may be frequently washed. It is preferable to purchase the emulsion in the dry state. Fifty grammes should be mixed with about 450 ccs. of absolute alcohol, and then 550 or 550 ccs. of ether added gradually, with constant agitation, and care must be taken not to unduly expose it to the dark-room light. As, for three-colour work, it is necessary to orthochromatise, the same various dyes must be added, and omitting the use of secret dye solutions such as those of Albert and others, we come to working directions with named dyes.

CANARY YELLOW II. (READ HOLLIDAY).

Make a saturated solution of the dye in 90 ccs. of absolute alcohol, and add 10 ccs. of ammonia. To every 100 ccs. of emulsion add 5 ccs. of this solution; this will keep for several days, and gives negatives of excellent gradation and clearness from fog. After coating, rinse the plate under a tap till all trace of greasiness is lost, and then expose. There is a slight sensitiveness to yellow and green, but none to red and orange. The sensitiveness is sufficient for screen or ordinary negatives.

HOMOCOL, PINACHROM, AND PINAVERDOL.

To use these dyes a stock solution of 1 gm. in 1,000 ccs. of absolute alcohol should be made; all are used in the same way, either by direct addition to the emulsion or by bathing the coated plate. For the first method the following formula should be used:—

Emulsion	100 ccs.
Dye solution, 1:1,000	2.5 ccs.
Ammonia	5-10 drops.

The bathing process gives cleaner plates, and obviates any wastage of the emulsion, and after coating and setting, the plates should be flowed with—

Dye solution 1:1,000	10-12 ccs.
Ammonia	3 ccs.
Alcohol (90 deg.) to	100 ccs.

The quantity of solution that should be flowed over the plate is not of much moment. The solution should be gently flowed to and fro over the plate for about two minutes, and then the plate washed under the tap for three minutes and exposed.

DEVELOPMENT AND AFTER TREATMENT.

It is, of course, unnecessary to deal with exposure or the coating of the plate, but whilst Dr. Albert suggests the use of a 0.4 per cent. of acetic acid and gelatine as a substratum, the old rubber edging will be found quite satisfactory. The best, and one of the simplest, developers is von Hübl's glycin formula—

Sodium sulphite cryst.	50 gms.
Glycin	20 gms.
Potassium carbonate	100 gms.
Distilled water to	600 ccs.

For use, dilute 1 part of the above with 3 parts of water. No bromide should be used, as this tends to fog. After development the plate should be rapidly rinsed in water, and then fixed in a 10 per cent. solution of hypo, and well washed. To intensify, the best processes to use, especially for half-tone negatives, are either physical development with metal, or copper and silver. The formula for the first is—

Metal	10 gms.
Citric acid	15 gms.
Water to	1,000 ccs.

Just before use add a few drops of silver nitrate solution. For the copper bleach in—

Potassium bromide	30 gms.
Cupric sulphate	30 gms.
Water to	1,000 ccs.

Then rinse, and immerse in

Silver nitrate	30 gms.
Nitric acid	1 drop.
Distilled water to	1,000 ccs.

and generally sufficient density can be obtained, though the operations can be repeated if thought desirable. For reduction it is advisable to convert the image into silver iodide with—

Iodine	5 gms.
Potassium iodide	10 gms.
Water to	1,000 ccs.

When the image is thoroughly bleached, wash and place in a black dish, and treat with a very dilute solution of potassium cyanide, and then wash and blacken with a 20 per cent. solution of sodium sulphide. After washing and drying it should be coated with gum arabic (6 per cent. solution) or negative varnish.

New Material.

"Ensign" Sulphide Toning Cartridges. Sold by Houghtons Ltd., 87-89, High Holborn, London, E.C.

Messrs. Houghtons have placed the materials for the popular sulphide toning upon the market in a convenient dry state, each cartridge containing sufficient of the bleaching and darkening reagents to make 5 oz. of the respective baths. This quantity, it is stated, has proved ample to tone 100 quarter-plate prints, and certainly the tones obtained are excellent in every way. We judge that the bleaching powder is composed of ferricyanide and a metallic haloid, and therefore no apprehension need be felt that the cartridge contains a scheduled poison. The new preparation can be recommended as a most desirable form of sulphide toner, and as inexpensive also. A box of six tubes costs 2s., or separate tubes are obtainable at 4d. each.

New Books.

"Penrose's Pictorial Annual, 1905-6," edited by William Gamble. London: Penrose and Co. 5s.

"The Process Year Book," to give its old name, once more quite fulfils its annual function of saying and showing what is the latest work in all branches of photo-mechanical reproduction. Probably no one is better qualified for the arduous duties than its editor, Mr. William Gamble, who adds to his wide acquaintance of all process matters just that combination of criticism and enthusiasm which makes for an appreciation of progress. Perhaps we may consider that in the cases of some contributions to the volume, criticism might have well over-weighed its opposite quality and the proportionate importance of certain alleged advances have thus obtained a truer representation. However, the process worker will not cavil when he has the annual in his hands, for he will find it putting before him the latest achievements of the reproducer's and illustrator's craft. Thus the frontispiece is a specimen of power-press printed copper etching by Bruckmann, of Munich, the title page is illuminated by the spray-relief process of the Aerograph. Mr. C. G. Zander's new four-colour process is shown, as are also the Sears high-light litho process, the latest work in grain screens, in Albert's relief overlay, and in many other technical advances. The whole production is beautiful in the extreme, a credit to editor, illustrators, engravers, printers, and binders. To give a mere list of the plates and technical articles would tax our space, but we will refer in a forthcoming issue to some of the contents. Meanwhile we have only to say that to those desirous of keeping abreast of progress in reproduction methods, "Penrose's Pictorial Annual" is the one opportunity of the year.

"All About Enlarging."—An ambitious title surely for a sixpenny manual issued by Messrs. Marshall, Brookes, and Chalkley, Ltd., Harp Alley, Farringdon Street, E.C. The aim of the author, C. Winthrop Somerville, is to instruct the beginner in the making of bromide enlargements, and, *more suo*, he applies himself to his task. The necessity of brevity has led to the inclusion of some statements which can easily be misread or require qualification. For instance, we are told that "magnesium ribbon is the worst form of illuminant you can use for enlarging since it is not amenable to control." We should have thought that there were sufficient manuals of enlarging already.

SPARK Photographs.—According to "Electricity," ornamental designs in infinite variety are now drawn by the electric spark upon photographic plates. A thin sheet of lead is fastened to a cork by eight pins arranged in a circle; the pins are set upon a sensitised plate sprinkled with starch powder, and a metal sheet under the photographic plate is connected to the external armature of the Leyden jar of a Wimshurst machine, the sheet of lead being similarly connected to another jar. Passage of the spark and development of the plate complete the operation. In another method an insulating powder like starch or sulphur is sprinkled upon the sensitive plate through a design cut in cardboard, and the effects are varied not only by changing the designs, but also by laying upon the sensitive surface bits of different metals in various shapes. Different powders add to the variety, the most compact yielding the finest lines.

THE Scottish Salon.—To-morrow, December 30, is the closing day for entries for the Scottish Salon. The receiving date for pictures is January 4, and all communications should be addressed to Mr. Baird, Broughty Ferry.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
29.....	Aberdeen Photo Art Club	Social Evening.
29.....	Colne Camera Club	<i>Amateur Photographer</i> Prize Slides.
29 and 30 Jan.	Holmfirth Photographic Soc.....	Annual Exhibition.
1.....	Wandsworth Camera Club	"Retouching Negatives and Working-up Bromides." Demonstrated. Mr. J. T. Brand.
1.....	Leek and District Photo. Soc.....	Lantern Night. Lecturette, Mr. J. C. Miller.
1.....	Hastings and St. Leonards P.S.....	"Home Portraiture." Mr. H. Walter.
1.....	Bowes Park and Dis. Ph. Soc.....	"Lantern Slide Making." Mr. F. P. Bayne.
2.....	Brentford Photo. Society	<i>Photography</i> 1905 Prize Slides.
2.....	Jersey Photographic Society	"Control in Photographic Printing."
2.....	Burton-on-Trent Nat. Hls. Soc.....	Demonstration. Mr. E. Abrahams.
2.....	Stafford Photographic Society.....	<i>Focus</i> Slides.
2.....	St. Helens Camera Club	"Which is the Best Developer?"
2.....	Nelson Photographic Society	"Telephotography."
2.....	Worthing Camera Club.....	Prize Slides, lent by <i>The Amateur Photographer</i> , with Descriptive Notes.
3.....	Huddersfield Nat. and Ph. Soc.....	Mr. W. J. Farren, M.P.S.
3.....	G.E.R. Mechanics' Institution.....	Members' Evening.
3.....	Edinburgh Photo. Society	"Silver Printing, Toning, &c." Demonstrated. Mr. H. W. Bennett, F.R.P.S.
3.....	Leeds Camera Club.....	"Colour Photography in Theory and Practice for Amateurs." Illustrated. Mr. T. Cuthbert Day.
3.....	Catford & Forest Hill Ph. Soc.....	Lecturette Competition.
3.....	Coventry Photo. Club	Judging of Lecturette Competition by Officers.
4.....	Tunbridge Wells Ama. Ph. Assn.....	"Carbon." Mr. W. T. Wilkinson.
4.....	Liverpool Amateur Ph. Assn.....	"Pictures with a Goetz Lens." Mr. F. E. Peirson.
4.....	Southport Photographic Soc.....	Lecturette Competition.
4.....	Harrogate Camera Club	Judging of Lecturette Competition by Members.
4.....	Glasgow Southern Photo. Assn.....	"The Manipulation of the Optical Lantern." Demonstrated. Mr. J. S. Dickinson, L.D.S.
4.....	Darwen Photographic Assn.....	<i>Amateur Photographer</i> Prize Slides.
4.....	Hull Photographic Society	Sending-in Day for Salon.
		"Some Suggestions on Pictorial Photography." Mr. A. A. Bellingham.
		"Home Portraiture." Mr. W. Dalton.

ACCRINGTON CAMERA CLUB.—The annual meeting was held in the Mechanics' Institute last week, when Dr. Frankish was elected president for the ensuing year.

RYDE PHOTOGRAPHIC SOCIETY.—A meeting was held last week, at the Oddfellows' Hall, for the purpose of forming the above society. Mr. Purnell was in the chair, and a large number of those interested in photography attended. Mr. M. Maybrick, having kindly consented, was unanimously elected president of the society. A temporary committee was formed to draw up the rules and report to the further meeting, to be held in about a fortnight. Due notice of this will be sent round to all whose names are already in the secretary's hands. Any other ladies or gentlemen wishing to become associated with the society will oblige by communicating with the secretary, pro. tem., Mr. Harold Senior, Hanley House, Ryde.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—Two competitions were held at the last meeting of this society, with the following result:—For a print giving the best rendering of "Peace" the silver medal went to Mr. Llewellyn White. For the best set of six lantern-slides illustrating the society's outings, accompanied with ten minutes' lecturette, Mr. H. Creighton Beckett was awarded the silver medal.

IPSWICH CAMERA CLUB.—Mr. R. H. Sutton and Mr. P. W. Elkington have resigned the posts of secretary and assistant secretary respectively; and Mr. Stanley B. Bond, of Cauldwell Hall, Ipswich, has been appointed secretary (pro tem.) in their place. At a meeting of the committee last week, the services of the retiring secretary (Mr. R. H. Sutton) and his assistant (Mr. P. W. Elkington) were recognised in the presentation by the members of the committee to each of a gold pencil case.

SOCIETY OF ARTS.—Meeting held on December 20, Mr. Carmichael Thomas in the chair.—A paper was read by Mr. Charles L. Burdick

on "The Aerograph Method of Distributing Colour," in the course of which he referred to the many uses now made by the Aerograph in the arts. For the decoration of pottery it was being used in the Government factories of France, Germany, and Denmark, and some very beautiful work was being done with it, particularly at the Charlottenberg and Copenhagen factories. The facility with which the colour could be distributed on the biscuit ware had a tendency to develop commercially the under-glaze work. In ground laying and stencilling the colours distributed with the aerograph were found to have more softness and greater brilliancy than when applied by the older methods. The method of applying colours, with the aerograph, through stencils, was dealt with, and such applications as Christmas cards, window pictures, etc., were exhibited. The small initial cost of the work enabled it to compete with litho for colour decoration, and the case was instanced of a 1,000 order for a window ticket, which, in a simple design, might require the careful stippling of three litho stones at an expense, say, of 15s. each, or 45s. Then there would be three printings necessary, say 2s. 6d. each—7s. 6d. In the case of the aerograph work—say, 6s. each—15s., four days' girls' labour, 12s. Total cost of printing by litho, £2 12s. 6d.; with the aerograph, 27s. The lecturer then proceeded to describe two machines for applying colours by aerograph, the first being one for colouring and decorative printing, for colouring photographs and other pictures. By means of the machine the cards and stencils are automatically moved and lifted, the spray of colour being likewise automatic, and the surplus colour being removed from the stencil by a system of exhaust-air. The second machine was for the continuous printing of fabrics, etc., in the roll. A series of sprays are mounted within a continuous stencil drum, around which the band of material to be coloured passes. The sprays may be used inside of or outside of the stencil. Blended shadings of colour for rainbow tints are obtained; the soft patches of various colours may be made in alignment, or the sprays may be automatically moved about, and will produce all kinds of irregular shapes; the different colours being blended more or less into each other according to the distance from the surface. As with the flat stencil, keeping the stencil clean, has been accomplished by means of suction. Air is exhausted from a tube having an opening between two blades mounted so that the opening comes near to, or in contact with, the inside of the stencil; when the air is exhausted from this tube the loose colour on the stencil is taken up and carried to a chamber. The number of colours or tints which may be employed at a single operation is only limited by the number of sprays. As constructed at present, 24 sprays are employed. In the subsequent discussion Mr. Herbert S. Starnes, F.R.P.S., instanced a case of bichromate poisoning, due to the use of a solution of potassium bichromate in the air brush, and he cautioned users as to the possible danger of pigments of poisonous properties. Mr. W. F. Reid regarded the incident as showing the valuable use of the aerograph for antiseptic purposes, and the Chairman stated that he had that afternoon visited an establishment where he found two extremely healthy-looking young ladies, users of the aerograph, in whose case he could detect no signs of poisoning.—Mr. Burdick, in replying, said they had not experienced trouble from this cause, and suggested that in Mr. Starnes's case the aerograph was used in an unventilated apartment, and with the surface receiving the spray close to the wall, in which position the spray might be reflected back on the operator.

RICHMOND CAMERA CLUB.—On Thursday, December 21, Mr. Cembrano, President of the club, delivered a lecture on "Platinotype Printing and Toning." For years past he has been advocating the use of this simple and artistic process, and hoped that an exhibition of its great capabilities might serve to stimulate members to make

further use of it. He had recently read some remarks by Sir William Abney on the treatment of platinotype paper that had become stale through age or the effects of the atmosphere, and which could be utilised and made to produce good soft effects by printing it out and then fixing it in warm water. In order to test this Mr. Cembrano placed some platinotype paper in a drawer where it could become damp instead of keeping it dry in a calcium tube, and after some days he commenced printing operations. As this work was done in November the prints took several days to print out, and consequently all conditions were entirely at variance with all orthodox ideas on the subject. Prints made in this way were cut into pieces, and the different parts developed by different processes—hot water, weak developer, and ordinary developer, with the addition of different restrainers. The pieces were then mounted together for comparison. Mr. Cembrano showed a number of these experimental prints, amongst which were some very satisfactory results. He then proceeded to show prints made on this paper in the ordinary way, and also from the same negatives exposed under green and yellow glass, the effect of the coloured glass being to reduce contrast and greatly to soften the picture. Another process which he explained was the production of coloured prints by the addition of mercury to the developing bath and by toning after development. By the former process a sepia colour is produced, and by the latter a great variety of colours, sepia, various shades of red, and a variety of blues, may be obtained at will with the same toning bath. Specimens showing these results were handed round, and Mr. Cembrano gave the formulae by which they were produced. At the conclusion of the lecture a hearty vote of thanks was passed unanimously.

Dews and Notes.

DEATH OF H. A. Hyatt.—The sudden death of Mr. H. A. Hyatt adds one more to the long roll of removals from the American photographic world during this past year. Mr. Hyatt was the founder and president of the H. A. Hyatt Supply Company, of St. Louis. For many years the business went under his name entirely, and he had made a splendid record with his ability and untiring push.

A PHOTOGRAPHIC competition is announced by "The Animal World," which offers monthly prizes for photographs of animal subjects. All photographs sent in must be of this class, and must depict an incident or story. Natural and successful grouping will be taken into consideration when judging the merits of each photograph.

MORE Breathless Photography.—"The Australian Photographic Journal" has related one or two instances of very rapid work in connection with cinematography, remarking that Australian photographers have proved themselves equal to high achievements when the occasion calls for their best efforts. The latest record is as follows:—At the "world's champion" rowing contest between Stanbury and Towns, held on the Paramatta River, Sydney, last month, between the hours of four and five o'clock, a cinematograph machine was operated on the race, and the films displayed the same evening. The fine definition and general good qualities of the pictures call for special commendation.

How to Start a Free Portrait Business.—Among the letters addressed to Madame Hofer, the recent winner of the million francs lottery prize, there is one published by the "London Magazine" this month which we may reprint as showing the class of plausible rogue who is responsible for the deluge of circulars offering free enlargement. The letter runs:—

"Allow an old soldier who suffered in Paris during the siege and the horrors of the Commune, and who, after fourteen years of military service, has been for 27 years past in the priesthood, and is at the moment officiating priest in the poor parish of—, allow me, I say, Madame, to be one of the first to congratulate you. With the intention of repairing my poor country church I am connected with artists for the enlargement of photographs."

And he encloses a circular, stating that for five francs one can have his or her portrait enlarged. After a long eulogy on the beauty of the enlargements he cautions Madame against any Paris firm which promises a photograph for nothing, and then makes customers pay for the frame. But should Madame want a frame, he can supply it for ten francs.

Next he points out that as the Government does not tax her prize, she saves 80,000 francs, and suggests she might be generous enough to send him 20,000 francs, so that he can send out a further two million circulars and increase the photographic business. As an inducement to her generosity, he adds:—"Be assured Madame, that the good God, who let you win the million, expects from you great generosity for His good works. God has established you as His stewardess; consequently the Divine Providence will continue to confer on you His blessings and favours."

He promises to pray for Madame, and to make his flock pray also, every day, if she makes him a good present that will enable the church to be restored; and asks also, can't she send 300 francs, that Mass may be said three or four times a week—Sundays and holidays excepted—for the poor souls in purgatory.

Then, in case Madame doesn't want photographs of herself or her friends enlarged, he has wine to sell. "Vin de Lourdes. It is a tonic, or natural dessert wine. By its name it is known; the bottle from its label can be placed on any table." And if the wine fails to appeal, M. le Curé has preserved truffles, peaches, and tomatoes for sale at ridiculous prices!

Commercial & Legal Intelligence

AT BOLTON, Arthur Graham Stevens, clerk, and John Gettings, photographer, have been committed for trial for obtaining goods from tradesmen by false pretences. According to a statement made by Stevens the men had been convicts at Dartmoor together, and while there, Stevens being orderly at the Roman Catholic Chapel, both were punished for a too free use of the sacramental wine.

UNAUTHORISED Reproduction.—An action, briefly reported in our last issue was brought by Mr. Arthur Hamilton Lee, M.P. (late Civil Lord of the Admiralty), and Mrs. Ruth Moore Lee, his wife, against Lafayette, Limited, the registered office of which is in Dublin (1) for an injunction to restrain the defendant company, its officers, servants, and agents from publishing or allowing or authorising to be published, and from selling or offering for sale, or exposing by way of advertisement, or otherwise, or any way dealing with any photographs of Mrs. Lee taken by the defendant company; (2) for delivery up of photographs and negatives. Mr. Astbury, K.C., and Mr. Mark Romer now moved for an injunction to restrain the publication or sale of Mr. Lee's photographs. In 1902 Mrs. Lee in the ordinary way attended on the defendants in New Bond Street and had some photographs taken. She paid for these in the ordinary course, and nothing was said about the copyright in the photographs, but neither she nor her husband ever authorised the defendants to publish or sell the negatives or any pictures reproduced from them. In September, 1905,

a portrait of Mrs. Lee, taken from one of the defendants' photographs, appeared in "The King," and, according to the evidence of the defendants' London manager, he assumed that the plaintiffs had given leave to reproduce the portrait from a photograph, and, thinking that Mrs. Lee would not object to her photograph being published in other papers, he sent several copies to some of the leading papers. From one of the photographs a reproduction appeared in "Black and White" on November 11, 1905. On November 15 Mr. Lee saw the manager and complained of the publication of Mrs. Lee's photograph without consent, and the manager thereupon expressed his deep regret and promised that such publication should not occur again, and that steps would be taken to repress it. Notice was then sent (as was believed, to all the papers which had accepted the photographs) not to publish, but to return the photographs, but it was apparently forgotten that a photograph had been sent to "Madame," and it appeared in the issue of that paper for December 2. Mr. Buckmaster, K.C., and Mr. Ashton Cross appeared for the defendant company. Mr. Buckmaster expressed the regret of the company that publication of Mrs. Lee's photograph had taken place, and said the company were willing to pay the costs of the proceedings and to give the plaintiffs all the relief to which they were entitled. The learned counsel referred at some length to the evidence filed on behalf of the defendants, in which it was stated that quite nine out of ten of their most aristocratic sitters gave a general leave for reproduction of their photographs. Mr. Justice Buckley: Does it not come to this, that vulgarity is so great that they are entitled to assume that everyone is vulgar? Mr. Buckmaster, continuing, said that defendants had made a mistake and regretted it; they were very sorry that they had caused annoyance to the lady, and apologised, and were quite willing to pay the costs. If Mrs. Lee wished to have the negatives they would be given up. Mr. Justice Buckley said that defendants had taken photographs of a lady for which they had been paid, and the copyright in the photographs belonged to her. Having seen one of the photographs reproduced in "The King," the defendants drew the conclusion that they were entitled to sell some of the photographs for profit. Accordingly, some of the photographs were sent round to papers, and one of them was published in "Black and White" in November. The lady's husband was indignant at this, and called on the defendants and complained. Shortly afterwards one of the photographs appeared in "Madame." His lordship said he accepted the defendants' explanation as to this. They had attempted to stop further publications, but did not remember that a photograph had been sent to "Madame." The offence lay in the unwarrantable assumption that, because a portrait had appeared in "The King," the defendants were entitled to let other photographs be published. His lordship was sorry that it should be supposed that because the age was so vulgar the lady was a party to the vulgarity of the age and allowed her portrait to be published. The defendants undertook to pay the costs of the action and not to publish further, and offered to give up the negatives and any photographs of Mrs. Lee in their possession.

FAILURE of a Photographic Expert.—The first meeting of the creditors of William Thompson Wilkinson, photographic expert, 335, Brockley Road, S.E., took place at the offices of the Official Receiver for the Greenwich district on Thursday in last week, but no resolutions were passed, and the estate will consequently be wound up by the Official Receiver in the usual manner. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £223 9s., of which £218 17s. 4d. was due to unsecured creditors. The assets were estimated to produce £95 10s., from which £4 11s. 8d. had to be deducted for the claims of preferential creditors payable in full, leaving the net assets at £90 18s. 4d., and disclosing a

deficiency of £127 19s. From the statements made by the bankrupt at his preliminary examination it appears that he is a photographic expert, and is employed as a teacher of photography at the Goldsmiths' College, New Cross, at a salary of £100 a year, and that in January, 1905, he commenced business with a capital of £80 under the style of the Uni Photo Company at 335, Brockley Road. He alleges that his son, Mr. E. J. F. Wilkinson, was a partner in that business, and on August 1 last his son took over the business on the verbal understanding that he (the son) should provide the money to pay the then existing liabilities. The bankrupt alleges that on November 1, 1905, the son, without his consent, removed the whole of the trade goods and other effects from 335, Brockley Road to 314, Queen's Road, Peckham, where the son is now carrying on a business of the same nature. The fact that there was a partnership is denied by the son, who states that up to August 1 he was simply in the employ of the bankrupt, and he then took over the stock, in respect of which he has made payments to or on behalf of his father. The accounts are not satisfactory, and the bankrupt has been requested to amend and amplify them, and to grant delivery of the book of accounts relating to his business.* The whole of the furniture at 335, Brockley Road, is claimed by the bankrupt's wife as her separate property. The bankrupt's unsecured liabilities, which are stated to have been contracted between December, 1904, and the date of the receiving order, are almost entirely in respect of goods supplied and work done. The bankrupt attributes his insolvency to "The action of my son in surreptitiously removing the assets belonging to the partnership existing between us and his repudiating the arrangement made for the provision of the money required to pay the debts incurred prior to August 1, 1905." The bankrupt has filed a deficiency account setting out the following particulars:—Excess of assets over liabilities on January 1, 1905, £80; salary as teacher of photography since January 1, 1905, £85; other earnings as photographer, £58; deficiency at the date of receiving order, £127 19s.; total, £350 19s., which amount is accounted for as follows:—Estimated household expenses of self and wife since January 1, 1905, £90; depreciation in value of effects as estimated for realisation, £43 16s.; balance unaccounted for, owing to my son having taken away the books of partnership, £217 3s.

Correspondence.

* * * *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

* * * *We do not undertake responsibility for the opinions expressed by our correspondents.*

BUSINESS WASTE.

To the Editors.

Gentlemen,—I was much interested in reading your article on "Business Waste" in your last number of the JOURNAL, in which you refer to the necessity of closing up one's books and getting out a balance-sheet at the end of the year.

From my recent experiences, while trying to purchase a photographic business, it would appear to be the exception for a professional photographer to balance his books at all: in the majority of cases the excuse for not being able to produce a balance-sheet and profit and loss account has been that the individual is not a "business man," and has no head for figures, but this seems to me a very poor excuse.

In every case the sellers are content with giving an estimated sum as "takings," but are quite unable to say how much profit has been

ade. In one case where the "takings" were from £1,100 to £1,500 the profits turned out to be practically nil, and yet the seller was making a very large sum for the goodwill, etc., of such an affair.

To my mind a photographer (like any other business man) should be able to show year by year the profit he has made, or it will in the end very surely happen (like the case in your last number) that he will find he has been bankrupt for a considerable time without knowing it!

The matter would right itself if no one would buy a photographic business without seeing a profit and loss account.—Yours faithfully,
AN AMATEUR.

THE COBALTAMINE REDUCER.

To the Editors.

Gentlemen,—In reference to your review of "Sanzol" in this week's issue, we should be glad if we may say a few words on one or two points that we think may be of interest to some of your readers.

First, with regard to your remarks about the use of acetic acid or acidifying "Sanzol," it is still our opinion, as was mentioned in the "Photographic Journal," May, 1905, p. 188, that organic acids with these types of cobaltamine compounds are too slow in action to be of much practical use. We cannot say that we recommend the use of acetic acid ourselves, for this reason especially—that a reducing solution so made tends to deposit a comparatively insoluble cobaltamine compound on the film, which generally necessitates more than three minutes in the ammonia bath for its proper removal after reduction. We trust that it is not your opinion that the use of nitric acid of 3 per cent. strength (as we recommend) does not give a reducer well under control, as this is one of the points that we feel that we can lay stress on, viz., that "Sanzol," used according to the instructions sent out with it, is extremely even in its action, and its action is well under control. Secondly, we might perhaps also mention that we recommend the use of the dilute ammonia bath, not to arrest the reducing action (as sodium sulphite is used with ammonium persulphate), but to clear a slight amount of a silver cobaltamine compound formed in the film during reduction. After many experiments we have come to the conclusion that ammonia is the safest and best agent, all things being considered, for this purpose, as it at the same time quickly and harmlessly neutralises any acid in the film, forming an extremely soluble salt, thus shortening the time for the final wash. Indeed, we consider that in this case the use of the dilute ammonia bath after reduction leaves the negative as near as possible to the ideal of "Pure silver in pure gelatine."—

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December 22, 1905.

[It was not our desire to suggest that the reducer as compounded with nitric acid was unmanageable. A weaker acid appears to us preferable, particularly for paper prints, but we are glad to have Messrs. Edmund's caution as to the additional care in using it.—
Ems., B.J.P.]

"HISTORICUS."

To the Editors.

Gentlemen,—I suppose we all feel somewhat sad in parting with an old friend, especially those of us who, like the writer, have long passed the "meridian" of life; therefore it is with feelings of regret that I, for one—and doubtless there are many others—bid adieu to our old friend "Historicus," who has recalled to us the days of our youth upwards through many changes in the photographic world. I have watched his "Week in History" with great interest, having started in the profession at the time when James Glaisher at the

Greenwich Observatory, Geo. Shadbolt (was he not connected with your journal?) and such men were to the front, and many an honoured name has he brought to my remembrance. But there is one of the early workers I fancy has been rather overlooked—I refer to Dr. Hill Norris, of Birmingham, who brought out the first dry-plate process, I think, about forty-five years ago, or it may be a little longer; at all events I used a large number of them at the time, taking a series of the London club houses 11 by 9, and assisting the late A. J. Melhuish in taking a series of 16 by 12 round the Isle of Wight, and many others. The drawback to them was the long exposure required—2 to 3 min. and more for a medium size—but the results were very good, far better than many I have seen taken with the present plates. They seemed to have more of the qualities of the wet plate, with, of course, the exception of speed. But I have somewhat digressed. My object in writing was to thank our old friend for his shadows of the past; and may I conclude by wishing editors, contributors, and publishers a happy and prosperous New Year.—Yours deeply indebted,
J. P. STARLING.

97, Oxford Road, High Wycombe.

December 26, 1905.

THE PROPOSED COPYRIGHT BILL.

To the Editors.

GENTLEMEN,—Somebody is trying to "rush" us. Who is it? I notice in the proposed Bill that the photographer is not entitled to his own production unless it is unmistakably stamped with his name and other particulars. Now, this does not help the photographer one iota, but it does make it easy for him to be robbed.

In America they have a copyright law which puts photographers at the mercy of unscrupulous people, and that law contains a clause similar to the one I protest against. I will explain how the proverbial coach and four drove through the law, and over the photographer, by a short true story. Some years ago I was publishing an annual for an American newspaper, and in my search for a suitable supplement I obtained a beautiful portrait of a beautiful lady, which I had reproduced by a pure photographic process. Mark the result! A firm exploiting a patent hair-wash took that picture, and used it broadcast in their advertisements. When we sought to restrain them they produced a mounted photograph, and triumphantly showed that there was no indication of copyright or ownership on either picture or mount. Why, it may be asked, had the photographer omitted to do this? There lies the iniquity. That photograph was one of the actual ones which had been published with the Annual, and beneath it, when published, were all the statements required by law. The Hair people had cut away the margin and mounted only the print on an ordinary cabinet mount!

Now, sir, one warning, and I have done. In America the Press has shown itself hostile to any change in a Bill which is so strongly in its favour; in this country the illustrated newspaper is not the large factor it is there, but it is sufficient to give practical support to the Bill, and doubtless at least a section of it will do so. If we are to hold our rights we must be up and doing.—Yours faithfully,
"BROOKLYN."

December 22, 1905.

FRAUD ON PHOTOGRAPHERS.—At Plymouth, on December 18, William Henry Guy, printer, 9, Central-street, was charged on remand from the 13th inst. with obtaining 1s. by means of false pretences from Ellen Morrell, Mead Villa, Western College Road, on December 4, and, further, with embezzling 3s. on November 30, 2s. 6d. on December 5, and 3s. on December 2, belonging to Messrs. Major and Darker, photographers, Union Street.—Prisoner was awarded two months' imprisonment with hard labour.

Answers to Correspondents.

- * All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- * Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- * Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- * For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

PHOTOGRAPHS REGISTERED:—

J. Weir, Burn Cottage, Moffat, N.B. Photograph entitled "Resting by the Way."
G. S. Cousins, 30, Butter Market, Bury St. Edmund's, Suffolk. Photograph of Capt. Hervey, R.N.

H. Rusholme, Petergate, York. Photograph of Minster Gates and Minster, York

THE AEROGRAPH.—1. Kindly favour me with an address for best book on air-brush finishing (B. and W.) portrait enlargements.
2. Also good cheap house for bromide prints.—CORNISH.

1. We know of no book on air-brush work. 2. It is contrary to our custom to recommend particular firms. Consult our advertisement columns.

A SUMMONS QUERY.—When a traveller calling on small shopkeepers up and down the country taking orders for postcards opens an account that is difficult to collect, is it correct to take out a summons in the district where the firm supplying the goods is situated, say London, or should the summons be taken out at the county court of the district where the customer resides? The former is, of course, the easier method if correct. I have understood that if the customer signs an order for the goods on which is printed "All accounts payable in London," or if these words are on the invoices used by the firm, in that case proceedings can be taken for recovery of the debt in a London court. Is this so?—F. PENNY.

The summons is taken out in the district of the supplying firm.

FIXATIVE FOR PASTEL WORK.—Some time ago in the JOURNAL there was an article giving a special formula for a fixing medium for crayon and pastel work. I made a note of it at the time, but cannot now lay my hand upon it. If you can inform me of the formula now, I shall be very much obliged to you.—F. R. M.

The following is the formula (which you will see among those for "working up prints" in the "Almanac") :—(A) mastic, 24 grs.; amyl acetate 3 oz. Dissolve by agitation and allow to stand some hours before use. (B) Celluloid (film clippings free from emulsion will do), 7 grs.; amyl acetate, 3 oz. Dissolve by agitation. Mix when both are clear, and keep in tightly corked bottle. Apply with spray diffuser.

SULPHIDE TONING.—1. Can you please give me a good formula for the sulphide-bleaching method of toning bromides. I have seen a lot of these recently, but I am in doubt as to which to try. I see an iodine formula spoken well of, or do you recommend the copper process? Your kind assistance will

greatly oblige. 2. Can the process be used for prints on t. gaslight papers?

1. The iodine method is expensive, and not so certain as the others. The copper bromide method is not as good as the following :—(A) Ammonium bromide, 300 grs.; potassium ferricyanide, 300 grs.; water, 20 oz. (B) Sodium sulphide (pure), 100 grs.; water, 20 oz. Bleach the fixed and washed print in A solution. Wash for a few minutes in water, and then immerse in B solution until toned. The print is then washed and dried. 2. Yes.

F. A. WOOD.—State your requirements to Mr. Jonathan Fallowfield, 146, Charing Cross Road, London, W.C.

THE Enlargement Swindle.—At the Andover Police Court George Dorman, alias Lawrence, photographer, of New Street, Andover, was charged with obtaining by false pretences various sums of money from different persons in the district for enlarged photographs that had never been supplied. The prisoner pleaded not guilty. A number of witnesses stated that the money paid by them to the prisoner was for enlarged photographs, which they had not received, neither had prisoner returned the money to them. P.C. Cox stated that he apprehended prisoner on December 4 on a warrant at Rowton House, Hammersmith. In reply to the charge, prisoner then said, "I don't think there is any fraudulent intent." Mr. Phillips (for the defence) contended that it was a case for the County Court. Prisoner elected to have the case dealt with summarily, and pleaded not guilty. The Chairman said the Bench considered him an unqualified blackguard, and that he took the money without any intention of ever doing the work. The sentence of the Court would be two months' imprisonment with hard labour on each charge, or four months altogether.

FAILURE of a Bournemouth Photographer.—Robert James Scott, 292 and 294, Holdenhurst Road, Bournemouth, photographer, appeared for his public examination at the Poole Bankruptcy Court on Wednesday, before the Registrar. The summary of accounts filed by the debtor showed liabilities estimated at £224 3s. 6d., of which £216 19s. 6d. was expected to rank for dividend, and assets returned at £32 16s., leaving a deficiency of £184 3s. 6d. Bankrupt attributed his failure to "loss in connection with the photographic business at Boscombe in 1903, bad trade, and illness of self, wife, and children." He commenced business as a photographer at the address given about twelve years ago with practically no capital. He subsequently opened a branch business at Boscombe, and in twelve months lost over £100. In 1900 he also commenced business as a furniture dealer at 294, Holdenhurst Road, employing a man to attend to this shop, and he found the business did not pay. He gave up the photographic business in October last. He stated he only became aware of his insolvency six months ago, but his deficiency account showed that his liabilities exceeded his assets by £78 a year ago. The examination was closed.

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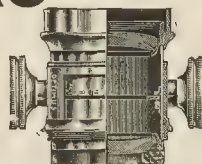
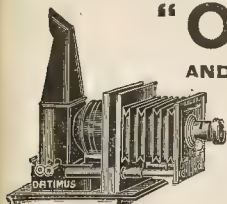
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SPECIAL NOTICE.—THE LATEST TIME FOR RECEIVING SMALL ADVERTISEMENTS IS 2 O'CLOCK P.M. ON WEDNESDAYS for insertion in the current week's issue.

LARGE ADVERTISEMENTS should reach the Publishing Office not later than Tuesday.
* Communications relating to Advertisements and general business affairs must be addressed to **HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.**

Situations Wanted.

* In applying for Situations where specimens are sent, it is preferable that they should be unmounted. In any case, the owner's name and address should appear on the front of each photograph, which would avoid confusion and facilitate return. Postage for return of specimens should always be enclosed.

* THE Professional Photographers Association is now prepared to grant Certificates of Competency to Operators, Printers, &c., on the testimony of present and past employers. — for particulars apply to the Hon. Secretary, 51, Baker Street, W.

ADVERTISER, F.R.P.S., desires Position as Manager and Operator, London; many years' experience. —Address J. Percy, 12, Drayton Green Road, West Ealing.

AS First-class Carbon and Plat. Printer, sepia, black, and toned, or as Retoucher; good with knife; highest refs. If in London, part time would suit. —Address K. 10, 24, Wellington Street, Strand.

AN Operator and Retoucher desires Engagement in good-class studio; willing to assist generally; moderate salary for permanency; (no Sunday work). —J. J., 20, Henry Street, Rochdale.

AS Manager in provincial house; excellent all-round experience, including enlarging and finishing in B. and W. and water colour. —"Omega," 87, Priory Road, Hastings.

ASSISTANT requires Berth; five years' practical all-round experience, studio and dark room, and accustomed to bromide enlarging, etc. —Apply S. B. Aldworth, Bursleigh, Richmond Park, Bournemouth.

ARTIST, Operator, Manager.—Gentleman, of highest ability and experience, seeks Position with high-class firm. —Address K. 8, 24, Wellington Street, Strand, London.

AS Printer in Carbon, Plat., Matt, Silver; can operate and enlarge if required. —Address "Printer," 80, Palace Road, Bromley, Kent.

AS SMART Studio Assistant, willing to assist all round, Continental and West-End exp., can retouch, desires Post as above; moderate salary for permanency. —"A. N.," 3, Ship Street, Brighton.

GENTLEMAN, all-round photographer, having his own whole-plate outfit, expert in architectural and copying work, desires Engagement; speaks, English, German, French, and Dutch fluently. —Address K. 6, 24, Wellington Street, Strand.

GOOD All-round Assistant disengaged (January 1st). —F. W. Hurlford, 4, The Green, Crediton.

OPERATOR, experienced, disengaged; very successful portraitist; exceptionally clever with children, electric lighting, and retouching. —Barton, 3, St. Lawrence Road, Moseley Road, Brixton, S.W.

OPERATOR-RETOUCHER desires Re-engagement on January 1st, or as General Assistant; well up in all branches of the profession. —E. E. Prangnell, 174, Windham Road, Bournemouth.

OPERATOR-RETOUCHER; quick trade; could manage; age 28; experienced; 30s. —Address K. 7, 24, Wellington Street, Strand, London.

OPERATOR-RETOUCHER desires Post; generally assist; could manage branch; 11 years' ref.; London or suburbs. —H. Burnham, 20, Costa Street, Peckham, S.E.

OPERATOR-RETOUCHER of ability open to Engagement; artistic lighting, posing, clever with children, etc.; first-class refs.; no spec. —"Operator," 57, Gurney Street, New Kent Road, London, S.E.

RECEPTIONIST, Book-keeper, and Correspondent, experienced, of good appearance and address, good saleswoman, experienced in other branches, requires Position. —"Recep.," 2, Arundel Gardens, W.

SMART General Assistant, retoucher, etc.; willing and obliging; first hand two years; disengaged January 1st. —"A. L. C.," Battlefield House, Chequer Street, St. Albans.

SMART Youth (16), good and quick retoucher, seeks Re-engagement; good references; salary 15s. per week; London only. —"G.," 46, Bruce Road, Mitcham.

TRAVELLER Open to Represent a first-class Firm of trade enlargers, photographic dealers, and mount manufacturers; extensive connection England, Scotland, and North Wales; thoroughly conversant with all branches of the trade; excellent references; personal interview if desired. —Address K. 9, 24, Wellington Street, Strand.

WANTED, Engagement as Operator or General Assistant; South-East district preferred; ten years' experience; good refs. —H. J. Gates, 26, South Street, Greenwich, S.E.

Situations Vacant.

* Advertisers for Operators, &c., will oblige by stating whether specimens are required or not. When specimens are sent they should be returned as early as possible. Otherwise great loss and trouble are caused to the applicants.

* THE Professional Photographers' Association is now prepared to grant Certificates of Competency to Operators, Printers, &c., on the testimony of present and past employers. — for particulars apply to the Hon. Secretary, 51, Baker Street, W.

APPLICATIONS Invited from gentlemen as Operator and Retoucher for high-class provincial studio; only those accustomed to the best work. —Please send full particulars to K. 2, 24, Wellington Street, Strand.

GENERAL Assistant Wanted, who can develop and retouch. —Send photo and state wages to W. A. Brown, Stanley Avenue, Rusholme, Manchester.

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MIDGETS.—Young Man, to print bromide, in quantities; opportunity for clean, even, reliable worker. —38, Hill Street, Birmingham.

OPERATOR-RETOUCHER Wanted; must be used to quantities; those with electric light experience preferred. Send photo and particulars to W. A. Brown, Stanley Avenue, Rusholme, Manchester.

OPERATOR required, used to machinery and new paper snapshot work; must be smart and quick worker; permanency. Address, with particulars of experience, wages required, age, etc., to K. 1, 24, Wellington Street, Strand, London.

PHOTOGRAPHY Assistant Wanted; must be used to operating, enlarging, and retouching; age about 21—State wages and experience to J. G. Graves, Advertisement Department, Sheffield.

RECEPTIONIST (Lady) Wanted. —Apply, with own photo and references, to Lafayette, 30, Westmoreland Street, Dublin.

RECEPTIONIST required; North of England; high-class studio; state situations previously held, age, etc., and author's photograph. —Address K. 3, 24, Wellington Street, Strand, London.

SMART Gentlemanly General Assistant (age 23 to 25) required, early in January; must be first-class retoucher and printer, and be well experienced in Plat., Aristo, and other papers; also used to big batches, and able to operate occasionally, and take charge of studio. —Send refs., with photo of self, to Stepiens, The Studio, 38, High Street, Newport, Mon.

TRAVELLERS on Commission Wanted, by wholesale photo dealers, to call upon professionals (mainly mounts) in England and Scotland. —State age, experience, etc., to Box 790, Sell's Advertising Office, Fleet Street, London, E.C.

WANTED, for New Year, Young Lady; good retoucher, also to finish plats, spot, etc. —Apply J. W. Willis, 67, High Street, Chatham.

WANTED, Smart Young Man; must be quick out-door operator, not afraid of work, for shop front work; to travel; salary 25s. —Photo of self, references, to "Photographer," 85, Manning Street, Nottingham.

WANTED, a good All-round Man, for the New Year; 30s. permanency. —18, Bishop's Road, Cambridge Heath, N.E.

WANTED, Smart Young Man, to manage amateur photography department; previous experience and practical knowledge essential. —Apply J. E. Beale, The Fancy Fair, Bournemouth.

WANTED, January 1st, for Cornwall, good all-round Hand; must retouch well; permanency to suitable man. —Major and Barker, 152, Union Street, Plymouth.

WANTED, by the 27th, Young Man Improver, to print and assist generally, willing and obliging, for high-class work, on the South Coast; live in; permanency. —Apply Donald Massey, Bognor.

WANTED, Smart Man, able to operate, midgets and stamps; best work only; no amateurs. —Apply 159, High Street, Borough, after 2 p.m.

WANTED, near Glasgow, first-class Retoucher (lady or gent.); able to work up Black and White and toned enlargements. —Send specimens, with wages required for permanency, to K. 13, 24, Wellington Street, Strand.

WANTED, immediately, good Bromide Printer; used to press work. —Dover Street Studio, 38, Dover Street, Mayfair, London, W.

WANTED, Young Lady, as Improver, for spotting and mounting. —Dover Street Studio, 38, Dover Street, Mayfair, London, W.

YOUNG Operator required at once; also Improver; state salary required; photo, etc.; live in preferable. —"Photo," Central Hall, Cinderford, Glos.

Businesses and Premises.

A GOOD Business, fashionable, growing seaside town, Devon; business over £500; shop, studio, and dwelling house; owner retiring; cash required about £130; part can remain to good man. —Address J. 4, 24, Wellington Street, Strand.

A GOOD Business for Sale, in Bournemouth; big turnover; close on £1,000 per annum; moderate rental; no taxes; exceptional offer. Price £350. —Applications to K. 5, 24, Wellington Street, Strand.

AGENCY Wanted, by firm calling upon practically all professional photographers in Great Britain, for Mounts. —Address Box 791, Sell's Advertising Office, Fleet Street, E.C.

BOURNEMOUTH. —First-class Photographer's Business. Disposed, in excellent central position; large shop, studio, 34ft. x 20ft., waiting room, six living rooms, electric light; established 31 years; rent, on lease, £100; option to purchase if required; immediate possession. —Apply Cooper and Riddett, Estate Agents, Bournemouth.

Continued on Pages IV. and V.

THE DARK ROOM DISPENSED WITH.

ILFORD

MATT

Gaslight Paper.

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Gaslight Paper.

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Gaslight Paper.

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AT POPULAR PRICES OF ALL DEALERS.

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BUSINESSES AND PREMISES (continued).

BUSINESS averaging £250 per annum; connection easily increased; good prices; no rates or taxes; rent £25; price £150; London, N.—Address R. 12, 24, Wellington Street, Strand.

FOR Sale, Photographic Business, at Sheffield, of many years' standing; very low price; artist going to India.—Apply 57, Thurlow Park Road, West Dulwich, London, S.E.

GENTILE Bargain.—Photo Business, wholesale p.c. publishing attached; trade increasing, not declining; no opposition; letters only first; £35, everything.—"Photo," Broad Street Studio, Nelson, Lancs.

ONE of the Finest Studios in the Kingdom for Disposal; owner retiring; a splendid income for anybody with capital and business tact; principals only; no agents.—Address J. 3, 24, Wellington Street, Strand.

PHOTOGRAPHIC Studio, in new buildings, Church Street, Sheffield (off principal street) To Let.—Apply Gibbs and Flockton, 15, St. James' Row, Sheffield.

PHOTOGRAPHIC.—One of the oldest and finest businesses in Scotland; fine connection among Royalty and nobility.—Apply No. 306, Robertson and Scott, Advertising Agents, Edinburgh.

PICTURE Postcard Business for Sale, including over 2,000 finest negatives of Scottish scenery; most valuable trade connection.—Apply No. 326, Robertson and Scott, Advertising Agents, Edinburgh.

PARTNER Wanted, for photography and fancy, to open branch at Folkestone; not less than £300 capital; also for Hastings, Plymouth, Bristol, and Cardiff.—Applications to K. 4, 24, Wellington Street, Strand, London.

SOUTHSEA.—Photographic Business To Let; rent £25; grand studio, house and shop; income £10 to good tenant.—Apply Freeman and Co., Above Bar, Southampton.

WANTED, at once, Premises suited to photography, or would purchase established business at reasonable figure; run-down business not objected to.—"Omega," 87, Priory Road, Hastings.

WANTED, in large town, Yorkshire, Studio, with or without premises attached; business centre preferred.—Address "J. B.," 13, Victoria Street, Bradford.

£200—Studio, and everything necessary; snug living to competent party; without clubs or canvassing; thoroughly established; good town in Scotland.—Address K. 11, 24, Wellington St., Strand.

Miscellaneous.

* * * For particulars of our Deposit System please see top of page ii.

A. A.A.—Lessons in B. and W., Retouching, Tinting, Colouring, Enlargements, and Miniature Painting. All up-to-date and air brush methods taught. *Defective and Slow Professional B. and W. and Colour Artists strongly advanced by West-End Expert Lessons day, night, or by post.*—T. S. Bruce, Artist (Est. 1886), 4, Villas-on-Heath, Vale, Hampstead, London.

A WELL-MADE 5 x 4 Stand Camera, with lens and one double slide, for sale, cheap; in good condition; accept 17s. 6d. for quick sale; a bargain.—Address, in first instance, J. 20, 24, Wellington Street, Strand, London. Approval if desired.

ARTISTIO Rustic Cottage Window, made by Redfern; cost £3 5s.; capital accessory for postcard work; too large for studio; backgrounds in exchange; interior preferred.—H. Johnstone, Photographer, Castle Douglas, N.B.

BLAOK and White Finishing School.—Retouching; colouring; miniatures. All applications to Huish Webber, 10, Fitzroy Street, London, W.

HANDSOME 10in. x 8in. Portable Studio Camera, by Stereoscopic Co., Regent Street, rising front, wide angle movement, dark slide, with carriers, mahogany throughout; new condition; accept £3; worth £10.—Walker and Co., Ainslie, N.B.

LESSONS in Operating, Focusing, and Lighting at pupil's own address. Those displeased with results, or about to build and alter studios. Advice on Construction and Fitting of Studios by Professional Architect and Photographic Expert, F.R.P.S.—Town or Country. Moderate fees.—T. S. Bruce (Est. 1886), 4, Villas-on-Heath, Vale, Hampstead, London.

LESSONS Given in Miniature Painting, Black and White finishing, hand and Aerograph, water colours, retouching, etc.—Miss Ferranti, 7, Ladysmith Road, Walseldon, Harrow.

WANTED, two or three flatted oil canves Backgrounds 14ft. to 20ft., for outdoor groups; also a 15 x 12 Camera Stand, with rack work.—Banker, 9, Mytton Street, Manchester.

WANTED, No. 3 Ross Cabinet or 3 B. Dallmeyer; must be in good condition; cheap for cash; approval, deposit.—R. W. Brown, Boulevard Studio, Weston-super-Mare.

12 x 10 FIELD Camera, leather bellows, double dark slide, tripod, £5; 5 x 4 Sanderson, six double slides, leather case, telescopic tripod, £4.—"S.," 11, Eltham Road, Wimbledon.

15 x 12 CAMERA, by Mitchell, conical bellows, 32in. extension, swing back, etc., two D.D. slides, carriers, stand, two waterproof cases, Ross 10 x 8 Symmetrical Lens, £9; or exchange for good studio 10 x 8 camera, repeating back, slides, lens, and stand.—Wrigley, 46, Forest Road, Southport.

Miscellaneous Trades.

A SCOTTISH Outsider Writes: "Enlargements give entire satisfaction, we are delighted with them. It will be strange if we have not more orders soon."—Henry Ward, Trade Enlarger, Leicester.

A. A.A.—Pictorial Postcards (one in high-class colotype, from hand, two water-proof cases, Ross 10 x 8 Symmetrical Lens, £9; or exchange for good studio 10 x 8 camera, repeating back, slides, lens, and stand.—Wrigley, 46, Forest Road, Southport.

"ARTONA" Mantell Mounts, cabinets, handsome designs, name, etc., printed, 25s. 1,000; sample 100 printed, post free, 3s. 6d. High grade "Ideal" mounts.—Crown Manufactory, Rotherham.

ARTIST.—Water Colours and Pastels a specialty; highly coloured and very effective work at the most moderate prices. Also B. and W. and miniatures.—Studio," 164, Finborough Road, S.W.

ARTIST (Exhibitor at Royal Academy, etc.) requires the work of a few first-class firms only; all subjects, oil, water colour, B. and W., and pastel.—Address W. H. Durham, Amyand Studio, 115, Amyand Park Road, Twickenham.

ARTIST to Leading Firms paints miniatures on ivory, with or without basis; high-class finishing in B. and W. or colour, hand or Aerograph.—Miss Ferranti, 7, Ladysmith Road, Walseldon, Harrow.

A 15 x 12 Field Camera, by Middlemiss, finest Honduras mahogany, leather bellows, double extension, rising front, swing and reversing back, three double book-form slides and case; condition as new; cost £16. Sacrifice £7 15s.—F. Dept., City Sale and Exchange, 90-94, Fleet Street, E.C.

A 1-1 PLATE Ross Portrait Lens, rack adjustment. Waterhouse; finest order; cost £25. Sacrifice £8 8s.—F. Dept., City Sale and Exchange, 90-94, Fleet Street, E.C.

A 25 x 21 DALLMEYER Rapid Rectilinear Lens. Waterhouse store; perfect order; cost £31 10s. Sacrifice £10 15s. A genuine bargain.—F. Dept., City Sale and Exchange, 90-94, Fleet Street, E.C.

A BEAUTIFULLY Carved Wood Settee, 4ft. long, scroll arm, covered tapestry. Sacrifice £3 17s. 6d.—F. Dept., City Sale and Exchange, 90-94, Fleet Street, E.C.

A CARVED Hard Wood Posing Chair, complete with three backs and arms, four castors; a handsome article. Accept £5 17s. 6d.—F. Dept., City Sale and Exchange, 90-94, Fleet Street, E.C.

BRUCE'S Non-shifting Retouching Medium, unaffected by varnishing; splendid tooth; advertised ten years; used by best firms and schools; 1s. post free.—4, Villas-on-Heath, Vale, Hampstead, London.

BLOCKING Out, Copying, and Retouching for the Profession. See further advertisements, headed "Zano," at the end of these columns, and write for list.—"Zano," 4, Manor Road, Stoke Newington, N.

BACKGROUNDS, by Pemberton and Co., Rishton, near Blackburn.—2 x 6, 8s.; 2 x 7, 10s.; 8 x 8, 15s.; fine soft effects; clouds, 5 x 4, 3s. 6d. Photos stamp.

BLAOK and White Finishing, Retouching, Colouring Photos and Miniatures. Lessons given. Terms moderate.—Address Miss Ramsey, "Balmal," Goodrich Road, East Dulwich, London.

BOWDON Postcards and Paper.—P.O.P., bromide, gaslight, and self-toning; exceptional prices; all carriage paid; cash with order only; write for price list. Telephone No. 277.—Bowdon Co., 20, Spring Road, Hale, near Manchester.

BROMIDE Enlargements a Specialty.—Best work at low prices; we guarantee satisfaction; write for list.—Grayson Art Company, 25, Eversholt Street, Camden Town, N.W.

CAMERA-MAKING for Amateurs, with latest list of fittings and appliances; 60 pages; hundreds of illustrations; post free, 3d.—G. Mason and Son, Armley Grove Place, Leeds.

ENLARGEMENTS (Platino-Bromide), of the best quality, 12 x 10, 15s.; 15 x 12, 1s. 6d.; ditto, P.S. mounted, 1s. 6d., 2s. 5d.; prompt return; cash with order.—O. Faulkner, 262, Seven Sisters Road, N.

ENLARGEMENTS and Trade Work.—Bromides, 12 x 10, 1s.; 15 x 12, 1s. 6d.; Sepia bromides, 12 x 10, 1s. 6d.—Special attention to finishing B. and W. and colour.—Carey, 53, Sandmere Road, Clapham.

ENLARGEMENTS.—P.S. mounted and spotted, 12 x 10, 1s. 6d.; 15 x 12, 2s. 3d.; unmounted, 12 x 10, 1s.; 15 x 12, 1s. 6d.; splendid results.—Heddingham and Co., 5, Whitehall Parade, Archway Road, N.

EXPERT COPYING CO.—Copy negs. made, re-touched from any photo; half-plate, 9d.; quarter, 4d.; postage 3d. Good results from faded prints. Prompt dispatch. See below.

"EXPERT" Midget Repeating Apparatus, any number of positions per plate arranged; 4-pl., 10s. 6d.; 4, 7a. 6d., complete with dark slide.—Write for particulars to 47, High Road, Balham, S.W.

HUME'S 16-in. Enlarging Apparatus, 12 x 10, without lenses (fine order); Travelling Bench, converts negatives, picture postcard, trade enlarger, or amateur, £15 10s. 13-in., similar to above, 10 x 8, with condenser, without bench, £21.—Hume, Lothian Street, Edinburgh.

"I CONSIDER them very good indeed.—M. J. K." Pictorial postcards produced from customers' originals, plain and coloured.—Send for samples and prices to Philip G. Hunt, 10, Deansgate, Manchester.

JONWIL System of Papers by Post. Direct from maker to consumer. Saves money. Always fresh, new, in perfect condition. Prompt delivery. Lower prices. List free.

JONWIL Quality Unexcelled. Jonwil Papers are first-class. Extensively used by professionals and large publishers. Try them. The price is right.—John Williams and Co., 39, Piccadilly, Manchester.

JONWIL Papers. "Richtone" P.O.P., 12s. per quire; gross, 6 x 4, 4s. 6d.; cabinet, 7s. "Don" P.O.P., 9s. per quire; gross, 6 x 4, 3s. 3d.; cabinet, 2s. 10d. Cash with order. Bromide and gaslight papers. See list.—John Williams and Co., 39, Piccadilly, Manchester.

JONWIL Print-out Cards. "Richtone" P.O.P., magnificent quality, exquisite tones, 5s. 1s. 6d.; 100, 3s.; 1,000, 27s. "Don" P.O.P., 50, 1s. 4d.; 100, 2s. 6d.; 1,000, 21s. Price list free.

JONWIL Development Postcards. "Richtone," gaslight, and bromide, perfect blacks, lovely half-tones; nearly whites, finest on the market, 50, 1s. 9d.; 100, 3s. 6d.; 1,000, 35s. "Don" bromide and gaslight, 50, 1s. 7d.; 100, 3s.; 1,000, 29s. Cash with order only.

LENSES.—Half-plate Achromatic Rapid Rectilinears, Iris diaphragm, 10s. 6d. Whole-plates, 25s. 6d. Enlarging Lenses, 5s. Three days' trial.—G. Mason and Son, Photo Dept., Armley Grove Place, Leeds.

LANTERN Slide Colouring, by experienced artists, from 4s. dozen; slides made by contact, 4s. dozen; from prints, 10s. dozen; postage extra. Established 1878.—Mason, Dorset Street, Southampton.

MARTIN'S P.O.P. Postcards excel all others; price 2s. 6d. 100; special for large quantities; gaslight, 3s. 6d. 100 post free.—Martin, Chemist, Southampton.

MIDGET Photos.—Explanatory list of most practical apparatus for midgets; cameras, repeating backs, bromide printing frames, incandescent lights.—Billcliffe's Camera Works, Manchester, S.W.

MIDGET and Stamp Mounts, slip-in, gummed backs, embossed designs, 5s. 9d. 1,000; handsome new patterns, 10s.; photographers' blocked show cards, 3 for 1s., post free.—Crown Manufactory, Rotherham.

MOUNTS.—Cash W.O.—Stamp 4s., slip 4s. 6d. 1,000. New Lines. Blacking cabinets, etc. G.P.S. 20 x 15, 13s.; 1-1 pl., 4s. 6d.; 4-pl., 3s. 6d. 100. Xmas mounts.—Show-Card Works, Up. Brown St., Leicester. Est. 1897.

PLATINO-BROMIDE Enlargements of finest quality; 8 x 6, 10d.; 10 x 8, 1s.; 12 x 10, 1s. 3d.; 15 x 12, 1s. 8d.; list free.—Perry Slater, Trade Printer and Enlarger, Sawtry, Peterborough.

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Wholesale and Export Moulding and
Picture Frame Manufacturers,
33, BROAD ST., BRISTOL.
Works: Rupert St. and Host St., BRISTOL.



Large manufacturers
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Frames with Ivory or
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Sample dozen assorted
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Send for our new illus-
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OUR ONLY ADDRESS IS AT BRISTOL.
WE HAVE NO CONNECTION WITH ANY OTHER
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Dealers in Photographic Apparatus,
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NEW AND PERMANENT PREMISES AT
37, BEDFORD STREET, STRAND
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PICTORIAL Postcards printed in best quality
Colotype, produced from customers' own nega-
tives, plain or hand-coloured; customers may depend
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and style, and with great promptitude. — Harvey
Barton and Son, St. Michael's, Bristol. Established as
photographic view publishers for 45 years.

PEACHE'S "Cardium" Colour Pats for painting
photographs in beautiful tints on any paper;
specially invented; marvellous results; boxes, 4s. 9d.
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are decidedly satisfactory and effective." "Focus"
says: "Very brilliant effects obtained."

P.O.P. Postcards, printed and enamelled and titled,
1s. from customers' own negatives, at 8s. per gross;
ask with order. — Derbyshire, Station Road, Wigan.

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or half-tone from customers' prints or negatives;
orders executed with despatch; terms moderate. —
Senior and Co., Cotham Hill, Bristol.

POSTCARDS from your own views, not merely best
in quality and cheapest in price, but reproduced
so rapidly (this is everything nowadays) that no rival
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grapher should take up this, the most profitable bit
of business to be found. One thousand of one
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St. Bride Street, Ludgate Circus, E.C.

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PICTORIAL Postcards, all styles. Colotype, Photo-
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marvellous results; postcards from clients' own photos
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etc., executed by P.O.P.; in high-class
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A. E. STALEY & Co.,

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HOLBORN CIRCUS, E.C.**



New 1906 TELEMETER, or Distance Finder.

This little instrument gives you the exact distance of
any object. It cannot go wrong and is extremely simple
to use. The scale is engraved for the following dis-
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NO MORE GUESS WORK with your Hand Camera,
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An invaluable instrument. Price 21s.

BROMIDE ENLARGEMENTS IN 24 HOURS, to meet
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12 by 10 2s., 15 by 12 3s. Copies extra, 3 pl. 6d. List
free. Established 1888. — FLAMANK & TOWNSEND
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LANTERN SLIDES. We export
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tives carefully packed, and 1/1 for trial slide.
WILSON, Lochhead, Aberdeen.

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enamelled, 6s. 100; prompt delivery; sample stamp.
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36, Cooper Street, Doncaster.

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Cab. P.O.P., 3s. gross; 4-plate P.S. mounts, 3s 100.
Atlas Printing Works, Mastro.

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1886). Finest finish; sharp return; prices moder-
ate; tinting. Postal and personal lessons in retouch-
ing and B. and W. and colour work. Send for price
lists. — 4, Villas-on-Heath, Vale, Hampstead, London.

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One and postage with order. — Charles Sayer, 250,
Albion Road, Stoke Newington, London.

RETOUCHING. — Artistic, but likeness carefully pre-
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Tugwell, 13, Letham House, Elgin Avenue, London, W.

RETOUCHING. — High-class; moderate prices; heads
a speciality: outdoor work undertaken. —
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SPECIAL Lines — 1,000 Oxford Lines, 10 x 8, 20s.
1,000 10 x 8 plate sinks, 7 x 5 tint, 35s.; 1,000
plain cabinets, 10s.; 1,000 C.D.V., 4s. — Edward Peck,
Wholesale Photographic Chemist, East Dereham.

SPECIAL Christmas Mounts, all folding slip-in,
one dozen cabinets, 2s. 6d. (usual price 6s.); one
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1s. 9d.; one dozen O.D.V., 1s. 6d. — Peck, Dereham.

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oval or oblong, 3,000 ox. line, 4-pl., £2. — Show-Card
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The Short Portrait Lamp (patent). — The right of
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WANTED, to Sell, or Let on Hire, good-class
Films; low hire rates. — The Micrograph Co.,
Ltd., 7, Great Queen Street, London, W.C.

ZANO (specialist in copying). — Good negatives from
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AND save 50 per cent. 12 x 10 En-
larged and solidly painted in Oil, 5/-; 15 x 12, 7/6;
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White same price as Oils. All likenesses guaranteed
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2/6; 24 x 20, 4/6. Colonial work a speciality.
F. T. HAYES, ARTIST and ENLARGER
10, Havstead Road, Catford, S.E.

ENGLISH PLATE MARK MOUNTS,

With India Tint laid on, good solid stout Boards. Far
superior to foreign thin pulpy Mounts generally offered.

Size of Board	Tint	Per 100	Per 1,000
6 1/2 x 8 1/2	4 1/2 x 3 1/2	2/8	25/-
8 1/2 x 6 1/2	6 x 4 1/2	4/-	35/-
10 x 8	7 x 5	4/6	40/-
12 x 10	9 x 7	6/-	57/-
14 1/2 x 10 1/2	9 1/2 x 7 1/2	9/-	80/-
15 x 12	10 1/2 x 8 1/2	10/-	90/-
18 x 14 1/2	12 x 10	15/-	140/-
18 x 14 1/2	12 1/2 x 10 1/2	15/-	140/-
20 x 15	13 x 11	18/-	170/-
24 x 19	16 x 13	27/-	260/-

Stocked Cream on White and Cream on Grey. Not less
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viding 250 are ordered. Name and address printed
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DISCOUNT FOR CASH WITH ORDER.

For Orders not less than £1, 2 1/2 per cent.; ditto, £2, 5 per
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Box for a £1 Order ... 8d. Box for a £5 Order ... 1/6
" £2 " ... 1/- " £10 " ... 2/-

Full prices allowed if returned.

BROWN, SCOTT, & CO., Red Lion Yard, 254, High
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Telegraphic Address: "Functual, London."

1-1 PLATE Walnut Studio Camera, extra long
extension, leather bellows, swing back and
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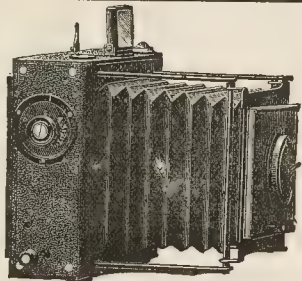
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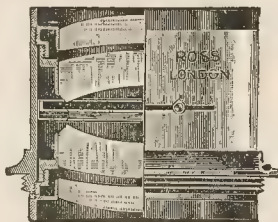
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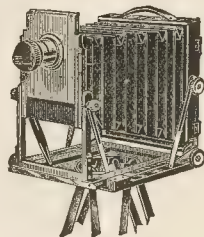
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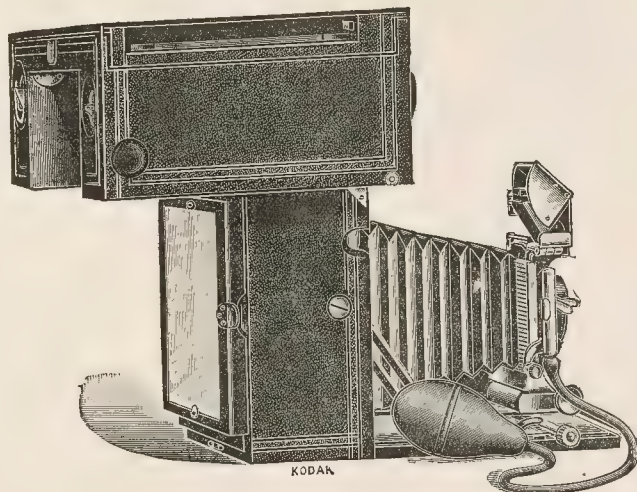
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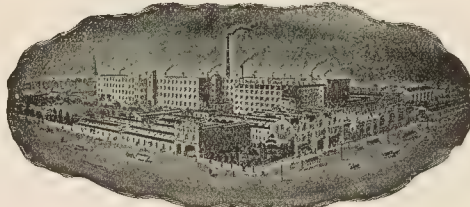
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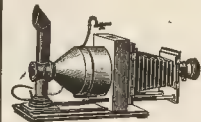
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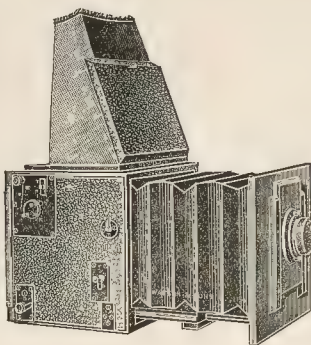
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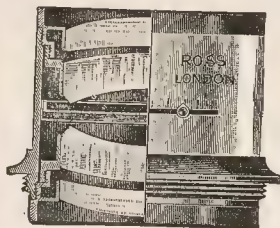
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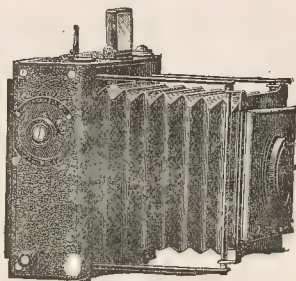
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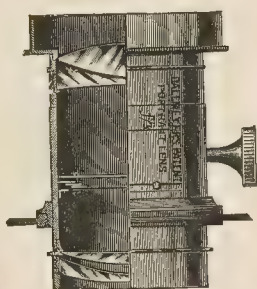
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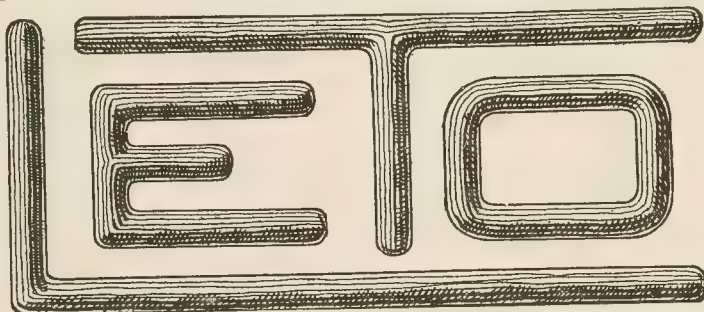
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